Appendix K:

# Transportation Supporting Information

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# K.1 - Transportation Impact Analysis

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KITTELSON & ASSOCIATES

# VISTA RANCH TRANSPORTATION IMPACT ANALYSIS

## CLOVIS, CA

September 4, 2024



# Vista Ranch Transportation Impact Analysis

## Clovis, CA

Project Address:
North Fowler and North Sunnyside Avenues/ Big Dry Creek Reservoir/Behymer Avenue/Shepherd and Perrin Avenues

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Project No. 28949

Entitlement Number: n.a.

September 4, 2024

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# Executive Summary

The transportation impact analysis (TIA) for the proposed Vista Ranch project in the city of Clovis, CA describes the expected transportation-related effects of the project. The contents of the TIA are consistent with the City of Clovis's Transportation Impact Analysis Guidelines (September 2022). The TIA includes two components:

- The California Environmental Quality Act (CEQA) transportation analysis evaluates the transportation impact areas that may be considered in environmental documentation for the project.
- The Local Transportation Analysis (LTA) evaluates other transportation issues such as intersection capacity and operations which are not part of the environmental evaluation under CEQA.

## PROJECT DESCRIPTION

The proposed 952 acre Vista Ranch project area is bounded on the north by Behymer Avenue, on the east by the Big Dry Creek Reservoir, on the south by Shepherd and Perrin Avenues, and on the west by North Fowler and North Sunnyside Avenues.

The project contains both a Master Plan area and a non-development sphere of influence expansion. The Master Plan includes two areas. MPArea 1 is an approximately 368 acre area proposed for immediate development. MPArea 2 is an area of approximately 139 acres that is anticipated for future development. The non-development area is approximately 445 acres and will not receive any entitlements other than to be included in the sphere of influence expansion.

The following Master Plan land uses were evaluated in the TIA:

- MPArea1
  - 2,807 housing units
  - 85,000 square feet of commercial
- MPArea 2
  - 361 housing units
  - 115,000 square feet of commercial
  - 421,356 square feet of self-storage
  - 750 student elementary school

The master plan area also includes approximately 59 acres of parks, trails, and open space.

## TRIP GENERATION

The MPArea 1 development is expected to generate approximately 31,000 daily vehicle trips (1,980 AM peak hour, 2,890 PM peak hour).

The MPArea 2 development is expected to generate approximately 14,400 daily vehicle trips (1,110 AM peak hour, 1,210 PM peak hour).

The trip generation for the total Master Plan project would be 45,400 daily, 3,090 AM peak hour and 4,100 PM peak hour vehicle trips.

# CEQA TRANSPORTATION ANALYSIS

The Vista Ranch project would have no environmental impacts in three of the four categories in the CEQA checklist for transportation impacts (conflicts with policies, hazards, emergency access).

For the category of vehicle-miles of travel (VMT) in terms of VMT per capita or VMT per employee, the project would exceed the impact thresholds for both residential and employment land uses. This would have a **significant impact** for residential and employment uses. The project retail uses would decrease total regional VMT. This would have a **less than significant impact** for retail uses.

Recommended mitigation measures for the CEQA impact include:

**Mitigation Measure TRAF 2-2.1:** Future employers within the project shall implement a commute trip reduction program, consistent with other trip reduction programs in the City of Clovis. The program would include the following components:

- trip reduction targets
- measures to discourage single occupancy vehicles while encouraging alternative modes of transportation such as carpooling, ridesharing, vanpooling, subsidized transit passes and other benefits,
- include a guaranteed ride home for eligible employers,
- establish applicable fees and funding mechanisms,
- define monitoring measures and frequency, and strategies for non-compliance.

It is estimated that the maximum VMT reduction from a commute trip reduction program would be 0.3 percent VMT reduction.

**Mitigation Measure TRAF 2-2.2:** Provide bicycle facilities that include bike parking and bike lockers It is estimated that the maximum VMT reduction from bicycle end-of-trip facilities would be 0.05 percent VMT reduction.

**Mitigation Measure TRAF 2-2.3:** Provide a well-connected street network, particularly for non-motorized connections. Characteristics of street network connectivity include short block lengths, numerous three and four-way intersections, and minimal dead-ends (cul-de-sacs). Street connectivity helps to facilitate shorter vehicle trips and greater numbers of walk and bike trips and thus a reduction in VMT. Bicycle and pedestrian access points throughout shall be emphasized at site design including gates at walls or fences to facilitate more direct pedestrian and bicycle connections which has the potential to reduce VMT by providing more direct paths of travel between the various neighborhoods for non-auto modes. It is estimated that the proposed street grid would be expected to provide up to a 12 percent reduction in VMT compared to typical development areas.

**Mitigation Measure TRAF 2-2.4:** Increase the length of the area bicycle network, including separated trails available to bicycles as well as on-street bike lanes. The project proposes to add 4.5 miles of Class I separated trails. This would increase the mileage of bicycle facilities in Clovis from the existing 21.2 miles

to 25.7 miles, an increase of 21 percent. It is estimated that the project bike network would reduce daily VMT by approximately a 0.2 percent reduction from the unmitigated project total daily VMT of 188,900. Note that these VMT reductions would occur citywide and would not exclusively affect project trips.

**Mitigation Measure TRAF 2-2.5:** Contribute to implementation of expanded transit service in Clovis, including potentially service to the project area. Implementation of expanded transit service would require both capital expenditures for support facilities, including construction of transit stops and facilitating extensions of future transit routes. It is estimated that a 25 percent increase in transit service hours could reduce citywide VMT by 0.3 percent representing a 6.7 percent reduction from the unmitigated project total daily VMT of 188,900. Note that these VMT reductions would occur citywide and would not exclusively affect project trips.

**Mitigation Included in Project:** The Vista Ranch Master Plan has incorporated best available planning practices to mitigate VMT attributable to the project:

- walkable school sites
- walkable commercial retail
- walkable community amenities
- addition of NEV lanes/bike lanes and connective sidewalks to Master Plan amenities, including parks and open space
- The trail network would provide connectivity throughout the community and connectivity to the existing and planned Clovis trail network
- The proposed compact building design would feature a modest increase in density compared to other comparable development.
- The project neighborhoods are designed with grid-like short blocks throughout.
- The circulation plan features traffic calming measures including roundabouts and curb bump outs.
- The project has planned for transit by inclusion of three transit stop locations.
- The project is designed to encourage ability to work from home, including fiber optic internet services.

Design elements included in the project, as well as the vehicle reduction measures listed as recommended mitigation, would reduce VMT. However, the project cannot demonstrate definitively that implementation of these policies would achieve VMT reductions to meet the VMT per capita or VMT per employee thresholds. Therefore the impact would remain **significant and unavoidable.**

# LOCAL TRANSPORTATION ANALYSIS

The local transportation analysis identifies the effects of the project on traffic operations in terms of vehicle delay and level of service (LOS), queuing issues and signal warrants. Recommendations are provided for locations where traffic operations would be deficient relative to City of Clovis standards.

## Study Area

The City of Clovis confirmed 44 study intersections for traffic operations analysis.

## Traffic Operations Analysis Scenarios

The local transportation analysis considered six scenarios:

- Existing Conditions
- Near-Term No Project
- Near-Term Plus MPArea 1
- Near-Term Plus Project (MPArea 1 + MPArea 2)
- Cumulative No Project
- Cumulative Plus Project (MPArea 1 + MPArea 2)

The near-term analysis adds project traffic to traffic which is expected to be generated by approved or pending development in Clovis as well as nearby areas of the City of Fresno and Fresno County.

The cumulative analysis adds project traffic to regional growth projections to the year 2046 as developed by the Fresno Council of Governments (Fresno COG).

## Near-Term Traffic Operations

The near-term traffic operations analysis assumes that no street improvements are implemented beyond existing conditions, including the assumption that none of the approved or pending development projects would implement street improvements.

- Five intersections have deficient operations in existing conditions and would continue to have deficient operations with near-term development without Vista Ranch.
- Five additional intersections would have deficient operations with the addition of near-term development without Vista Ranch.

### *NEAR-TERM PLUS MPAREA 1*

- The addition of Vista Ranch MPArea 1 traffic to the near-term development traffic would cause six additional intersections to have deficient operations.
- The addition of Vista Ranch MPArea 1 traffic would also add delay to six of the ten intersections which would be deficient without the project.

### *NEAR-TERM PLUS MASTER PLAN (MPAREAS 1+2)*

- The addition of Vista Ranch Master Plan traffic to the near-term development traffic would cause five additional intersections to have deficient operations beyond those identified with MPArea 1 development.
- The project would also add delay to five of the six intersections identifed with MPArea 1 traffic which are projected to have deficient operations with near-term development without the Vista Ranch project.

## Cumulative Traffic Operations

The evaluation of cumulative traffic operations assumes implementation of planned street improvements consistent with the Clovis General Plan.

- The addition of Vista Ranch Master Plan traffic (MPAreas 1+2) to cumulative development traffic would cause two additional intersections to have deficient operations beyond those identified with cumulative development.
- The project would also add delay to two intersections which are projected to have deficient operations with cumulative development without the Vista Ranch project.

## Queuing Analysis

The analysis of maximum (95$^{th}$ percentile) queues in turn lanes at the study intersections resulted in queues which would exceed available storage lengths at 17 intersections with other expected development plus project traffic. The recommendations include changes in lanes and/or traffic control, consistent with the recommendations for LOS deficiencies, as well as adjustments to traffic signal timing.

Maximum queues were evaluated on SR 168 freeway off-ramps at three interchanges serving the project area, to ensure that queues would not back up and affect freeway operations. There would be no issues with queues at five of the six off-ramps, and the sixth (eastbound off-ramp at Temperance Avenue) could be mitigated by implementing recommended striping changes.

## Signal Warrant Analysis

Traffic volumes at currently unsignalized study intersections were compared to standard thresholds for installation of a traffic signal for all analysis scenarios.

- Of the 15 study intersections that are currently unsignalized, 11 intersections would meet one or more signal warrants with near term development plus Vista Ranch MPArea 1. One fewer intersection would meet one or more signal warrants with full Vista Ranch Master Plan development.
- Nine of the study intersections are assumed to have traffic signals installed as part of planned improvements under cumulative conditions. Of the six study intersections that would still be unsignalized in cumulative conditions, one or more signal warrants would be met at two of the intersections with cumulative traffic plus the Vista Ranch Master Plan.

# RECOMMENDATIONS

Recommendations are provided for changes in lanes and traffic control at intersections which are projected to have deficient operations.

## Recommendations for Near-Term Conditions

The recommendations for intersections which would have deficient traffic operations under near-term conditions are generally consistent with City of Clovis planned improvements consistent with the General Plan. Table 1 lists the locations which would require improvements with near-term development without the Vista Ranch project, locations which would require improvements with Vista Ranch MPArea 1, and additional locations which would require improvements with Vista Ranch Master Plan MPAreas 1+2.

**Table 1: Summary Recommendations for Near-Term Improvements**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| **Recommended Without or With Vista Ranch** | | | |
| 5 | Minnewawa Ave & Behymer Ave* | Turn lanes | Signal |
| 16 | Sunnyside Ave & Shepherd Ave | Widen Shepherd | Signal |
| 17 | Sunnyside Ave & Nees Ave* | Add lanes | Signal |
| 18 | Sunnyside Ave & Alluvial Ave* | None identified | |
| 20 | Fowler Ave & Behymer Ave* | Turn lanes | Signal |
| 25 | Fowler Ave & Alluvial Ave* | Turn lanes | |
| 27 | Fowler Ave & SR 168 EB Ramps | None identified | |
| 30 | Armstrong Ave & Shepherd Ave | None identified | |
| 35 | Temperance Ave & SR 168 EB Ramps | Revise lanes on off-ramp | |
| 40 | De Wolf Ave & Owens Mountain Pkwy* | Roundabout | Roundabout |
| **Recommended With Vista Ranch MPArea 1** | | | |
| 4 | Minnewawa Ave & International Ave | | All-way stop |
| 12 | Clovis Ave & Herndon Ave | | Adjust signal timings |
| 19 | Sunnyside Ave & Herndon Ave | None identified | |
| 21 | Fowler Ave & Perrin Ave | Turn lanes | Signal |
| 31 | Temperance Ave & Shepherd Ave | Add lanes | |
| 36 | Locan Ave & Shepherd Ave | Add lanes | Signal |
| **Additional Recommended With Vista Ranch MPArea 1+2** | | | |
| 6 | Minnewawa Ave & Shepherd Ave | Add lanes | |
| 9 | Clovis Ave & Herndon Ave | Turn lanes | |
| 10 | Clovis Ave & Nees Ave | Add lanes | |
| 23 | Fowler Ave & Teague Ave | | All-way stop |
| 41 | Owens Mountain Pkwy. & SR 168 | Interchange | |

*Vista Ranch project traffic would also add delay to deficient intersection
Source: Kittelson & Associates, 2024

In some locations, deficient traffic operations were identified in near-term conditions, but these locations would not have deficient operations in future cumulative conditions. This is because future planned street improvements would eliminate some bottlenecks and allow traffic to divert away from congested

intersections. At these locations, it is not recommended to implement street improvements beyond the planned improvements consistent with the General Plan. However, traffic operations should be monitored at all of the locations listed in Table 1 to determine if shorter term measures will be required before other planned improvements are implemented.

## Recommendations for Cumulative Conditions

The cumulative conditions analysis assumes that planned improvements have been implemented at many study locations consistent with the Clovis General Plan. Table 2 lists the locations which would require additional improvements with Vista Ranch Master Plan MPAreas 1+2.

**Table 2: Summary Recommendations for Cumulative with MPArea 1+2**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| 12 | Clovis Ave & Herndon Ave | | Adjust signal timings |
| 20 | Fowler Ave & Behymer Ave | | Adjust signal timings |
| 21 | Fowler Ave & Perrin Ave | | Install signal |
| 35 | Temperance Ave & SR 168 EB Ramps | Revise lanes on off-ramp | |

Source: Kittelson & Associates, 2024

# Introduction

Kittelson & Associates, Inc. (Kittelson) prepared this transportation impact analysis for Vista Ranch to determine the expected transportation-related effects of the project. The scope of the study was developed in coordination the City of Clovis (city) in consultation with other affected agencies.

The contents of the transportation impact analysis are consistent with the City of Clovis's Transportation Impact Analysis Guidelines (September 2022). The transportation impact analysis includes two major components:

- The California Environmental Quality Act (CEQA) transportation analysis for the Vista Ranch Project (project) in Clovis, CA, evaluates the transportation impact areas that may be considered in environmental documentation for the project.
- The Local Transportation Analysis (LTA) evaluates other transportation issues such as intersection capacity and operations which are not part of the environmental evaluation under CEQA.

This introduction includes descriptions of the Vista Ranch project, transportation study area and analysis methodologies.

# PROJECT DESCRIPTION

The Vista Ranch project includes both a master plan area and a non-development sphere of influence area (**Figure 1**).

## Project Location

The proposed project area is bounded on the north by Behymer Avenue, on the east by the Big Dry Creek Reservoir, on the south by East Shepherd and East Perrin Avenues, and on the west by North Fowler and North Sunnyside Avenues.

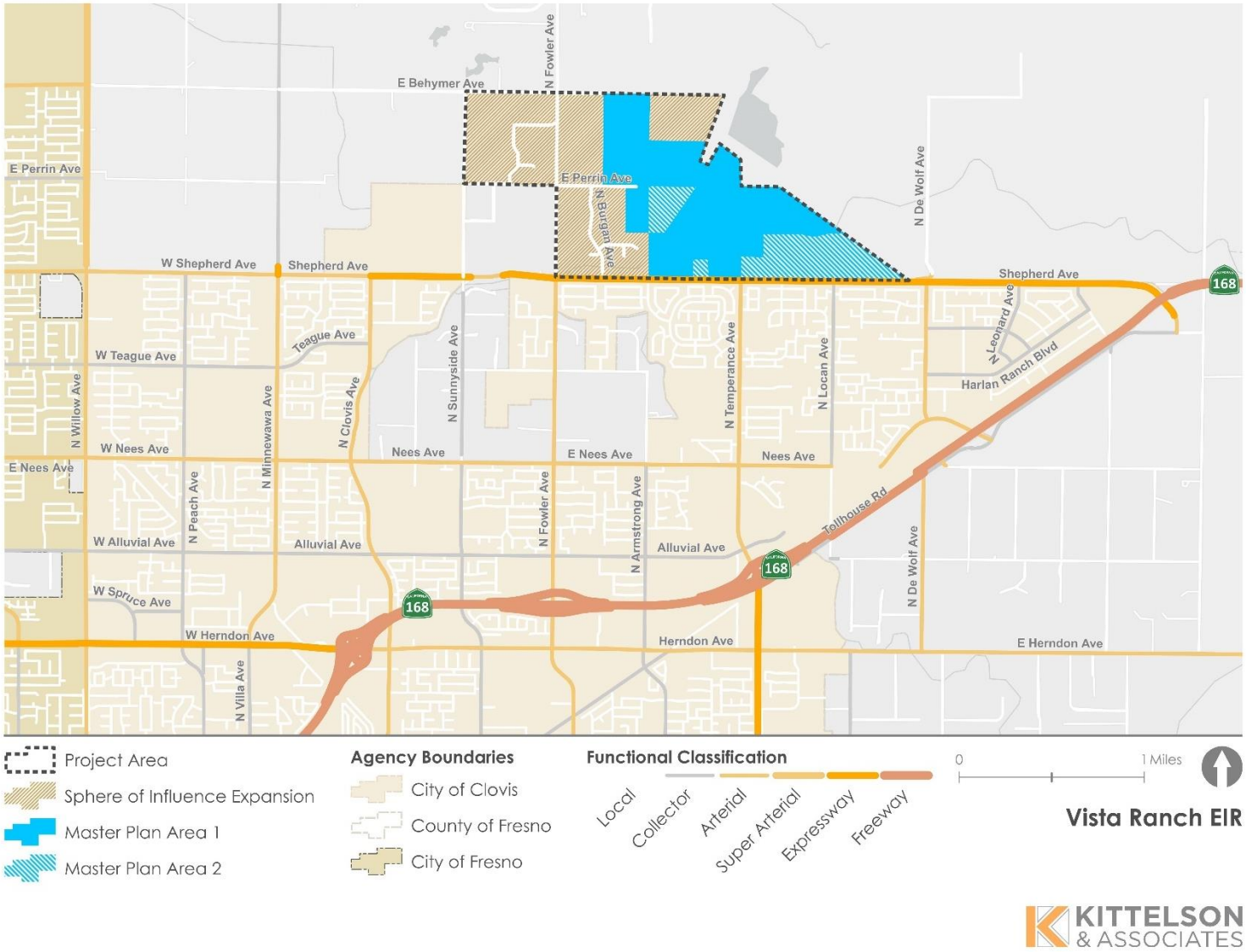
## Project Land Uses

The project contains both a Master Plan area and a non-development sphere of influence expansion. The Master Plan area is mostly vacant but there are several businesses and residences. The non-development sphere of influence area is primarily rural residential under existing conditions.

The Master Plan area is approximately 507 acres and proposes the construction of up to 3,286 residential units, approximately 48 acres of commercial/mixed uses, approximately 19 acres for an elementary school, and approximately 59 acres of parks, trails, and open space. The non-development area is approximately 445 acres and will not receive any entitlements other than to be included in the sphere of influence expansion.

The Vista Ranch Master Plan includes two areas. MPArea 1 is an approximately 368 acre area proposed for immediate development. MPArea 2 is an area of approximately 139 acres that is anticipated for future development.

**Figure 1: Vista Ranch Project Location**




SOURCE: KITTELSON & ASSOCIATES, INC (2024)

Based on the land use information provided by the city, the project will consist of:

- MPArea1, approximately 368 acres including:
  - Up to 1,268 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 1,039 medium high density residential dwelling units (Zoned R-2)
  - Up to 500 very high density residential dwelling units (Zoned R-4)
  - Up to 85,000 square feet of gateway commercial (Zoned C-1)
  - An accessible public park of 2.74 acres
- MPArea 2, approximately 139 acres including:
  - Up to 137 low density residential dwelling units (Zoned R-1)
  - Up to 224 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 115,000 square feet of gateway commercial (Zoned C-1)
  - Mini self-storage facility with up to 421,356 square feet of building (Zoned M-1)
  - Elementary school with up to 750 students or an additional 118 medium density residential units (Zoned R-1-MD)

## Project Access

Shepherd Avenue and Temperance Avenue are the main expressway/arterial/collector roadways providing access to the development. The neighborhoods within the Master Plan will include a network of public and private residential streets to provide an efficient flow of traffic and pedestrian mobility through the area. Additionally, sidewalks will be included per the City of Clovis standards.

# STUDY AREA

The study area for the Vista Ranch project is intended to include transportation facilities that would be expected to be affected by the development of the project. Consistent with Clovis Transportation Impact Analysis Guidelines, the study area includes:

- Pedestrian, bicycle and transit facilities within a half-mile distance from the project site boundary
- All intersections of major streets that would provide direct access to the project
- Signalized intersections within one-half mile of the project site boundary where the project would add 50 or more peak hour trips, and signalized intersections beyond one-half mile where the project would add 100 or more peak hour trips
- Unsignalized intersections within a half-mile of the project site boundary where the project would add more than 50 peak hour trips

A scoping memorandum dated January 30, 2024 was reviewed by the City of Clovis and distributed to other agencies including Caltrans, the City of Fresno and Fresno County (Appendix A). The initial proposed study area was revised to include additional study locations based on agency comments.

## Study Intersections

The Clovis Ranch local transportation analysis (LTA) evaluates peak hour traffic operations at 44 study intersection locations (

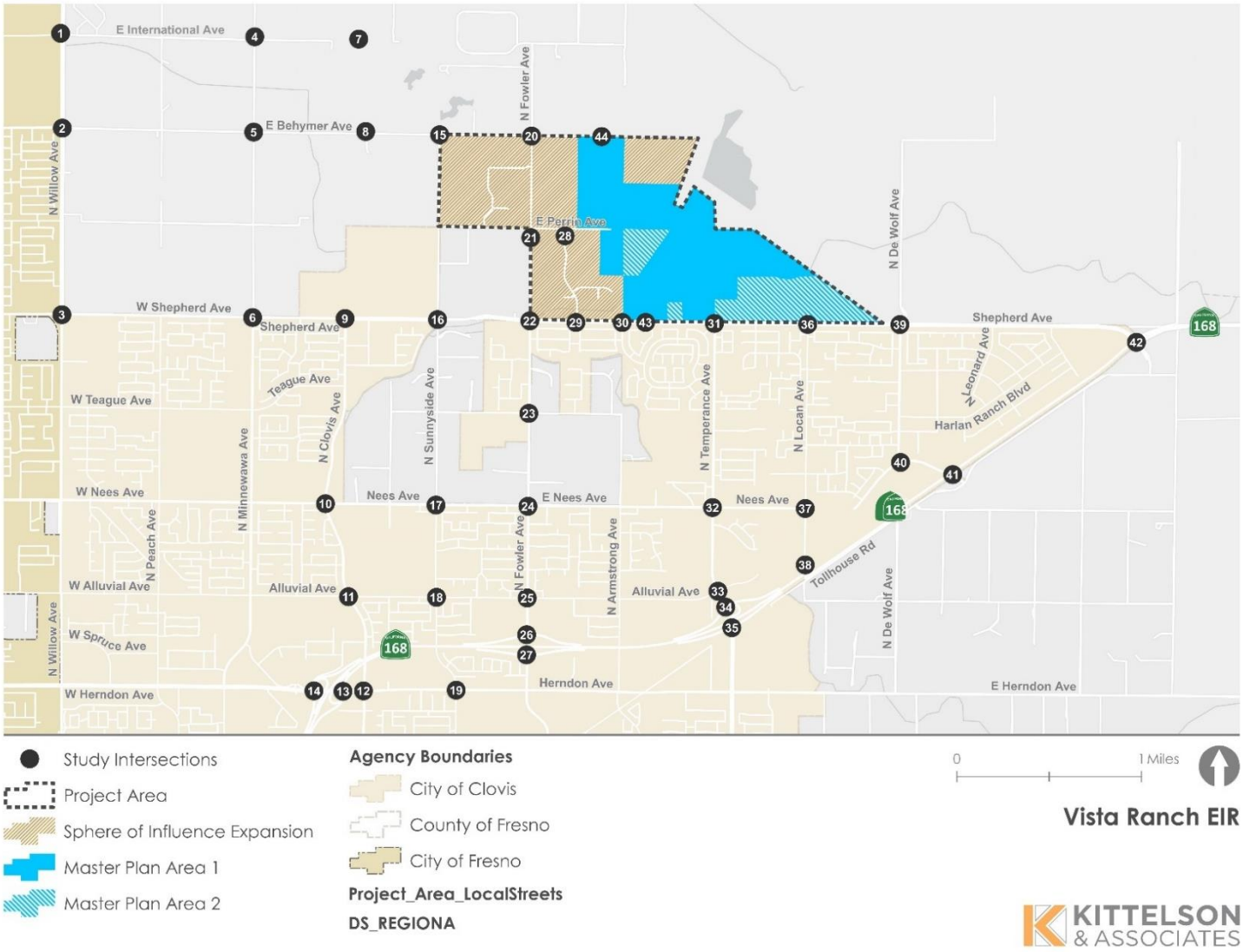
**Figure** 2 and **Table 3**). Several of the study intersections do not exist at present and will only exist when planned development and associated road improvements are implemented.

## Study Road Segments

Intersection operations control the operations of the roadway segments under most circumstances. However, a roadway segment analysis may be used to identify traffic operation characteristics for rural roadways that do not have frequent intersections. The scoping memorandum proposed the following roadway segments for evaluation due to their rural nature and limited number of intersections:

1. Behymer Avenue from Willow Avenue to Minnewawa Avenue
2. Behymer Avenue from Minnewawa Avenue to Sunnyside Avenue
3. Behymer Avenue from Sunnyside Avenue to Fowler Avenue
4. Behymer Avenue from Fowler Avenue to Project Access North
5. Fowler Avenue from Behymer Avenue to Shepherd Avenue
6. Fowler Avenue from Shepherd Avenue to Teague Avenue
7. Fowler Avenue from Teague Avenue to Nees Avenue

**Figure 2: Vista Ranch Study Intersections**




SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

**Table 3: Vista Ranch Study Intersections**

| Study Intersection | Study Intersection |
|---|---|
| 1. Willow Avenue & International Avenue | 25. Fowler Avenue & Alluvial Avenue |
| 2. Willow Avenue & Behymer Avenue | 26. Fowler Avenue & SR 168 WB Ramps |
| 3. Willow Avenue & Shepherd Avenue | 27, Fowler Avenue & SR 168 EB Ramps |
| 4. Minnewawa Avenue & International Avenue | 28, Perrin Road & Burgan Avenue |
| 5. Minnewawa Avenue & Behymer Avenue | 29. Burgan Avenue & Shepherd Avenue |
| 6. Minnewawa Avenue & Shepherd Avenue | 30. Armstrong Avenue & Shepherd Avenue |
| *7. Clovis Avenue & International Avenue (Future)* | 31. Temperance Avenue & Shepherd Avenue |
| *8. Clovis Avenue & Behymer Avenue (Future)* | 32. Nees Avenue & Temperance Avenue |
| 9. Clovis Avenue & Shepherd Avenue | 33. Temperance Avenue & Alluvial Avenue |
| 10. Clovis Avenue & Nees Avenue | 34. Temperance Avenue & SR 168 WB Ramps |
| 11. Clovis Avenue & Alluvial Avenue | 35. Temperance Avenue & SR 168 EB Ramps |
| 12. Clovis Avenue & Herndon Avenue | 36. Locan Avenue & Shepherd Avenue |
| 13. SR 168 EB Ramps & Herndon Avenue | 37. Locan Avenue & Nees Avenue |
| 14. SR 168 WB Ramps & Herndon Avenue | 38. Locan Avenue & Owens Mountain Parkway |
| *15. Sunnyside Avenue & Behymer Avenue (Future)* | 39. De Wolf Avenue & Shepherd Avenue |
| 16. Sunnyside Avenue & Shepherd Avenue | 40. De Wolf Avenue & Owens Mountain Parkway |
| 17. Sunnyside Avenue & Nees Avenue | 41. Owens Mountain Parkway & SR 168 |
| 18. Sunnyside Avenue & Alluvial Avenue | *4101. Owens Mountain Parkway & SR 168 WB Ramps (Future)* |
| 19. Sunnyside Avenue & Herndon Avenue | *4102. Owens Mountain Parkway & SR 168 EB Ramps (Future)* |
| 20. Fowler Avenue & Behymer Avenue | 42. Shepherd Avenue & SR 168 |
| *21. Fowler Avenue & Perrin Road (Future)* | *4201. Shepherd Avenue & SR 168 WB Ramps (Future)* |
| 22. Fowler Avenue & Shepherd Avenue | *4202. Shepherd Avenue & SR 168 EB Ramps (Future)* |
| 23. Fowler Avenue & Teague Avenue | *43. Project Access South & Shepherd Avenue (Future)* |
| 24. Fowler Avenue & Nees Avenue | *44. Project Access North & Behymer Avenue (Future)* |

# ANALYSIS SCENARIOS

The transportation analysis evaluates traffic operations at the study intersections and roadway segments for the following scenarios:

- Existing Conditions
  - Existing traffic operations based on counted traffic and current operations.
- Near-Term No Project Conditions (Includes existing plus approved/pending projects)
  - Includes approved/pending projects not yet constructed.
- Near-Term Plus Project (MPArea 1)
  - Provides an assessment of the effect MPArea 1 (Vista Ranch first phase) will have on the transportation infrastructure under conditions similar to today added to approved/pending projects.
- Near-Term Plus Project (MPArea 1 + MPArea 2)
  - Provides an assessment of how the development of the entire Vista Ranch Master Plan area would affect the transportation infrastructure added to approved/pending projects.
- Cumulative No Project Conditions
  - Estimates the way the transportation infrastructure will operate in the future without the project based on regional growth forecasts in all of Fresno County and planned transportation improvements.
- Cumulative Plus Project (MPArea 1 + MPArea 2) Conditions
  - Provides an assessment of how the full development of the Vista Ranch Master Plan area would affect the transportation infrastructure in the future.

An existing plus project scenario is not proposed because it is assumed that other near-term development would be in place prior to development of the Vista Ranch project. The cumulative plus project scenario does not evaluate MPArea 1 separately because with the proposed project phasing MPArea 2 will be completed prior to the cumulative year.

The city provided a list of approved/pending projects to consider in the near-term scenario along with available information on the project descriptions and trip generation.

# ANALYSIS METHODOLOGIES

The traffic operations analyses were conducted based on the City of Clovis Transportation Impact Analysis Guidelines (September 2022).

## Traffic Volumes

Traffic volumes for existing conditions were developed using new intersection turn movement data collected at the proposed study intersections. During data collection in spring of 2024, Shepherd Avenue was closed in the vicinity of Sunnyside Avenue. This has the potential to affect traffic volumes at the study intersections. Therefore, intersection counts conducted prior to the road closure were evaluated for locations affected by this closure and factored as needed to account for recent traffic growth.

Traffic volumes for the other scenarios were derived from the Fresno COG travel model. For near-term conditions, the base year land use inputs to the model were revised to account for pending and approved projects that were not already included in the model. The cumulative traffic volumes were based on the 2046 horizon year scenario consistent with the Fresno County Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

The increments of project traffic were also estimated using the travel model. The project land uses and major circulation system were input to the travel model using four new transportation analysis zones (TAZs). The trips to and from these project TAZs were factored to equal the trip generation estimates developed for this TIA.

## Intersection Delay and Level of Service (LOS)

The City of Clovis's guidelines contain standards and assumptions to be used in conducting an intersection LOS analysis. LOS describes the operating conditions experienced by motorists. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. LOS A through LOS F covers the entire range of traffic operations that might occur. Motorists using a facility that operates at a LOS A experience very little delay, while those using a facility that operates at a LOS F will experience long delays.

The City requires the latest version of the Transportation Research Board, Highway Capacity Manual (HCM) methodology to evaluate peak hour LOS at both signalized and unsignalized intersections. For signalized intersections, the HCM procedure calculates a weighted average control delay in seconds per vehicle at a signalized intersection and assigns a level of service designation based upon the delay. For unsignalized intersections, the HCM methodology calculates a weighted average control delay in seconds per vehicle for each controlled intersection leg and for the intersection; for two-way stop-controlled intersections, the LOS for the worst approach is used as the LOS performance measure.

**Table 4** presents the relationship of average delay to level of service for both signalized and unsignalized intersections.

**Table 4: Level of Service Definitions for Intersections**

| LOS | Description of Traffic Conditions | Signalized Intersection Average Delay Per Vehicle (Seconds) | Unsignalized Intersection Average Delay Per Vehicle (Seconds) |
|---|---|---|---|
| A | Free flowing. Most vehicles do not have to stop. | ≤10.0 | ≤10.0 |
| B | Minimal delays. Some vehicles have to stop, although waits are not bothersome. | >10.0 and ≤20.0 | >10.0 and ≤15.0 |
| C | Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping. | >20.0 and ≤35.0 | >15.0 and ≤25.0 |
| D | Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach. | >35.0 and ≤55.0 | >25.0 and ≤35.0 |
| E | Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches. | >55.0 and ≤80.0 | >35.0 and ≤50.0 |
| F | Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into "up-stream" intersections. | >80.0 | >50.0 |

Source: Transportation Research Board, Highway Capacity Manual 7th Edition (Washington D.C., 2022)

Study intersections are evaluated for the AM peak hour, occurring between 7-9 AM, and the PM peak hour, occurring between 4-6 PM. Intersection level of service (LOS) for these peak hours is calculated using the Highway Capacity Manual (HCM) 7$^{th}$ Edition methodologies as implemented by the Vistro traffic analysis software.

## *CITY OF CLOVIS LOS STANDARDS*

All city intersections and roadway segments shall operate at a LOS D or better under the near-term conditions, unless a finding of overriding consideration was adopted in the General Plan EIR. Under long-term conditions, all city intersections and roadway segments shall operate at a LOS D or better, except for the roadway segments adopted in the General Plan EIR to operate at LOS E or F. Exceptions to this

standard may be allowed on a case-by-case basis where lower levels of service would result in other public benefits, such as:

- Preserving agriculture or open space land
- Preserving the rural/historic character of a neighborhood
- Preserving or creating a pedestrian-friendly environment in Old Town or mixed-use village districts
- Avoiding adverse impacts to pedestrians, cyclists, and transit riders
- Where right-of-way constraints would make capacity expansion infeasible

## *CITY OF CLOVIS LOS ANALYSIS DEFAULT VALUES*

Per the City of Clovis Transportation Impact Analysis Guidelines, the following default values are used as applicable:

- Use of actual signal timing plans, if available. If not available, then:
  - Minimum split time for protected left-turn phase shall not be less than 12 seconds.
  - Minimum pedestrian times should be satisfied on all phases with pedestrian phase for signals modeled as coordinated signals.
  - For study intersections modeled as actuated uncoordinated signals, the intersections shall be evaluated with at least 10 pedestrian calls per hour in the Existing plus Project and Long-Range conditions, if pedestrian projections are not available.
  - If existing cycle lengths are available, they should be utilized. In instances where existing cycle lengths are not available, LOS calculations should be conducted using the natural cycle lengths. The cycle lengths should remain constant for comparison purposes, unless the project is changing the character of the intersection and it is noted in the report.
  - In instances where signalized intersections are coordinated, coordinated cycle lengths should be determined based on the natural cycle lengths of the coordinated signals and shall be used for evaluation purposes.
  - Minimum All-Red time(s) shall equal 1.0 seconds (2.0 seconds when dual left turn lanes are used).
  - Minimum Yellow time shall equal 3.5 seconds, or greater based on the approach speeds (3.0 seconds for left turn phases).
- Where existing traffic volumes are collected and peak hour factors are available, then LOS calculations for Existing Condition scenarios and the Near-Term scenarios should use available counted peak hour factors, provided that the traffic counts are included in the Appendix. For all Cumulative scenarios and Existing Conditions where peak hour factors are not available, default factors per the HCM shall be used and shall be consistent throughout the Cumulative scenarios and peak hours.
- Existing storage lengths shall be entered as input data.
- All assumptions and defaults used shall have proper citation and justification for their use in the LTA.

## *CITY OF CLOVIS THRESHOLDS*

### *SIGNALIZED INTERSECTIONS*

For signalized intersections, a traffic operations issue is identified if the addition of the traffic generated from the proposed project results in any one of the following:

- Triggers a signalized intersection operating at acceptable LOS to operate at unacceptable levels of service
- Increases the average delay for a study signalized intersection that is already operating at unacceptable.

#### *UNSIGNALIZED INTERSECTIONS*

Unsignalized intersections may include all-way stop, or two-way stop controlled. The delay for unsignalized intersections should be computed as follows:

- All-way stop-controlled – use average delay
- Two-way stop-controlled – use worst approach delay

For unsignalized study intersections, an adverse traffic operations issue is identified if the addition of the traffic generated from the proposed project results in any one of the following:

- Triggers an unsignalized intersection operating at acceptable LOS to operate at unacceptable levels of service (from E or better to F) and meet the signal warrants criteria
- Increases the applicable delay for an unsignalized study intersection that is already operating at unacceptable LOS and meets the signal warrant criteria

Improvements to unsignalized intersections may include a change of traffic control, including yield control, traffic circle/roundabout, or a traffic signal. The California Manual of Uniform Traffic Control Devices (CA MUTCD) states that if one or more of the criteria for signal warrants is met, an engineering study is required to evaluate other factors to determine if an intersection must be signalized. When analyzed, the peak hour and 8-hour traffic signal warrants should be used to determine if a traffic signal is recommended to improve the adverse effects identified at an unsignalized intersection. Additionally, if a project is near a school or a downtown area with substantial pedestrian activity, then the City may require additional warrants to be evaluated such as pedestrian, accident history, etc. The City reserves the right to determine if a warranted signal will be installed.

## Intersection Queueing Analysis

The 95$^{th}$ percentile queue length for each study intersection and lane group is calculated for the various project scenarios. This analysis uses the methodologies from the Highway Capacity Manual 7$^{th}$ Edition as implemented by the Vistro traffic analysis program.

## Ramp Queueing Analysis

A ramp queueing analysis is performed for the interchanges at SR 168/Herndon Avenue, SR 168/Fowler Avenue, and SR 168/Temperance Avenue to identify potential traffic safety impacts. The evaluation of safety impacts includes a review of speed differential between the exit ramps queue and the mainline of SR 168 during the same peak hour study period. The analysis is performed per the Caltrans Interim Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance, dated July 2020.

## Recommended Improvements

Levels of service without the project are compared with levels of service with the project for all analysis scenarios to determine operational deficiencies based on the LOS standards and operational deficiency criteria as applicable for the city. Should deficiencies be found, recommendations are made for changes to improve the intersection to a non-deficient condition. Peak hour signal warrant analyses are conducted as necessary to assess whether an unsignalized intersection meets the peak hour signal warrant.

# Existing Conditions

This section provides a description of the existing roadway, transit, bicycle, and pedestrian components of the transportation system within the project study area.

## Roadway Facilities

The existing roadway network in the project study area is composed of freeways, super arterials, arterials, and collector roads. Roadway classifications listed are from Fresno County to account for roadways currently outside the city of Clovis.

### *FREEWAYS*

**State Route 168 (SR 168)** is a divided four-lane highway running northeast to southwest through the study area. It provides connection from the intercity Fresno area to the Sierra Nevada Mountain range. Access points to SR 168 are located at Herndon Avenue, Fowler Avenue, Temperance Avenue, Owens Mountain Parkway and Shepherd Avenue. Most sections in the study area have limited access but sections near Owens Mountain Parkway and Shepherd Avenue have at-grade intersections. The speed limit is generally set at 65 mph within the study area.

### *EXPRESSWAY*

**Shepherd Avenue** is an east to west running roadway that ranges from a two lane road to a four lane divided by a median roadway near the project where it provides the southern boundary for the project. Newer sections of the road are the four lane divided sections while the older unimproved sections are the two lane areas. Sidewalks are along the developed south side of the roadway, and conventional bike lanes on each side. Shepherd Avenue connects SR 168 to Willow Avenue at the western edge of the study area. A half mile segment of Shepherd Avenue between Fowler Avenue and Sunnyside Avenue is not improved and classified as an arterial. The speed limit ranges from 50 mph on the divided sections to 40 mph in the two-lane highway section.

### *SUPER ARTERIALS*

**Willow Avenue** runs north to south along the western edge of the study area from Behymer Avenue to Herdon Avenue. Willow Avenue has six lanes divided by a center median. From Shepherd Avenue south, the majority of Willow Avenue has bike lanes and sidewalks on both sides. The Clovis Old Town Trail runs along the Willow Avenue right-of-way (ROW) from Behymer Avenue to just south of Teague Avenue where it crosses under Willow Avenue heading southeast. Willow Avenue provides access to central Clovis to the south and the Clovis Community College campus to the north. The speed limit in the vicinity of the project (near Shepherd) is 50 mph.

## *ARTERIALS*

### *NORTH-SOUTH*

**Clovis Avenue** is located west of the Master Plan Area, beginning north of Shepherd Avenue, and connecting south to Herndon Avenue. Clovis Avenue is four lanes with a center median with sidewalk and bike lanes on each side. Between Teague Avenue and Alluvial Avenue, the Dry Creek Trail shared use path shares the ROW along the east side of the corridor. The speed limit is approximately 45 mph.

**Fowler Avenue** runs through the study area classified as a local street, changing to an arterial from Shepherd Avenue south to SR 168. The roadway configuration on Fowler Avenue is mixed due to fronting land uses and undeveloped parcels.

- From Shepherd Avenue to Teague Avenue there are two lanes in the southbound direction and one lane northbound. A bike lane and sidewalk are located along the majority of this section. The Enterprise shared use path crosses Fowler Avenue south of Shepherd Avenue and connects with a shared use path on the west side of Fowler Avenue from the Enterprise trail crossing to Teague Avenue. The speed limit in this section is 45 mph.
- From Teague Avenue to Nees Avenue the ROW narrows and includes one lane in each direction with no sidewalk and bike facilities. The speed limit remains 45 mph.
- From Nees Avenue to SR 168, the cross-section includes four lanes with a center median, and includes bike lanes and sidewalks on each side. The speed limit in this section is 45 mph.

**Temperance Avenue** begins in the center of the Master Plan Area and runs south to SR 168 and a collection of commercial land uses. The roadway is a four lane divided road with bike lanes and sidewalks on each side. The speed limit is 50 mph.

**De Wolf Avenue** runs from Shepherd Avenue south to Owens Mountain Parkway on the eastern edge of the Master Plan Area. The roadway cross section generally has a single lane in each direction with a center median allowing for turn lanes. Bicycle lanes and sidewalks are provided on each side. De Wolf Avenue provides access from the Master Plan Area to the SR 168 freeway via Owens Mountain Parkway. The posted speed limit is 40 mph.

### *EAST-WEST*

**Shepherd Avenue** has a small section from Fowler Avenue to Sunnyside Avenue that is classified as an arterial rather than an expressway. The roadway narrows to two lanes without a median and no bike or walking facilities. Future development in this area will improve this segment of Shepherd Avenue to be consistent with the rest of the roadway. The speed limit in this section is 40 mph.

**Owens Mountain Parkway** connects to SR 168 and terminates prior to Nees Avenue without providing a connection under existing conditions. Future plans would extend this roadway to connect to Temperance Avenue at Alluvial Avenue. Owens Mountain Parkway is one lane in each direction with a center median and bike lanes on each side. Sidewalks are intermittent where existing development is located on the western section. The roadway pairs with De Wolf Avenue to provide access from the Master Plan Area to SR 168. There are currently no observed posted speed limit signs.

**Nees Avenue** runs through the center of the study area, cutting through suburban neighborhoods where the land use shifts east of Clovis Avenue to a more rural and undeveloped landscape. From Willow Avenue

to Minnewawa Avenue the corridor has four lanes with a center turn lane and sidewalk on the majority of both sides. East of Minnewawa Avenue, the corridor is varied with some two lane undivided sections, divided two lane sections, and divided three lane sections. Posted speed limits range from 40 mph to 45 mph.

**Herndon Avenue** is at the southern edge of the study area and connects SR 168 and the northern parts of Fresno to the west. Herndon Avenue is six lanes with a center turn lane. The corridor has sporadic sidewalks adjacent to areas of newer development. The posted speed limit is 45 mph.

### *COLLECTORS*

The collector streets vary greatly in their configuration and character, as many traverse through developed neighborhoods and undeveloped land. Collector roadways within the study area are listed in **Table 5**. Each street condition is listed as one of the following:

- **Improved –** The majority of the street cross section has been brought up to current stands and includes sidewalk and bicycle facilities based on context.
- **Unimproved –** The majority of the street cross section has not been brought to current standards and may not include curbs, sidewalk, or bicycle facilities.
- **Mixed –** The street cross section is mixed between improved and unimproved condition, based primarily on frontage of a developed neighborhood or commercial tract.

**Table 5: Collector Streets**

| Street Name | Condition |
|---|---|
| **North-South** | |
| Sunnyside Avenue | Mixed |
| Locan Avenue | Mixed |
| Peach Avenue | Improved |
| Armstrong Avenue | Mixed |
| Leonard Avenue | Improved |
| Minnewawa Avenue | Improved |
| **East-West** | |
| Teague Avenue | Mixed |
| Powers Avenue / Dutch Avenue | Improved |
| Harlan Ranch Avenue | Improved |
| Highland Avenue | Improved |
| Tollhouse Rd. | Unimproved |
| Alluvial Avenue | Mixed |

## *LOCAL STREETS*

Within the study area, there are many local streets providing access to residential single family housing. Many of the local streets within neighborhood developments do have sidewalks on both sides of the street, however streets in less dense residential or undeveloped areas do not.

### *MASTER PLAN AREA*

Within the Master Plan Area, which is currently outside of the city of Clovis, there are several local streets serving residents. The major local streets within the Master Plan Area are described below.

**Behymer Avenue** connects the north edge of the Master Plan Area west to Willow Avenue. It has two lanes and no sidewalk or bike facilities. Behymer Avenue is in a rural residential context and is signposted at 45 mph.

**Fowler Avenue** changes character significantly north of Shepherd Avenue. It runs through the center of the Master Plan Area and provides rural residential access. Fowler Avenue is two lanes without sidewalk or bike facilities and is signposted at 45 mph. It connects the city of Clovis to the south with Behymer Avenue to the north.

**Perrin Avenue** is a short east to west connecting street providing rural residential access. It is two lanes, without a center stripe, and does not have sidewalk or bike facilities. It is also split into two sections, divided by parcels in the center. It connects to Sunnyside Avenue and Fowler Avenue. There are no posted speed limit signs.

**Sunnyside Avenue** north of Shepherd Avenue maintains a rural residential context, but does not have a center stripe, nor does it have sidewalk or bike facilities. It connects north to Perrin Avenue. There are no posted speed limit signs but there is an “end 45 speed limit” sign indicating the speed limit is 55 mph per its roadway classification.

**Burgan Avenue** connects Perrin Avenue south to Shepherd Avenue. It provides rural residential access, with two lanes, no center stripe and does not have sidewalk or bike facilities. No speed limit is posted.

## Transit

The following section describes existing transit services near the study area. These routes are shown graphically in **Figure 3**. Detailed information on served areas and hours of operation are found in Table 6**.**

### *FRESNO AREA EXPRESS (FAX)*

FAX provides fixed route transit services serving the city of Fresno and is the largest transit service provider in the region with almost seven million annual boardings. Handy Ride is the paratransit service provider for the FAX system.

**Route 3** serves the western edge of the study area along Willow Avenue terminating at Clovis Community College. Service runs every 30 minutes each day of the week.

### *CLOVIS TRANSIT*

Clovis Transit is the principal transit service in the city of Clovis and provides fixed route and paratransit services. Clovis Transit connects with Fresno Area Express (FAX). Round Up is the paratransit service for the Clovis Transit system.

**Route 10** is a circulator route that provides service to the western portion of Clovis and connects to the Clovis Civic Center.

**Route 50** is a circulator route serving the northeast and southeast section of Clovis.

**Route 80** provides local services from central Clovis to the Buchanan education complex.

### *FRESNO COUNTY RURAL TRANSIT AGENCY (FCRTA)*

FCRTA provides general public transit service to rural communities throughout Fresno County. FCRTA provides both scheduled, fixed route services with designated bus stops along specific routes, as well as reservation-based, demand responsive service that offers curb-to-curb transportation.

#### *AUBERRY ROUTE*

The Auberry transit route provides connection from Clovis to the Auberry area foothill communities northeast of Clovis. The service is demand responsive and operates one day per week with 24-hr advanced notice.

**Figure 3: Existing Transit Service in the Study Area**

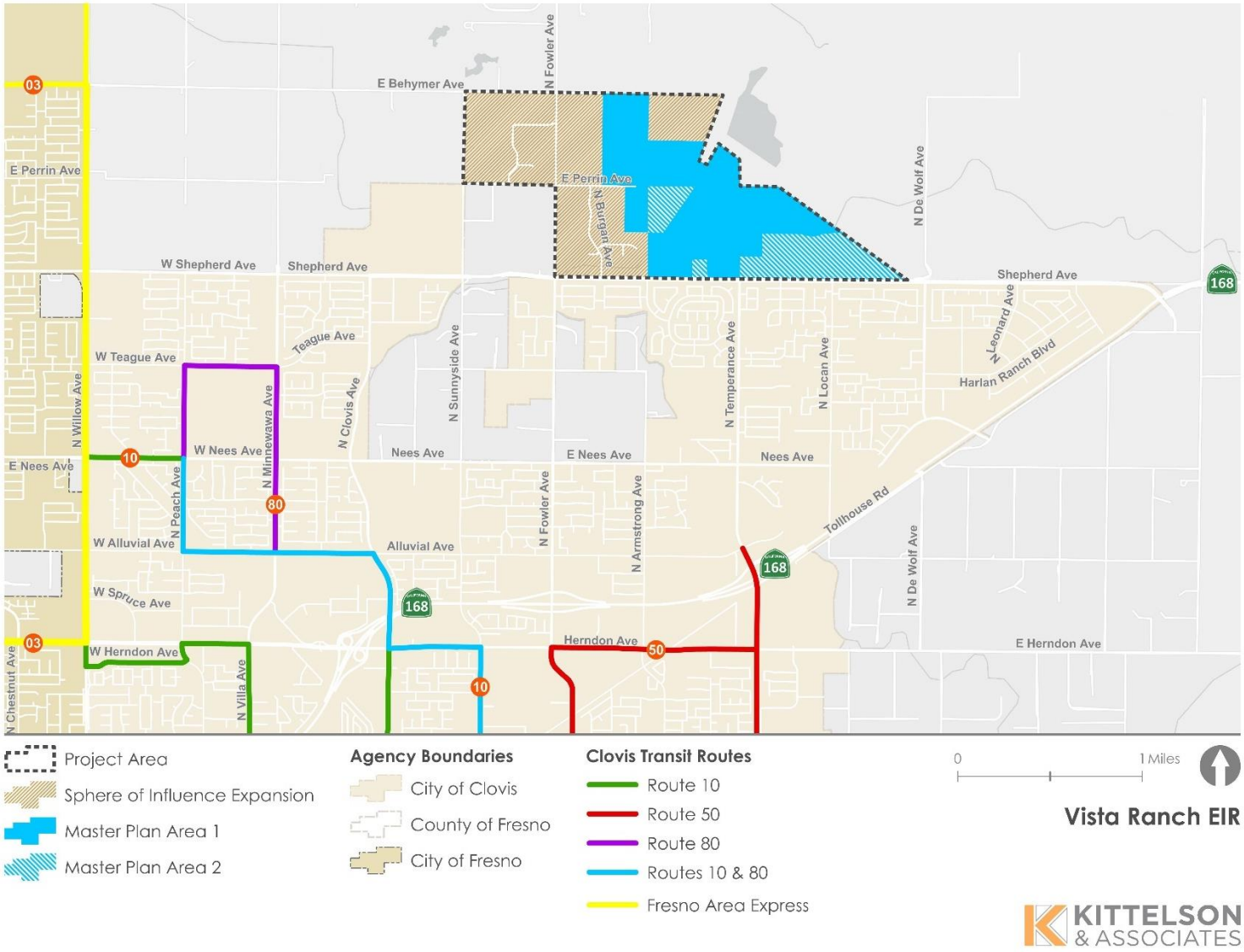


**Table 6: Bus Routes Serving the Study Area**

| Route | Serving | Day | Times | | Frequency |
|---|---|---|---|---|---|
| **Fresno Area Express** | | | | | |
| 3 | Route 3 connects Clovis Community College to Herdon. The route provides access to several shopping centers and medical facilities along the route. | Mon – Fri | 5:45am | 8:45am | 30min |
| | | Sat – Sun | 6:45am | 6:15pm | 30min |
| **Clovis Transit** | | | | | |
| 10 | Route 10 connects north Clovis to Fresno State University, serving Clovis Civic Center, and Peachwood Medical Center. | Mon – Fri | 6:15am | 6:30pm | 30min |
| | | Sat | 7:30am | 3:30pm | 30min |
| 50 | Route 50 connects medical facilities near Herndon Avenue to Clovis Civic Center, and south to several schools and shopping centers. | Mon – Fri | 6:05am | 5:35pm | 30min |
| | | Sat | 7:35am | 2:05pm | 60min |
| 80 | Route 80 serves the Buchanan Education complex and connects to Clovis Civic Center, passing several parks and shopping centers including Bicentennial Park and Walmart, respectively. | Mon – Fri | 6:15am | 6:30pm | 30min |
| | | Sat | 7:30am | 3:30pm | 30min |
| **Fresno County Rural Transit Agency** | | | | | |
| Auberry | The Auberry transit route provides connection between the foothill communities in Northeast Fresno County and the intercity area of Clovis and Fresno. | Tues | 8am | 5pm | On demand |

*Source: www.fresno.gov/fax, www.ruraltransit.org/route-services, https://clovistransit.com, accessed Jan 26, 2024*

## Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities are important components of the transportation network in the study area. They not only offer non-vehicular opportunities for both commute and recreational trips but also provide connections to the Clovis transit network and opportunities to shop, dine, and accomplish other daily needs without using a car.

### *EXISTING BICYCLE FACILITIES*

Bicycle facilities are defined by the following four classes[1]:

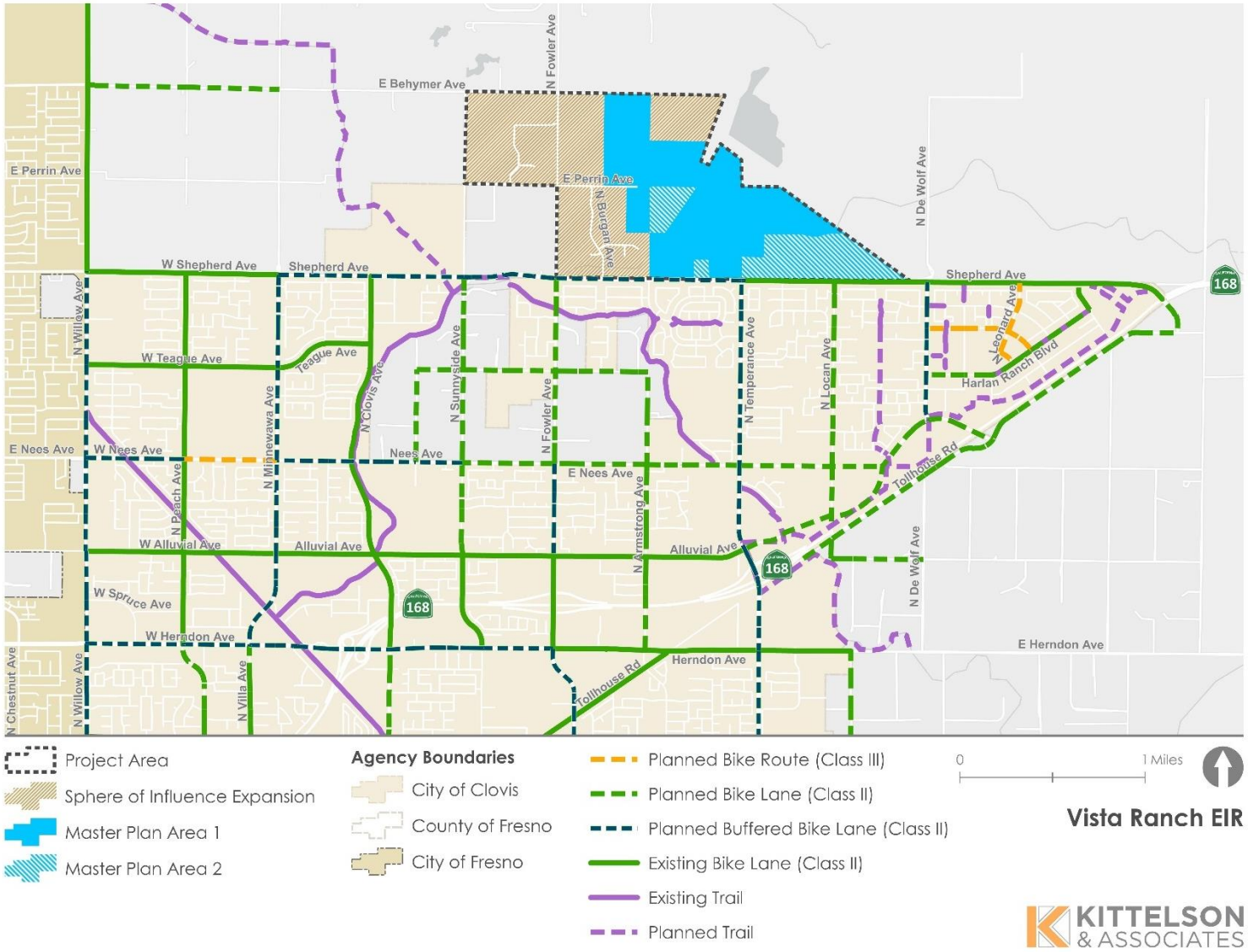
- Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted.
- Class III – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.
- Class IV – Provides a restricted right-of-way designated lane for the exclusive use of bicyclists that is separated by a vertical element to provide further separation from motor vehicle traffic.

In Fall 2023, The city of Clovis adopted their Active Transportation Plan (ATP), which provides a clear vision for the active transportation network and provides strategies to implement the planned network. The following bikeways are currently present within the study area, but many are at intermittent locations on the listed roads. They are shown graphically in Figure 4.

- Class I Bike Paths
  - Dry Creek Trail (Clovis Avenue)
  - Enterprise Trail
  - Multiple Neighborhood trails on east end of Study Area
- Class II Bike Lanes
  - Shepherd Avenue
  - Teague Avenue
  - Alluvial Avenue
  - Herndon Avenue
  - Willow Avenue
  - Peach Avenue
  - Clovis Avenue
  - Sunnyside Avenue
  - Fowler Avenue
  - Temperance Avenue
  - Locan Avenue
  - DeWolf Avenue

[1] As detailed in Chapter 1000 of the Highway Design Manual (Caltrans, 2020).

**Figure 4: Existing and Proposed Bike Facilities in the Study Area**



## *PLANNED AND PROPOSED BICYCLE FACILITIES*

The Clovis Active Transportation Plan includes proposed bike facilities in the study area. They are listed below and shown in Figure 4. The planned alignments aim to fill gaps in the existing network and enhance safety and comfort for people biking.

- Class I Bike Paths
  - Various connections that fill gaps in the existing Class I network are proposed.
- Class II Bike Lanes

  Conventional Bike Lane (No Buffer)
  - Behymer Avenue
  - Teague Avenue
  - Nees Avenue
  - Alluvial Avenue
  - Clovis Avenue
  - Marion Avenue
  - Sunnyside Avenue
  - Fowler Avenue
  - Armstrong Avenue
  - Locan Avenue
  - Owens Mountain Pkwy.
  - Harlan Ranch Blvd.

  Buffered Bike Lane
  - Shepherd Avenue
  - Nees Avenue
  - Herndon Avenue
  - Willow Avenue
  - Minnewawa Avenue
  - Fowler Avenue
  - Temperance Avenue
  - DeWolf Avenue

- Class III Bike Routes
  - Nees Avenue
  - Powers/Dutch Avenue
  - Leonard Avenue

## *PEDESTRIAN FACILITIES*

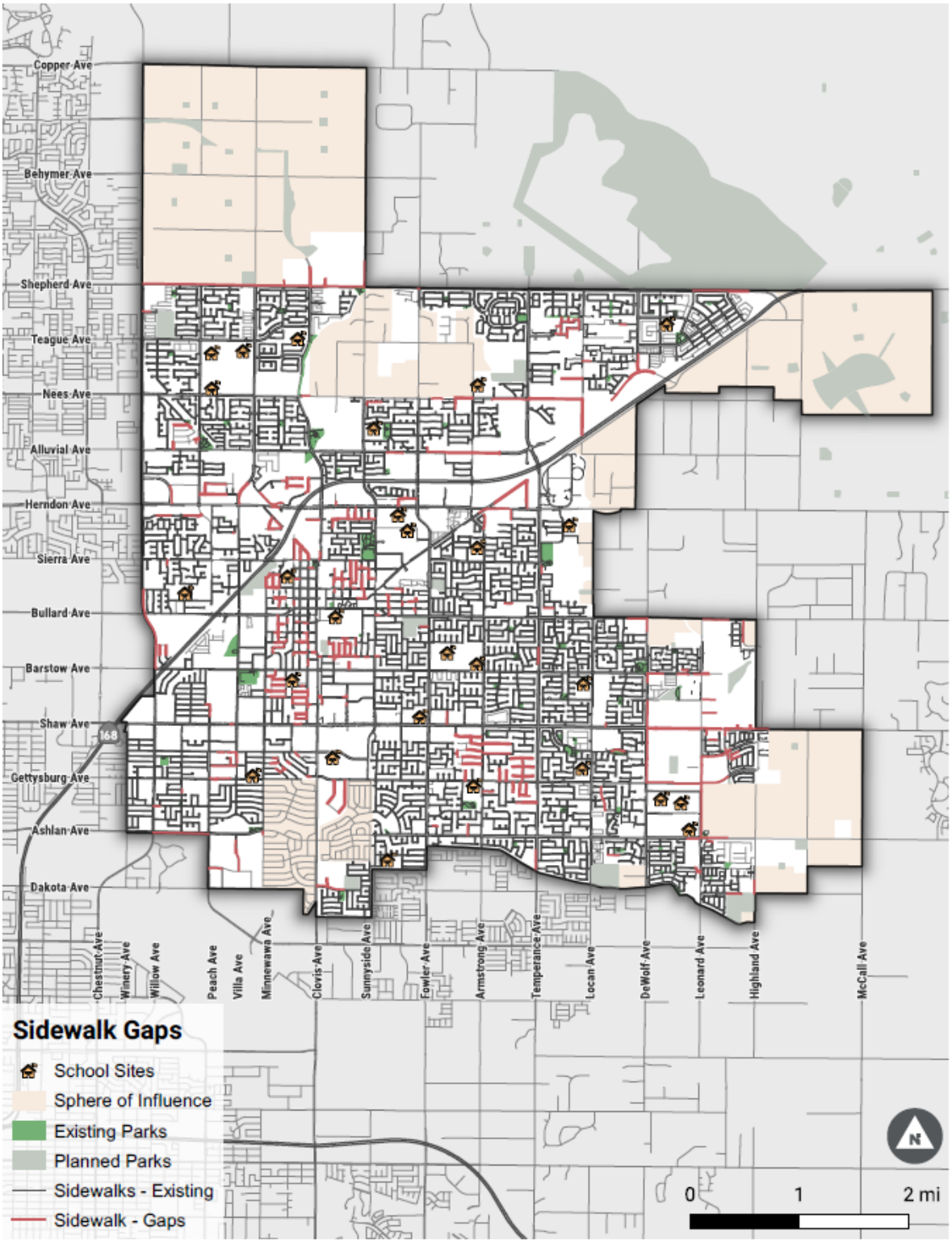
The Clovis Active Transportation Plan assesses and recommends pedestrian facility enhancements as well as bicycle facilities. Pedestrian facilities are present throughout the study area, however there are sidewalk gaps present intermittently along some roadways. Longer gaps on collector and arterial roadways include:

- Shepherd Avenue between Willow Avenue and Sunnyside Avenue
- Nees Avenue between Armstrong and Locan Avenue
- Alluvial Avenue between Fowler Avenue and Armstrong Avenue

Existing sidewalk and sidewalk gaps are shown below in **Figure 5:**. The Clovis Active Transportation plan provides a prioritized list of sidewalk infill segments. Those within the Study Area are listed below:

- Nees Avenue from Whittier Avenue to Armstrong Avenue (.25 miles)
- Alluvial Avenue from Fordham Avenue to West of Renn Avenue (.14 miles)

**Figure 5: Existing and Missing Sidewalks in Clovis**

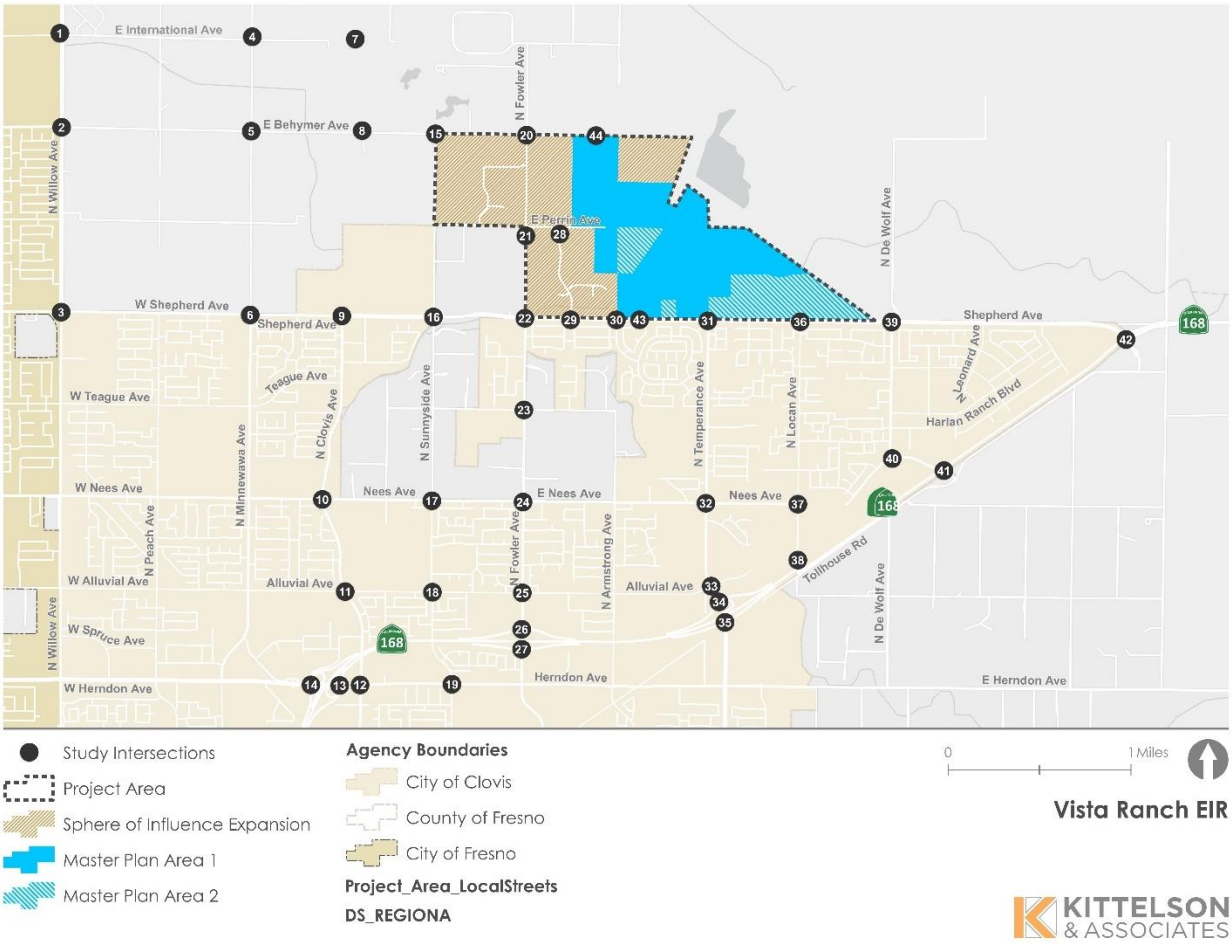



Source: Clovis Active Transportation Plan

# DATA COLLECTION

Weekday intersection vehicle turning movement counts were collected during the AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods on Thursday, February 8, 2024 at the study intersections, as shown in **Figure 6**.

**Figure 6: Study Area Intersections**



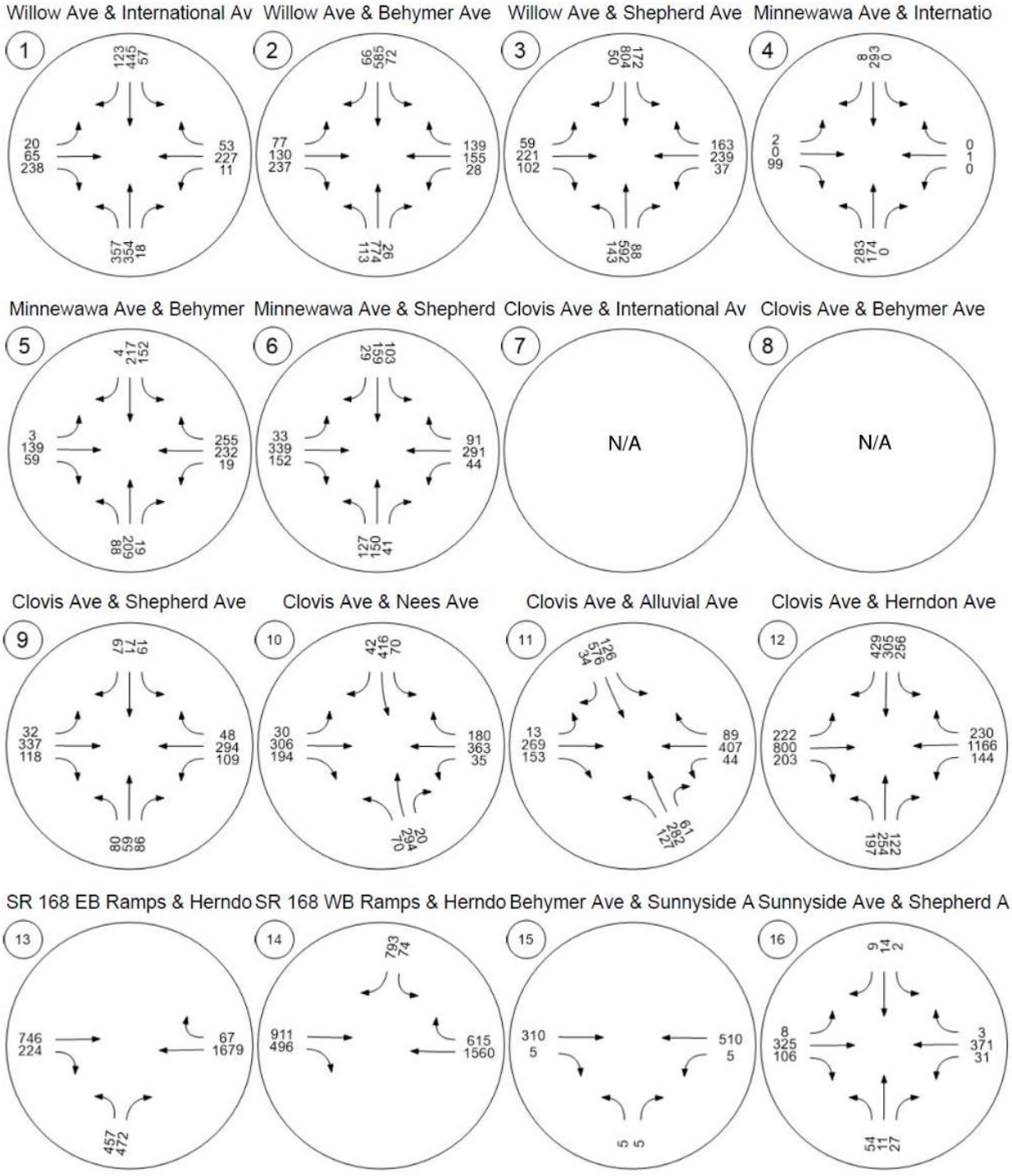

SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

# EXISTING TRAFFIC OPERATIONS

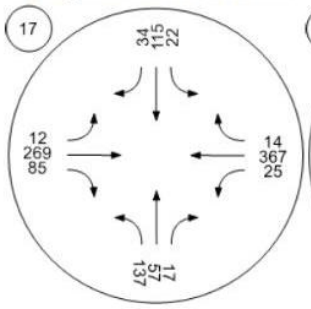
## Intersection Level of Service

The existing volumes for the study intersections are shown in **Figure 7** and **Figure 8**. Original turning movement count data are provided in Appendix B. The existing lane configurations and traffic control devices are shown in **Figure 9**.

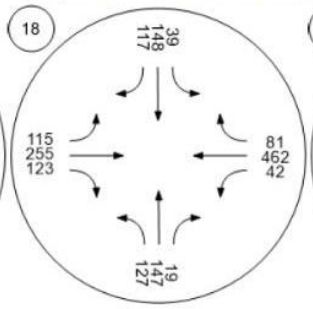
**Figure 7: Study Intersections – Existing AM Peak Hour Volumes**



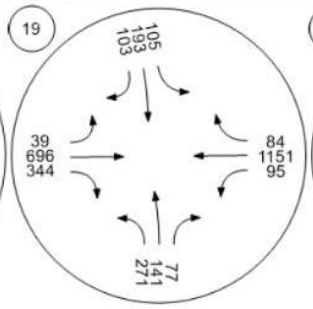
Sunnyside Ave & Nees Ave



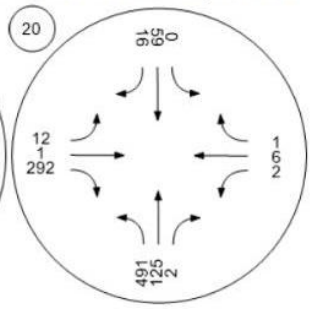

Sunnyside Ave & Alluvial Ave



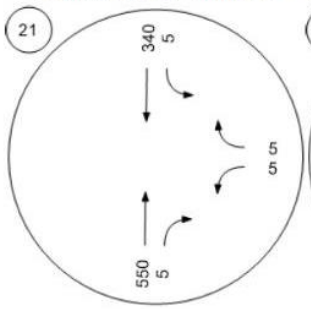

Sunnyside Ave & Herndon Av



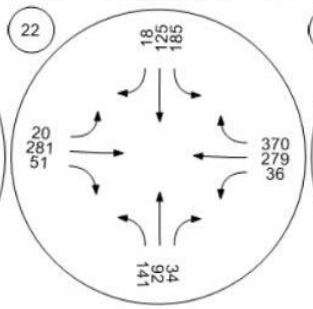

Fowler Ave & Behymer Ave



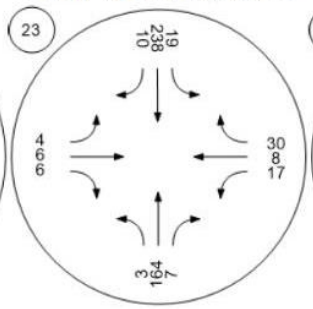

Fowler Ave & Perrin Ave



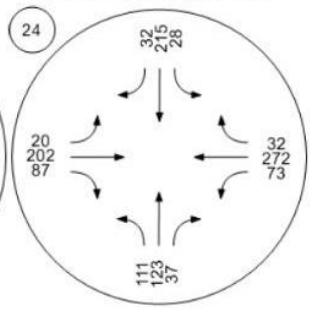

Fowler Ave & Shepherd Ave



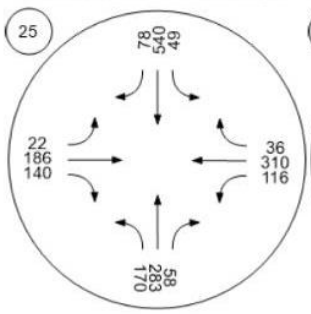

Fowler Ave & Teague Ave



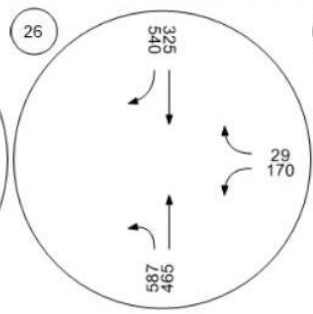

Fowler Ave & Nees Ave



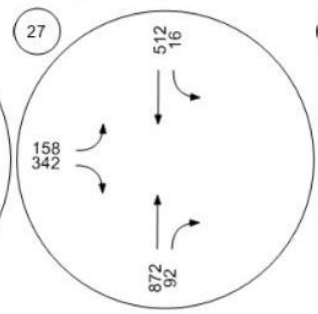

Fowler Ave & Alluvial Ave



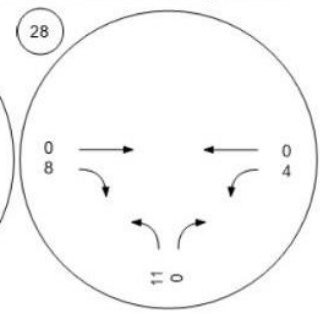

Fowler Ave & SR 168 WB Ra




Fowler Ave & SR 168 EB Ra



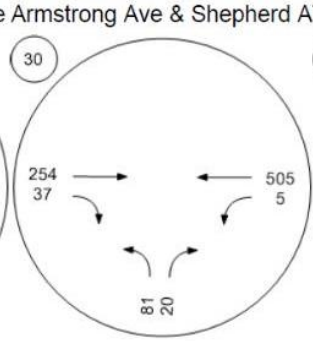

Perrin Rd & Burgan Ave



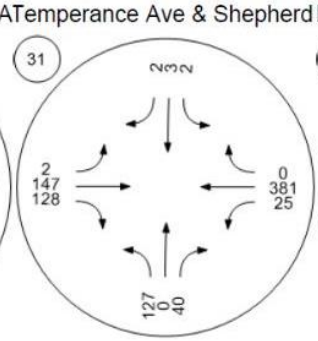

Burgan Ave & Shepherd Ave



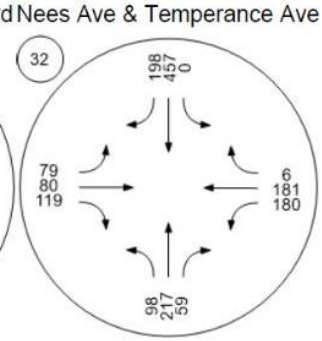

Armstrong Ave & Shepherd A




Temperance Ave & Shepherd




Nees Ave & Temperance Ave



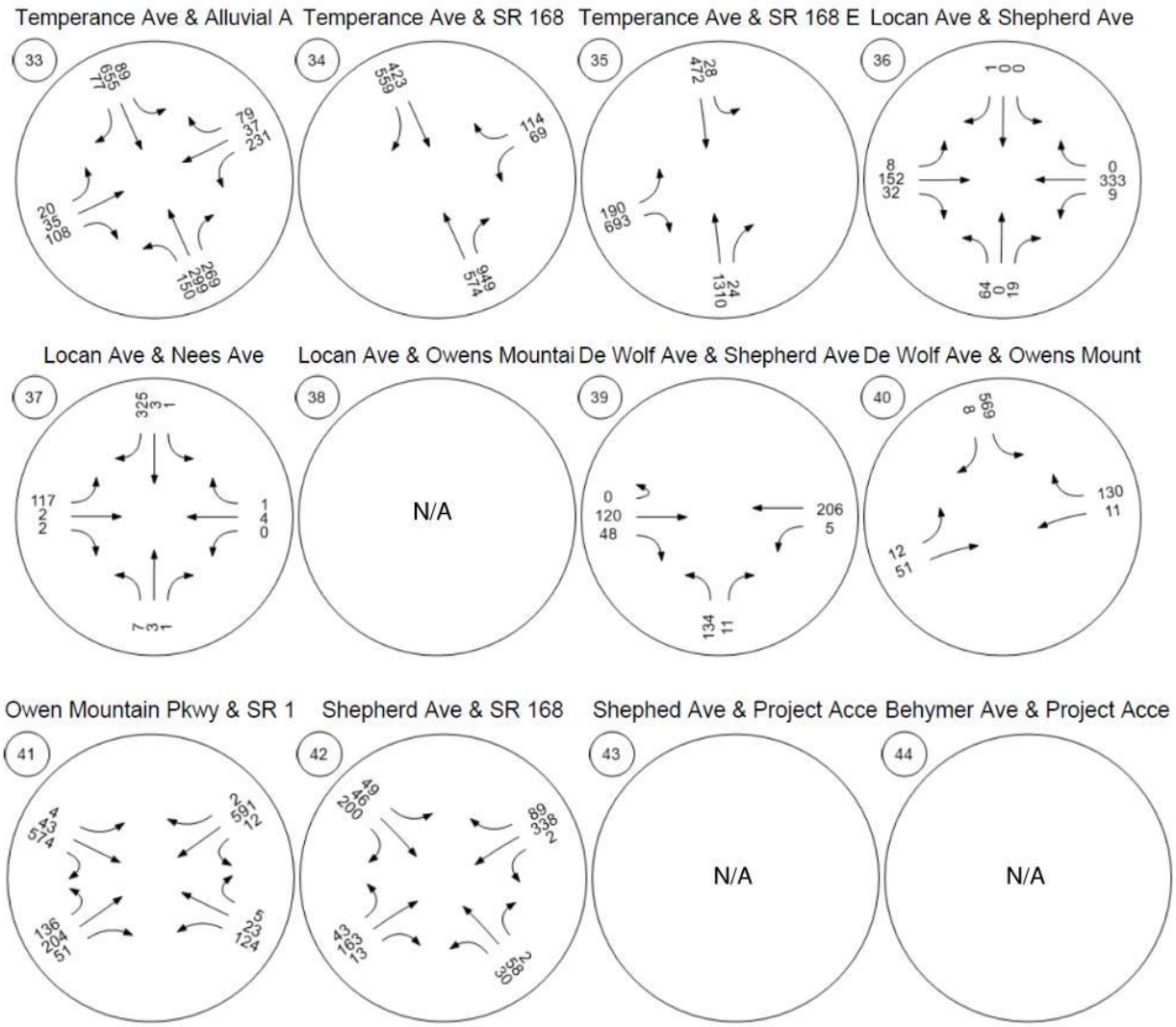
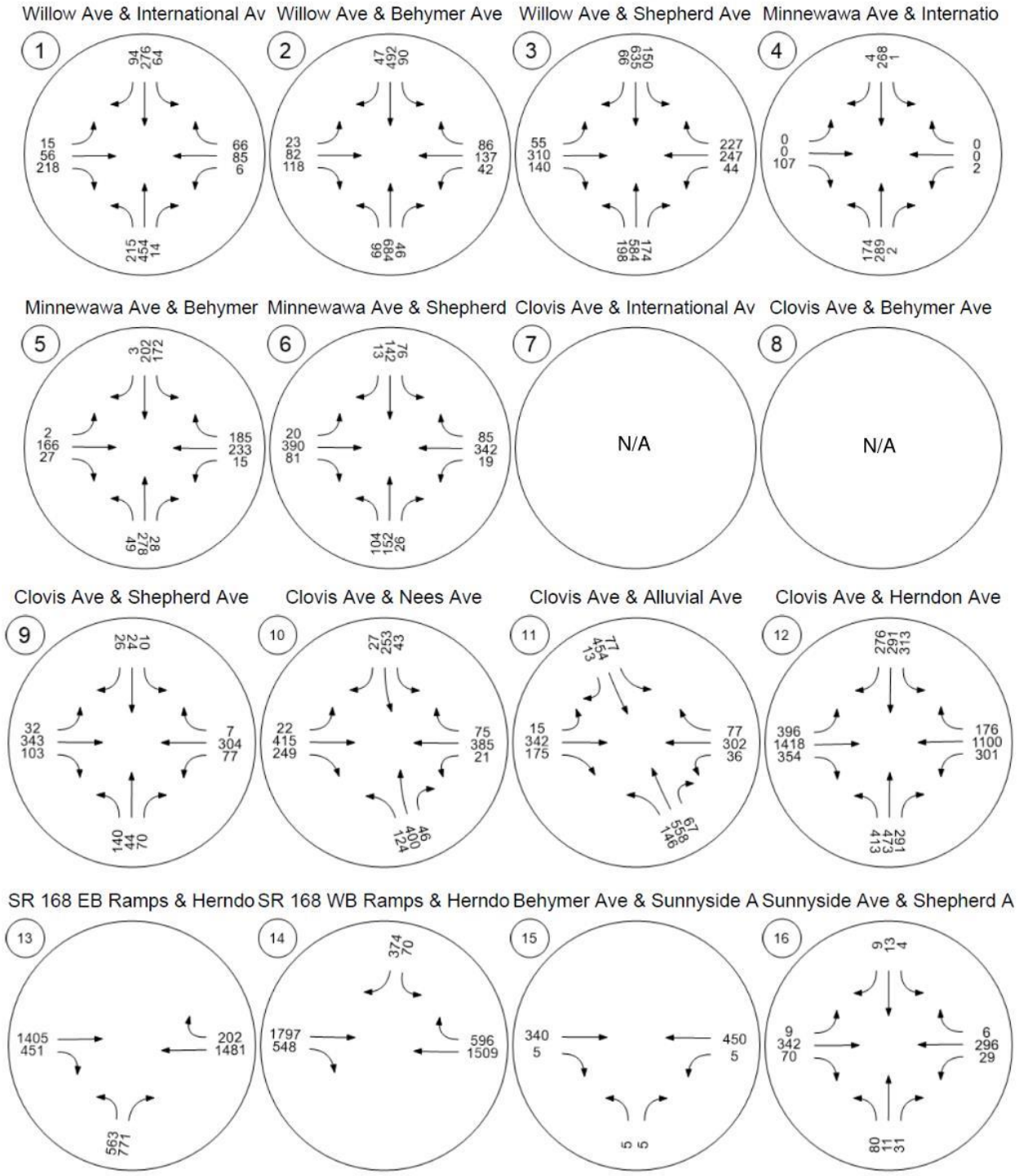
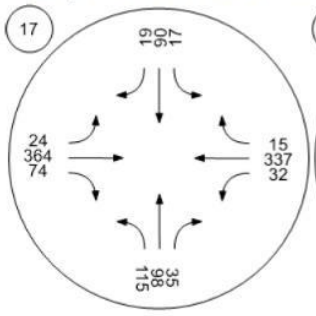

Temperance Ave & Alluvial A
33
89
655
77
79
37
231
205
108
269
259
150
Temperance Ave & SR 168
34
423
559
114
69
949
574
Temperance Ave & SR 168 E
35
28
472
190
693
24
1310
Locan Ave & Shepherd Ave
36
1
0
0
8
152
32
0
333
9
64
0
19
Locan Ave & Nees Ave
37
325
3
1
117
2
2
1
4
0
7
3
1
Locan Ave & Owens Mountai
38
N/A
De Wolf Ave & Shepherd Ave
39
0
120
48
206
5
134
11
De Wolf Ave & Owens Mount
40
569
8
130
11
12
51
Owen Mountain Pkwy & SR 1
41
2
591
12
4
43
4
136
204
51
Shepherd Ave & SR 168
42
49
469
200
89
338
2
43
163
13
Shephed Ave & Project Acce
43
N/A
Behymer Ave & Project Acce
44
N/A

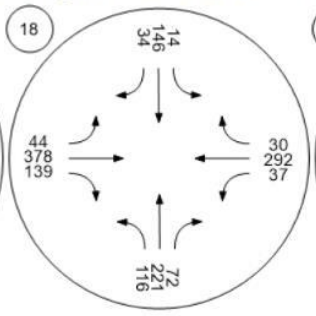
**Figure 8: Study Intersections – Existing PM Peak Hour Volumes**



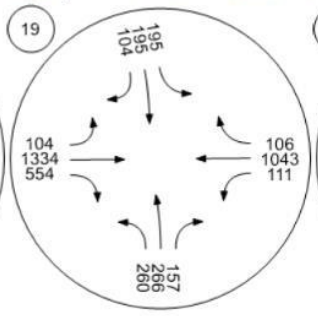
Sunnyside Ave & Nees Ave



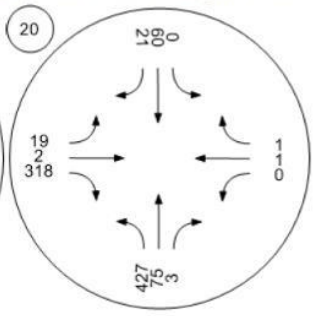

Sunnyside Ave & Alluvial Ave



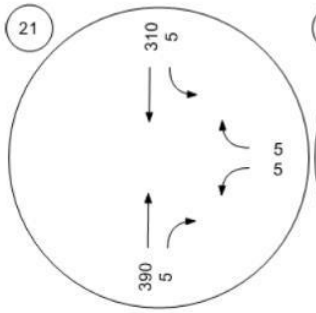

Sunnyside Ave & Herndon Av



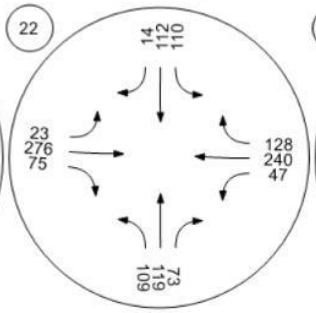

Fowler Ave & Behymer Ave



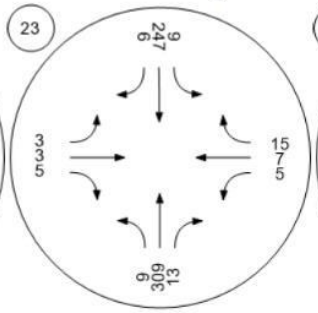

Fowler Ave & Perrin Ave



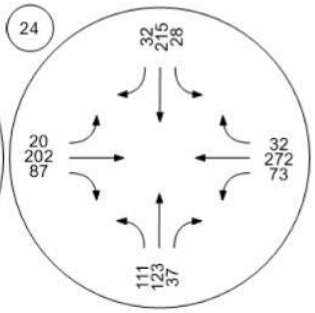

Fowler Ave & Shepherd Ave



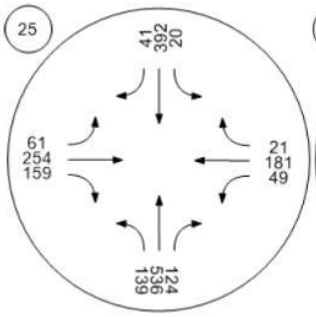

Fowler Ave & Teague Ave



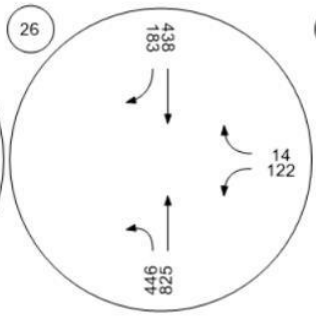

Fowler Ave & Nees Ave



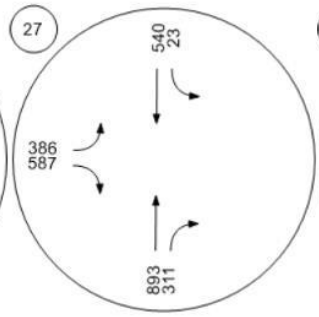

Fowler Ave & Alluvial Ave



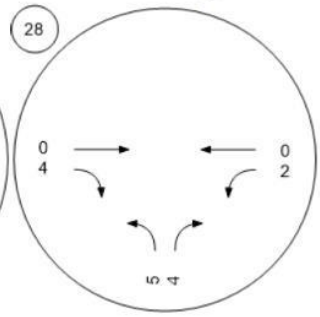

Fowler Ave & SR 168 WB Ra



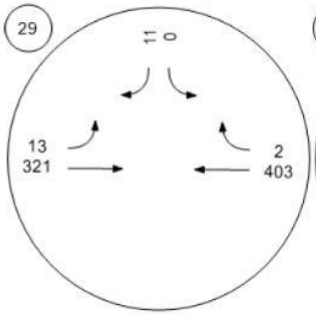

Fowler Ave & SR 168 EB Ra



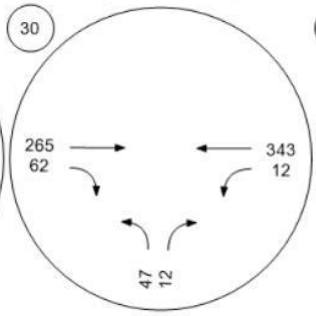

Perrin Rd & Burgan Ave



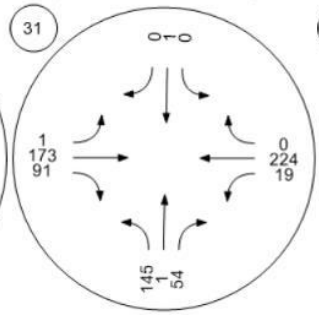

Burgan Ave & Shepherd Ave



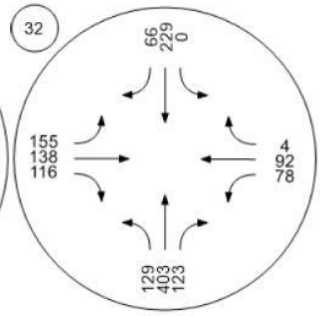

Armstrong Ave & Shepherd A



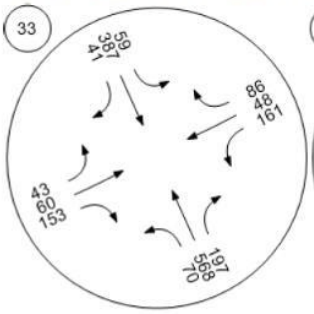

Temperance Ave & Shepherd



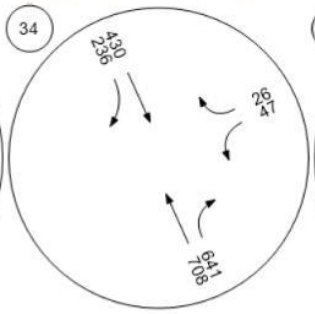

Nees Ave & Temperance Ave



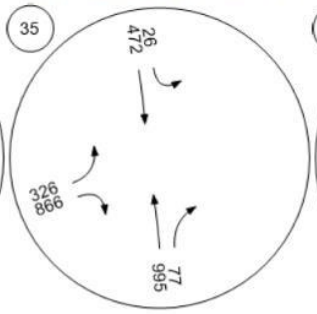
Temperance Ave & Alluvial A



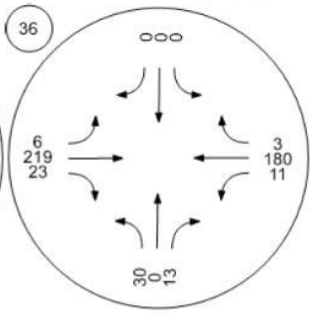

Temperance Ave & SR 168



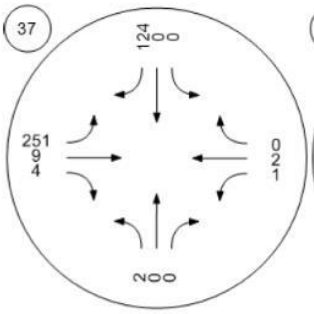

Temperance Ave & SR 168 E



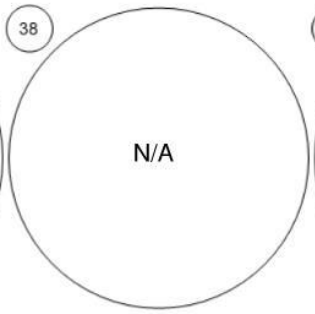

Locan Ave & Shepherd Ave



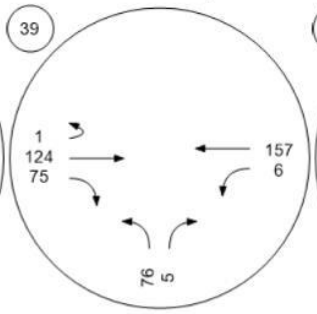

Locan Ave & Nees Ave



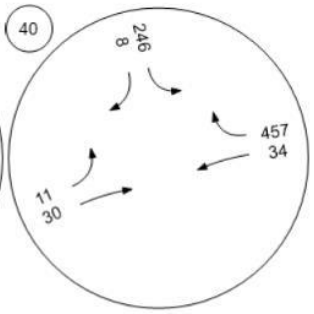

Locan Ave & Owens Mountai



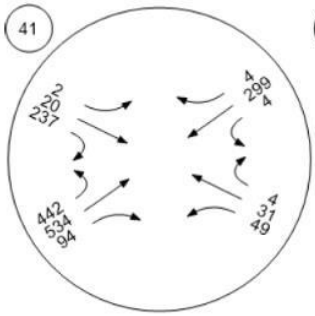

De Wolf Ave & Shepherd Ave



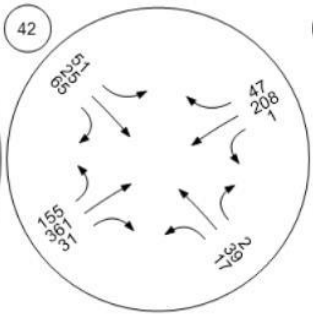

De Wolf Ave & Owens Mount



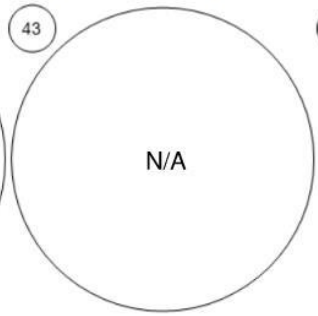

Owen Mountain Pkwy & SR 1




Shepherd Ave & SR 168




Shephed Ave & Project Acce




Behymer Ave & Project Acce

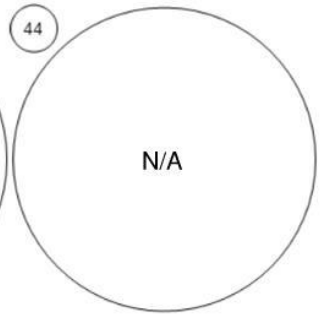
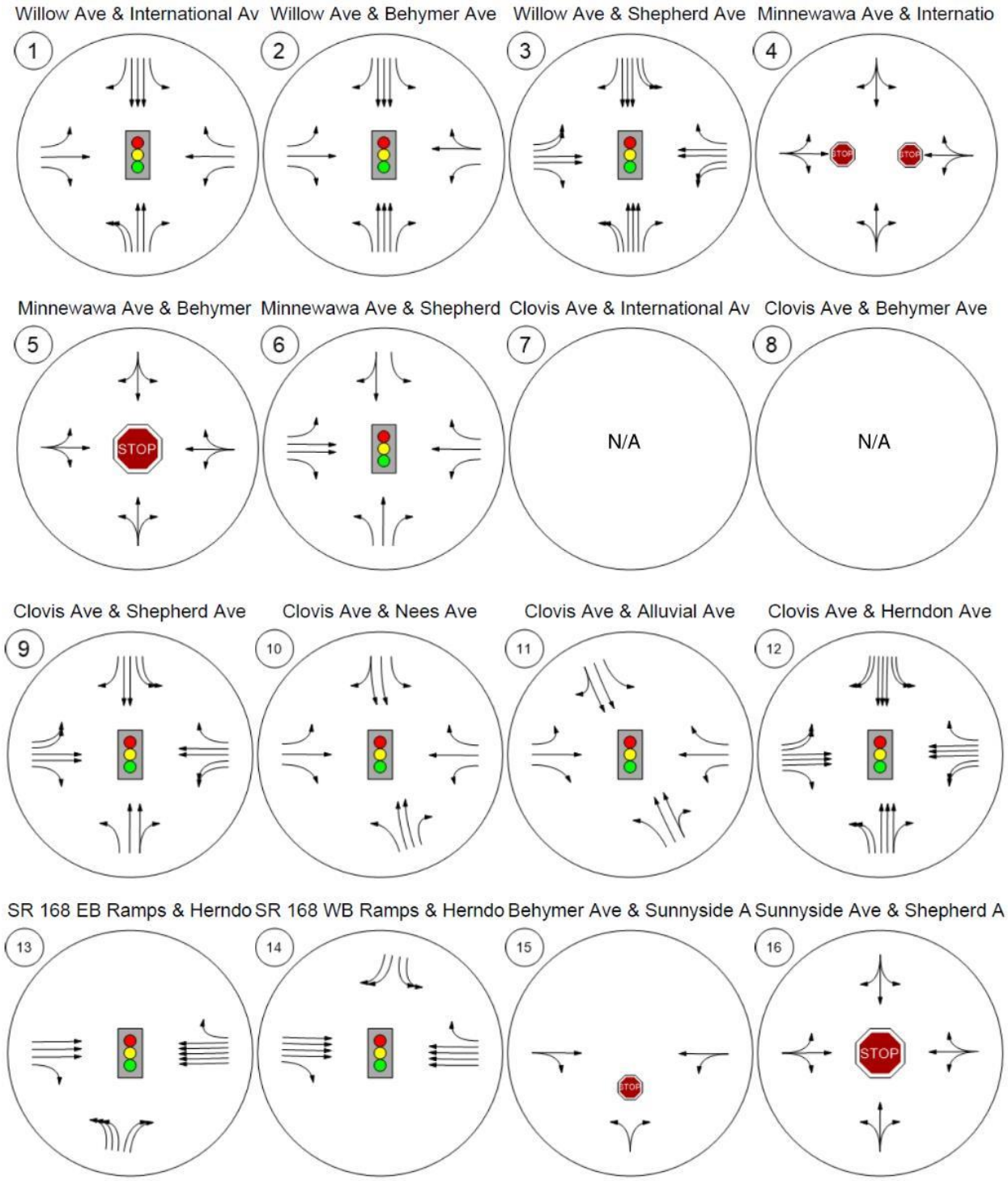
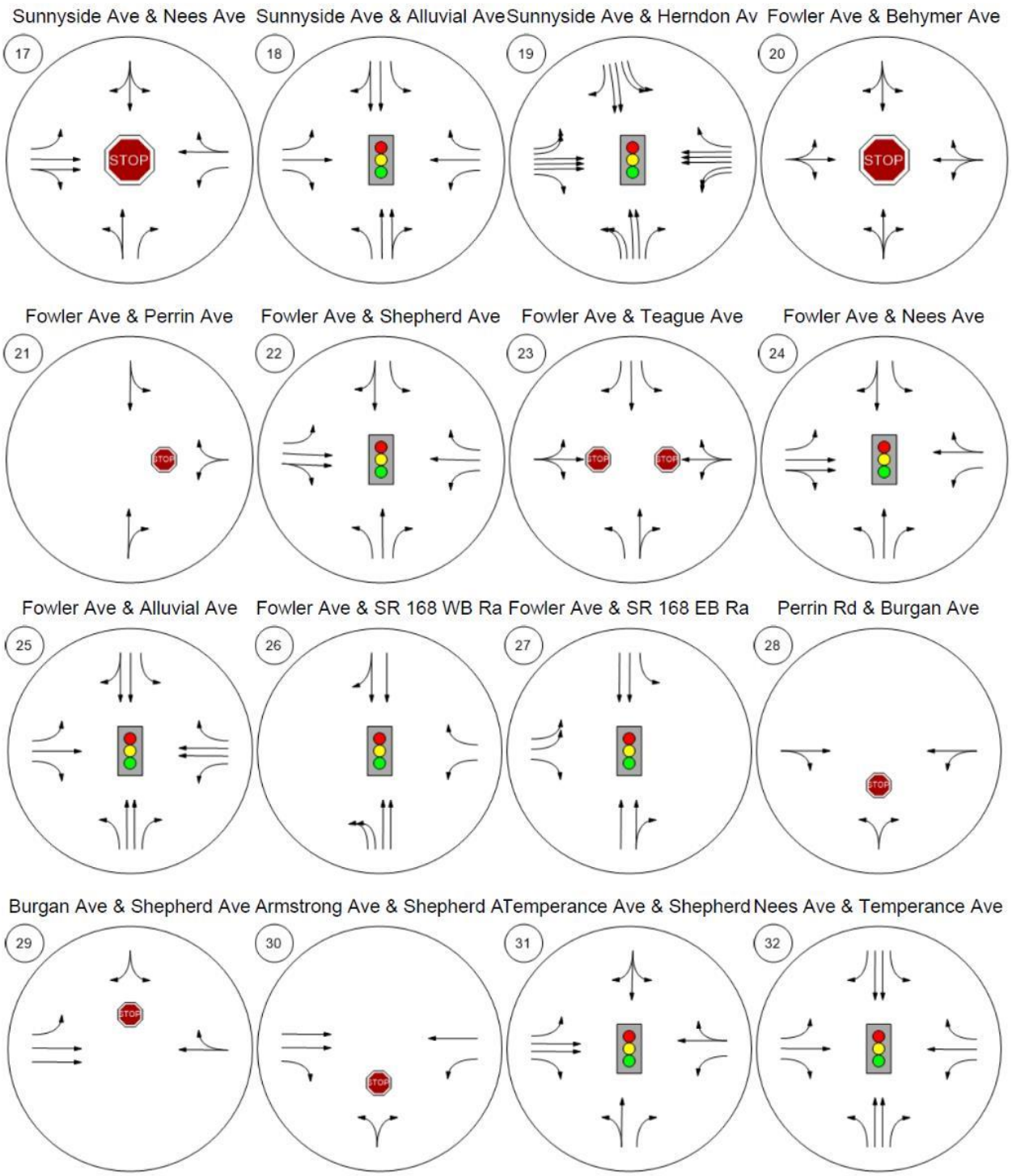
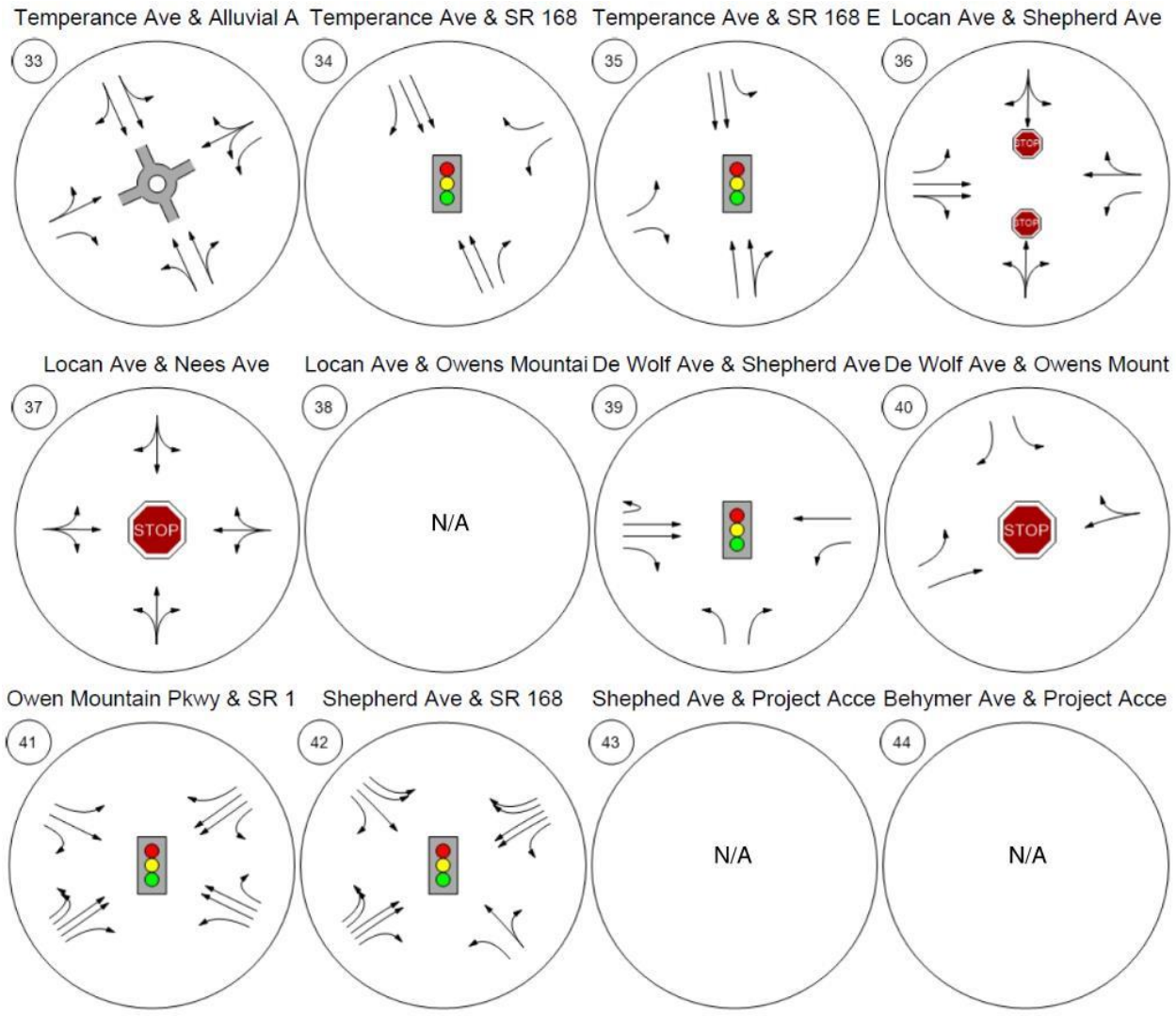


**Figure 9: Existing Lane Configurations and Traffic Control**




Sunnyside Ave & Nees Ave
17
STOP
Sunnyside Ave & Alluvial Ave
18
Sunnyside Ave & Herndon Av
19
Fowler Ave & Behymer Ave
20
STOP
Fowler Ave & Perrin Ave
21
Fowler Ave & Shepherd Ave
22
Fowler Ave & Teague Ave
23
Fowler Ave & Nees Ave
24
Fowler Ave & Alluvial Ave
25
Fowler Ave & SR 168 WB Ra
26
Fowler Ave & SR 168 EB Ra
27
Perrin Rd & Burgan Ave
28
Burgan Ave & Shepherd Ave
29
Armstrong Ave & Shepherd A
30
Temperance Ave & Shepherd
31
Nees Ave & Temperance Ave
32




SOURCE: KITTELSON AND ASSOCIATES, INC (2024)

**Table 7** summarizes the operations of the study intersections during the AM and PM peak periods in existing conditions. With existing traffic volumes and controls, two signalized intersections, both at Caltrans-controlled freeway ramps, are estimated to operate at deficient LOS E or F conditions. Deficient LOS E or F conditions are also estimated for three all-way stop intersections and one two-way stop controlled intersection.

**Table 7: Existing Intersection Operations**

| ID | Intersection | Control Type | Existing AM | | | Existing PM | | |
|---|---|---|---|---|---|---|---|---|
| | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 1 | Willow Ave & International Ave | Signal | 0.55 | 26.9 | C | 0.44 | 19.8 | B |
| 2 | Willow Ave & Behymer Ave | Signal | 0.54 | 27.6 | C | 0.43 | 22.1 | C |
| 3 | Willow Ave & Shepherd Ave | Signal | 0.42 | 24.8 | C | 0.45 | 25.6 | C |
| 4 | Minnewawa Ave & International Ave | 2W Stop | **n.a.** | **42.9** | **E** | n.a. | 30.3 | D |
| 5 | Minnewawa Ave & Behymer Ave | AW Stop | **1.11** | **59.8** | **F** | **1.03** | **56.7** | **F** |
| 6 | Minnewawa Ave & Shepherd Ave | Signal | 0.52 | 20.7 | C | 0.47 | 17.6 | B |
| 7 | Clovis Ave & International Ave | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 8 | Clovis Ave & Behymer Ave | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 9 | Clovis Ave & Shepherd Ave | Signal | 0.32 | 20.7 | C | 0.29 | 18.3 | B |
| 10 | Clovis Ave & Nees Ave | Signal | 0.53 | 21.4 | C | 0.50 | 19.3 | B |
| 11 | Clovis Ave & Alluvial Ave | Signal | 0.62 | 24.3 | C | 0.54 | 24.3 | C |
| 12 | Clovis Ave & Herndon Ave | Signal | 0.60 | 36.5 | D | 0.74 | 43.3 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signal | 0.41 | 19.3 | B | 0.61 | 23.1 | C |
| 14 | SR 168 WB Ramps & Herndon Ave | Signal | 0.65 | 22.3 | C | 0.53 | 11.9 | B |
| 15 | Behymer Ave & Sunnyside Ave | 2W Stop | n.a. | 15.9 | C | n.a. | 15.4 | C |
| 16 | Sunnyside Ave & Shepherd Ave | AW Stop | 0.58 | 13.4 | B | 0.60 | 13.2 | B |
| 17 | Sunnyside Ave & Nees Ave | AW Stop | 0.83 | 23.4 | C | 0.90 | 28.0 | D |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | 0.70 | 26.8 | C | 0.45 | 18.6 | B |

**Table 7: Existing Intersection Operations**

| ID | Intersection | Control Type | Existing AM | | | Existing PM | | |
|---|---|---|---|---|---|---|---|---|
| | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 19 | Sunnyside Ave & Herndon Ave | Signal | 0.47 | 27.0 | C | 0.69 | 34.1 | C |
| 20 | Fowler Ave & Behymer Ave | AW Stop | **0.99** | **38.5** | **E** | 0.91 | 28.5 | D |
| 21 | Fowler Ave & Perrin Ave | 2W Stop | n.a. | 17.0 | C | n.a. | 14.2 | B |
| 22 | Fowler Ave & Shepherd Ave | Signal | 0.53 | 18.4 | B | 0.38 | 16.9 | B |
| 23 | Fowler Ave & Teague Ave | 2W Stop | n.a. | 13.5 | B | n.a. | 14.7 | B |
| 24 | Fowler Ave & Nees Ave | Signal | 0.60 | 15.5 | B | 0.59 | 15.4 | B |
| 25 | Fowler Ave & Alluvial Ave | Signal | 0.63 | 21.8 | C | 0.49 | 17.4 | B |
| 26 | Fowler Ave & SR 168 WB Ramps | Signal | 0.83 | 34.2 | C | 0.49 | 13.4 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signal | 0.59 | 22.9 | C | **0.83** | **55.4** | **E** |
| 28 | Perrin Rd & Burgan Ave | 2W Stop | n.a. | 8.7 | A | n.a. | 8.6 | A |
| 29 | Burgan Ave & Shepherd Ave | 2W Stop | n.a. | 17.4 | C | n.a. | 9.6 | A |
| 30 | Armstrong Ave & Shepherd Ave | 2W Stop | n.a. | 18.2 | C | n.a. | 12.9 | B |
| 31 | Temperance Ave & Shepherd Ave | Signal | 0.46 | 16.8 | B | 0.28 | 14.2 | B |
| 32 | Nees Ave & Temperance Ave | Signal | 0.56 | 19.8 | B | 0.42 | 17.0 | B |
| 33 | Temperance Ave & Alluvial Ave | RBT | n.a. | 8.3 | A | n.a. | 6.7 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signal | 0.54 | 7.1 | A | 0.31 | 5.0 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | **0.96** | **67.8** | **E** | **1.03** | **100.8** | **F** |
| 36 | Locan Ave & Shepherd Ave | 2W Stop | n.a. | 14.6 | B | n.a. | 12.3 | B |

**Table 7: Existing Intersection Operations**

| ID | Intersection | Control Type | Existing AM | | | Existing PM | | |
|---|---|---|---|---|---|---|---|---|
| | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 37 | Locan Ave & Nees Ave | AW Stop | 0.43 | 9.4 | A | 0.37 | 9.2 | A |
| 38 | Locan Ave & Owens Mountain Pkwy | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 39 | De Wolf Ave & Shepherd Ave | Signal | 0.37 | 8.4 | A | 0.24 | 7.3 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | AW Stop | **1.13** | **75.1** | **F** | 0.69 | 16.0 | C |
| 41 | Owens Mountain Pkwy & SR 168 | Signal | 0.66 | 46.1 | D | 0.48 | 31.6 | C |
| 41.1 | Owens Mountain Pkwy & SR 168 WB Ramps | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 41.2 | Owens Mountain Pkwy & SR 168 EB Ramps | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 42 | Shepherd Ave & SR 168 | Signal | 0.36 | 27.7 | C | 0.48 | 31.6 | C |
| 42.1 | Shepherd Ave & SR 168 WB Ramps | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 42.2 | Shepherd Ave & SR 168 EB Ramps | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 43 | Shepherd Ave & Project Access South | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 44 | Behymer Ave & Project Access North | Future | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout
V/C = Volume/capacity ratio
Delay = Average vehicle delay in seconds
**Bold** = Deficient LOS E or F
Source: Kittelson & Associates, 2024

# Project Traffic

Project-related trip estimates were calculated to assess the project's traffic impact on local roads.

## TRIP GENERATION

Trip generation for the proposed project was estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). The master plan area includes two development areas. MPArea 1 is an approximately 368 acre area proposed for immediate development. MPArea 2 is an area of approximately 139 acres that is anticipated for future development. **Figure 10** illustrates the proposed zoning map of the master plan area

Based on the land use information provided, the project will consist of:

- MPArea 1
  - Up to 1,291 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 1,039 medium high density residential dwelling units (Zoned R-2)
  - Up to 472 very high density residential dwelling units (Zoned R-4)
  - Up to 85,000 square feet of gateway commercial (Zoned C-1)
  - An accessible public park of 2.74 acres
- MPArea 2
  - Up to 137 low density residential dwelling units (Zoned R-1)
  - Up to 319 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 115,000 square feet of gateway commercial (Zoned C-1)
  - Mini self-storage facility with up to 421,356 square feet of building (Zoned C-P)
  - Elementary school with up to 750 students (Zoned R-1-MD)

The elementary school site has the potential to also develop as up to 118 medium density residential dwelling units (R-1-MD) in the event a school is not constructed. However, the total daily, AM peak hour, and PM peak hour trip generation would be higher if developed as an elementary school. Therefore, the trip generation estimates used in this TIA assume the more conservative case of the land being developed as a school.

The trip generation estimates assume that these uses are most equivalent to the following land use codes in the ITE Trip Generation Manual:

- Low density residential (ITE 210: Single Family Detached Housing)
- Medium density residential (ITE 210: Single Family Detached Housing)
- Medium high density residential (ITE 210: Single Family Detached Housing)
- Very high density residential (ITE 220: Multifamily Housing (Low Rise))
- Gateway commercial (ITE 821: Shopping Plaza)
- Mini self-storage (ITE 151: Mini-Warehouse)
- Elementary school (ITE 520: Elementary School)
- Accessible park (ITE 411: Public Park)

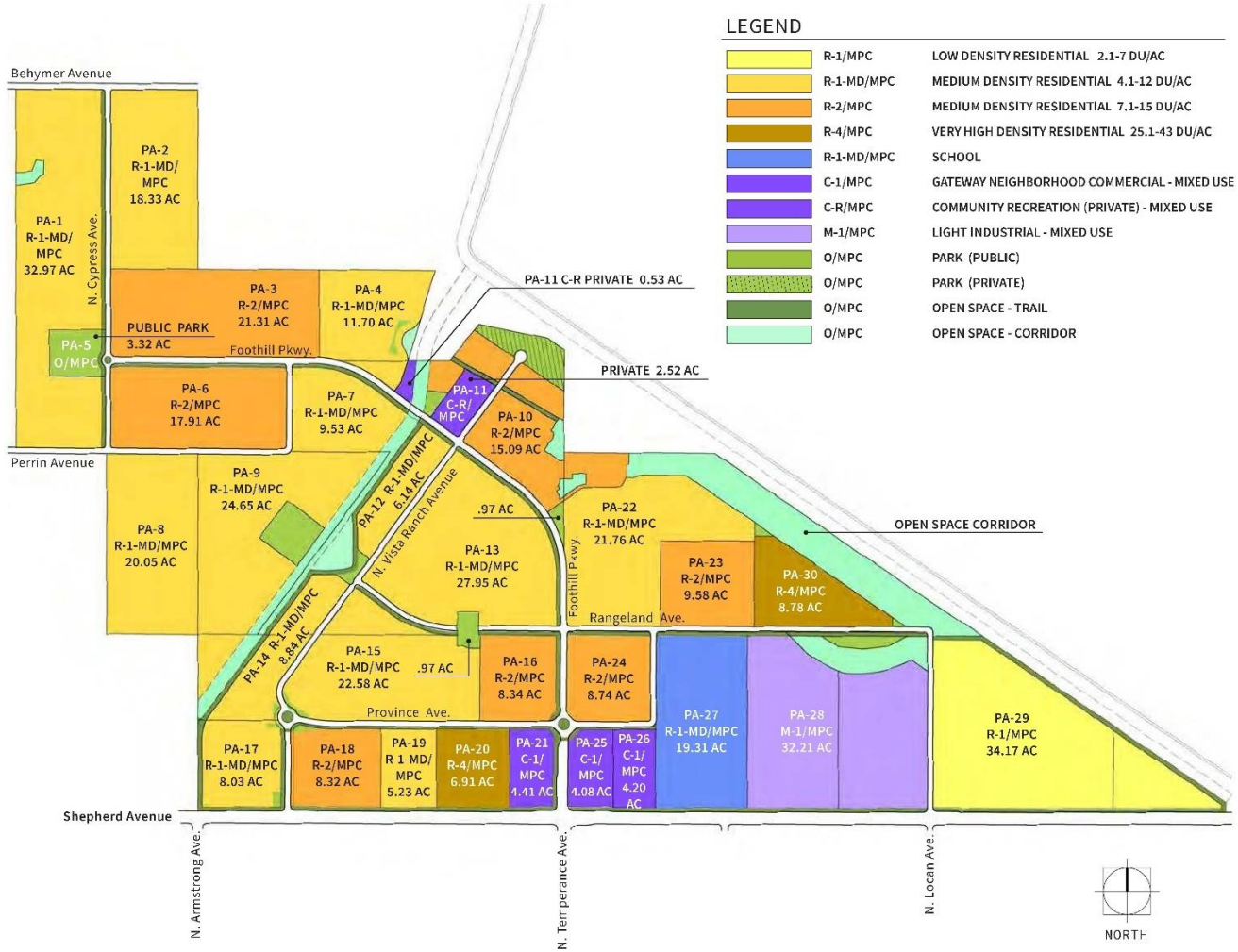
Shopping plaza (ITE 821) without a supermarket was chosen to represent the gateway commercial area because the trip generation for ITE 821 (no supermarket) falls between the trip generation of shopping center (ITE 820) and shopping plaza (ITE 821 no supermarket). Therefore, it provides the most flexibility for development of a commercial parcel without being too conservative. The accessible park at 2.74 acres is smaller than most parks included in the ITE trip generation manual. Therefore, the trip generation estimate is based on the park from the ITE data that was most equivalent in size which was a 4 acre park.

The resulting trip generation for MPArea 1, MPArea 2, and the combined master plan area is shown in **Table 8**. As shown, the total trip generation for the master plan area is estimated to be 45,366 daily trips with 3,094 occurring in the AM peak hour and 4,097 occurring in the PM peak hour.

## Trip Distribution

The project trip distribution was derived from the Fresno Council of Governments' (Fresno COG) activity-based travel model. A "select zone" analysis for the project area was run to isolate trips to and from the proposed project and better understand projected traffic distribution patterns. The select zone trips were factored to equal the trip generation reported in **Table 8**. This select zone analysis is included in Appendix C.

**Figure 10: Master Plan Area Proposed Zoning Map**




Source: City of Clovis, 2024

**Table 8: Trip Generation for the Vista Ranch Master Plan Area**

| | ITE Code | Amount | Land Use | Daily | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | In | Out | Total | In | Out | Total |
| **MPArea 1** | | | | | | | | | | |
| Medium Density Residential | 210 | 1,291 | DU | 12,175 | 226 | 678 | 904 | 765 | 449 | 1,214 |
| Medium High Density Residential | 210 | 1,039 | DU | 9,798 | 182 | 546 | 728 | 616 | 361 | 977 |
| Very High Density Residential | 220 | 472 | DU | 3,182 | 45 | 144 | 189 | 152 | 89 | 241 |
| C-1 Neighborhood Commercial | 821 | 85 | KSF | 5,740 | 92 | 56 | 148 | 217 | 225 | 442 |
| Accessible Public Park | 411 | 3 | Acres | 94 | 8 | 5 | 13 | 5 | 8 | 13 |
| **MPArea 1 Total:** | | | | **30,989** | **553** | **1,429** | **1,982** | **1,755** | **1,132** | **2,887** |
| **MPArea 2** | | | | | | | | | | |
| Low Density Residential | 210 | 137 | DU | 1,289 | 24 | 72 | 96 | 81 | 48 | 129 |
| Medium Density Residential | 210 | 319 | DU | 3,009 | 56 | 168 | 224 | 189 | 111 | 300 |
| C-1 Neighborhood Commercial | 821 | 115 | KSF | 7,765 | 123 | 76 | 199 | 293 | 304 | 597 |
| Mini Storage | 151 | 421 | KSF | 611 | 22 | 16 | 38 | 30 | 34 | 64 |
| School | 520 | 750 | Students | 1,703 | 300 | 255 | 555 | 55 | 65 | 120 |
| **MPArea 2 Total:** | | | | **14,377** | **525** | **587** | **1,112** | **648** | **562** | **1,210** |
| **Master Plan Area:** | | | | **45,366** | **1,078** | **2,016** | **3,094** | **2,403** | **1,694** | **4,097** |

Based on ITE Trip Generation Manual 11th Edition
IV: Independent Variable
DU: Dwelling Units
KSF: Thousand Square Feet

Source: Kittelson & Associates, Inc. 2024

# CEQA Evaluation

The California Environmental Quality Act (CEQA) transportation analysis for the Vista Ranch project in Clovis, CA, evaluates the transportation impact areas that may be considered in environmental documentation for the project. A separate Local Transportation Analysis (LTA) evaluates other transportation issues such as roadway and intersection capacity which are not part of the environmental evaluation under CEQA.

The CEQA checklist for transportation includes four questions that this memo will evaluate. These four questions include:

a. Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? (vehicle miles of travel (VMT) assessment)
c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
d. Would the project result in inadequate emergency access?

The following sections include regulations and policies which apply to the CEQA evaluation, and an assessment of each of the four CEQA transportation questions.

# REGULATORY SETTING

This section summarizes applicable federal, state, regional, and local plans, laws, and regulations that are relevant to this analysis. This information provides a context for the discussion related to the project's consistency with applicable policies, plans, laws, and regulations.

## Federal

No federal plans, policies, regulations, or laws pertaining to transportation have been determined to be applicable to this project.

## State

Senate Bill 743 (SB 743) was signed into law in September 2013. SB 743 (Steinberg, 2013) required changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, CEQA transportation analyses of individual projects determined impacts in the circulation system in terms of roadway delay and/or capacity at specific locations. SB 743 changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. Those proposed changes identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. Since the bill has gone into effect, automobile delay, as measured by "level of service" and other similar metrics, no longer constitutes a

significant environmental effect under CEQA. Auto-mobility (often expressed as "LOS") may continue to be a measure for planning purposes.[2]

In December 2018, the California Governor's Office of Planning and Research (OPR) and the State Natural Resources Agency submitted updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law approved the updated CEQA Guidelines, thus implementing SB 743 and making VMT the primary metric used to analyze transportation impacts. The final text, final statement of reasons, and related materials are posted at http://resources.ca.gov/ceqa. The changes have been approved by the Office of Administrative Law and are now in effect. For land use and transportation projects, SB 743-compliant CEQA analysis became mandatory on July 1, 2020.

## Regional

### *FRESNO COUNCIL OF GOVERNMENTS REGIONAL TRANSPORTATION PLAN*

The Fresno COG is a voluntary association of local governments and a regional planning agency comprised of 16 member jurisdictions, including the city of Clovis. The members are represented by a Policy Board consisting of mayors of each incorporated city, and the Chairperson of the County Board of Supervisors, or their designated elected official. The Fresno COG's purpose is to establish a consensus on the needs of the Fresno County area and further action plans for issues related to the Fresno County region. The current regional transportation plan, known as the Regional Transportation Plan & Sustainable Communities Strategy (RTP), was adopted in 2022. The RTP addresses GHG emissions reductions and other air emissions related to transportation, with the goal of preparing for future growth in a sustainable way. The plan specifies how funding will be sourced and financed for the region's planned transportation investments, ongoing operations, and maintenance. The goals, objectives, and policies of the RTP are established to direct the courses of action that will provide efficient, integrated multimodal transportation systems to serve the mobility needs of people, including accessible pedestrian and bicycle facilities, and freight, while fostering economic prosperity and development, and minimizing mobile sources of air pollution. The five main goals of the RTP include:

- GOAL 1: Improved mobility and accessibility for all
- GOAL 2: Vibrant communities that are accessible by sustainable transportation options.
- GOAL 3: A safe, well-maintained, efficient, and climate-resilient multimodal transportation network
- GOAL 4: A transportation network that supports a sustainable and vibrant economy.
- GOAL 5: A region embracing clean transportation, technology, and innovation.

### *FRESNO COUNCIL OF GOVERNMENTS MULTIJURISDICTIONAL LOCAL ROAD SAFETY PLAN (MLRSP)*

The MLRSP was completed in 2022 and provides an in depth look at areas of safety concern within the city of Clovis and other cities within the planning area. The report identifies priority segments and intersections in the city of Clovis and potential crash reduction treatments to apply. The plan also provides strategies for education, enforcement, engineering, and emergency services to improve safety outcomes.

[2] Governor's Office of Planning and Research, "Technical Advisory on Evaluating Transportation Impacts in CEQA," December, 2018.

Intersections near the Master Plan Area which were identified in the 95th percentile of Crash Severity Scores include:

- Shepherd Avenue at Minnewawa Avenue
- Shepherd Avenue at De Wolf Avenue (western intersection)

### *FRESNO COUNTY CONGESTION MANAGEMENT PROCESS*

In June 1990, California voters approved legislation that required Congestion Management Plans be developed in urbanized counties to address congestion on California's highways and roads. The Fresno County Congestion Management Process (CMP) implements this requirement, and its responsibilities include providing information on transportation system performance and assessing alternative strategies for alleviating congestion and improving mobility for people and goods to levels that meet State and local needs. The Fresno County CMP identifies four general objectives:

1. Optimize the transportation facilities through efficient system management;
2. Invest in strategies that reduce travel demand, improve system performance, increase safety, and provide effective incident management;
3. Reduce VMT by encouraging alternative modes of transportation and promotion of sustainable land use development; and
4. improve public transit, extend bicycle and pedestrian systems, and promote car-sharing and bike-sharing programs to facilitate the development of an integrated multimodal transportation system in the Fresno region.

## Local

### *CITY OF CLOVIS GENERAL PLAN – CIRCULATION ELEMENT*

The City of Clovis adopted the General Plan[3] in August 2014 as an update to the previous General Plan approved in 1993. It serves as the City's guide for the continued development, enhancement, and revitalization of the City of Clovis. The following policies related to transportation and circulation are applicable to the project:

- **Policy 1.1: Multimodal network.** The city shall plan, design, operate, and maintain the transportation network to promote safe and convenient travel for all users: pedestrians, bicyclists, transit riders, freight, and motorists.
- **Policy 1.2: Transportation decisions.** Decisions should balance the comfort, convenience, and safety of pedestrians, bicyclists, and motorists.
- **Policy 1.3: Age and mobility.** The design of roadways shall consider all potential users, including children, seniors, and persons with disabilities.
- **Policy 1.4: Jobs and housing.** Encourage infill development that would provide jobs and services closer to housing, and vice versa, to reduce citywide vehicle miles travelled and effectively utilize the existing transportation infrastructure.

[3] City of Clovis General Plan, August 25, 2014.

- **Policy 1.5: Neighborhood connectivity.** The transportation network shall provide multimodal access between neighborhoods and neighborhood-serving uses (educational, recreational, or neighborhood commercial uses).
- **Policy 1.6: Internal circulation.** New development shall utilize a grid or modified-grid street pattern. Areas designated for residential and mixed-use village developments should feature short block lengths of 200 to 600 feet.
- **Policy 1.7: Narrow streets.** The city may permit curb-to-curb dimensions that are narrower than current standards on local streets to promote pedestrian and bicycle connectivity and enhance safety.
- **Policy 2.2: Multimodal LOS.** Monitor the evolution of multimodal level of service (MMLOS) standards. The city may adopt MMLOS standards when appropriate.
- **Policy 2.3: Fair share costs.** New development shall pay its fair share of the cost for circulation improvements in accordance with the city's traffic fee mitigation program.
- **Policy 2.4: Right-of-way dedication.** The city may require right-of-way dedication essential to the circulation system in conjunction with any development or annexation. The City shall request the County of Fresno to apply the same requirements in the Clovis planning area.
- **Policy 3.1**: **Traffic calming**. Employ traffic-calming measures in new developments and existing neighborhoods to control traffic speeds and maintain safety.
- **Policy 3.4: Road diets.** Minimize roadway width as feasible to serve adjacent neighborhoods while maintaining sufficient space for public safety services.
- **Policy 3.5: Roadway widening.** Only consider street widening or intersection expansions after considering multimodal alternative improvements to non-automotive facilities.
- **Policy 3.6: Soundwalls.** Design roadway networks to disperse traffic to minimize traffic levels. Discourage soundwalls along new collector and local streets when feasible.
- **Policy 3.7: Conflict points.** Minimize the number of and enhance safety at vehicular, pedestrian, and bicycle conflict points.
- **Policy 3.8: Access management.** Minimize access points and curb cuts along arterials and prohibit them within 200 feet of an intersection where possible. Eliminate and/or consolidate driveways when new development occurs or when traffic operation or safety warrants.
- **Policy 3.9: Park-once.** Encourage "park-once" designs where convenient, centralized public parking areas are accompanied by safe, visible, and well-marked access to sidewalks and businesses.
- **Policy 3.10: Pedestrian access and circulation.** Entrances at signalized intersections should provide sidewalks on both sides of the entrance that connect to an internal pedestrian pathway to businesses and throughout nonresidential parking lots larger than 50 spaces.
- **Policy 3.11: Right-of-way design.** Design landscaped parkways, medians, and rights-of-way as aesthetic buffers to improve the community's appearance and encourage non-motorized transportation.
- **Policy 3.12: Residential orientation.** Where feasible, residential development should face local and collector streets to increase visibility and safety of travelers along the streets and encourage pedestrian and bicycle access.
- **Policy 5.2: Development-funded facilities.** Require development to fund and construct facilities as shown in the Bicycle Transportation Plan when facilities are in or adjacent to the development.
- **Policy 5.3: Pathways.** Encourage pathways and other pedestrian amenities in Urban Centers and new developments of 10 acres or larger.

- **Policy 5.4: Homeowner associations.** The city may require homeowner associations to maintain pathways and other bicycle and pedestrian facilities within the homeowner association area.
- **Policy 5.5: Pedestrian access.** Require sidewalks, paths, and crosswalks to provide access to schools, parks, and other activity centers and to provide general pedestrian connectivity throughout the city.

The General Plan has policies related to maintaining acceptable Levels of Service (LOS) outside of some permitted exceptions. However, LOS can no longer be used for CEQA evaluations and is therefore not relevant to this memorandum focusing on CEQA impacts. Additional analyses of the Master Plan Area will be documented in another report that will detail LOS.

### *CITY OF CLOVIS ACTIVE TRANSPORTATION PLAN (ATP)*

The Clovis ATP was adopted in fall of 2023 and provides a vision for Clovis to complete a network of walking, biking and shared use trail facilities that are convenient, safe, and easy to use. The network should support and encourage travel between and within neighborhoods. The plan developed recommended bicycle, pedestrian and trail networks, and prioritized projects to meet the most need, more quickly. These prioritized projects were guided by the goals of the plan, which are listed below:

- Safety and Comfort – Improve the safety of people walking and biking.
- Connectivity – Develop a well-connected network of trails, walkways, and bikeways.
- Mode Shift – Increase the share of people who walk or ride a bike to get to work, school, shopping, and other activities.
- Equity – Create a network that allows people of all physical abilities and socioeconomic circumstances the ability to travel safely throughout the city without a car.
- Recreation – Increase access to recreation by providing access to trails, walkways, and bikeways.

# CEQA TRANSPORTATION ANALYSIS

The transportation analysis assesses how the study area's transportation system would operate with the implementation of the proposed Master Plan. This analysis includes effects that would result in significant impacts under the California Environmental Quality Act (CEQA) guidelines.

## CEQA Significance Criteria

The project's impact is not considered to be significant unless it would:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
b. Conflict or be inconsistent with CEQA Guideline section 15064.3, subdivision (b).
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
d. Result in inadequate emergency access.

Significance criteria "b" is related to the implementation of vehicle miles traveled (VMT) as the primary performance metric. The following criteria are used to assess a significant impact related to VMT consistent with the city of Clovis "Transportation Impact Analysis Guidelines" dated September 15, 2022:

- **Residential** – A proposed project exceeding a level of 13 percent below existing average VMT per capita in Fresno County.
    - Regional Average: 16.1 VMT/capita
    - Impact Threshold: 14.1 VMT/capita
- **Office** – A proposed project exceeding a level of 13 percent below existing average VMT per employee in Fresno County.
    - Regional Average: 25.6 VMT/employee
    - Impact Threshold: 22.3 VMT/employee
- **Retail** – A net increase in total VMT. The total VMT for the region without and with the project is calculated. The difference between the two scenarios is the net change in total VMT that is attributable to the project.

## CEQA Project Impacts and Proposed Mitigations

### TRAF-1 The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This would be considered a less than significant impact.

The proposed project and its effects were compared against local, regional, and state programs, plans, ordinances, and policies addressing the circulation system, as described previously. The documents governing the plans and policies addressing the circulation system in the area and a discussion of whether the proposed project would conflict with them include:

- Fresno Council of Governments Regional Transportation Plan (RTP)
    - The goals, objectives, and policies of the RTP are established to direct the courses of action that will provide efficient, integrated multimodal transportation systems to serve the mobility needs of people, including accessible pedestrian and bicycle facilities, and freight, while fostering economic prosperity and development, and minimizing mobile sources of air pollution.
    - The project objectives include providing infrastructure that meets City standards and is integrated with existing and planned facilities while also providing a strong pedestrian network to link local commercial and neighborhood together. This is consistent with the RTP since it would be accessible, provide a safe multimodal transportation network, and support a sustainable and vibrant economy by providing housing types, sizes, and densities that provide for local and regional housing needs.
- Fresno Council of Governments Multijurisdictional Local Road Safety Plan (MLRSP)
    - This plan identifies priority intersections and segments and potential reduction treatments to improve the safety of transportation infrastructure with the highest crash severity scores. Two of the intersections identified are within the study area for the transportation analysis. Since the project is not proposing modification at the two identified intersections, the project would not interfere with the implementation of the MLRSP.

- Fresno County Congestion Management Plan (CMP)
  - The CMP is responsible for monitoring the transportation infrastructure and developing deficiency plans to improve the transportation infrastructure that is not meeting standards. The project is proposing development in a master plan area and is not anticipated to affect intersections and roadway segments that are not internal or abutting the project. There are no anticipated design features that would prevent the normal analysis and deficiency reporting for the CMP.
- City of Clovis General Plan
  - The overarching goal of the General Plan circulation element is to create a comprehensive and well-maintained multimodal circulation system that provides for the safe and efficient movement of people and goods. This includes goals for "complete streets," making bicycle and transit networks a functional alternative, and a complete system of trails and pathways assessable to all. This aligns with the project objectives which call for a project that integrates and supports active and public transportation, encourage walkability and safe pedestrian/bicycle routes to all land uses, and a system of trails, parks, and open spaces that connect logically with greater Clovis.
- City of Clovis Active Transportation Plan (ATP)
  - The ATP identifies roadways where planned bicycle and pedestrian infrastructure will be implemented. In addition to providing internal roadways that provide multimodal streets per the General Plan, the project would be required to improve its frontage which would help the ATP in filling in gaps in the bicycle and pedestrian network such as along Shepherd Avenue. The project is not anticipated to affect transportation infrastructure away from the boundaries in a way that would prevent the proposed network in the ATP from being completed.

Based on this assessment, the Vista Ranch project is not anticipated to conflict with policies, plans, and programs addressing the circulation system for alternative modes. Therefore, the impact would be **less than significant,** and no mitigation measures would be required.

## TRAF-2 The proposed project would conflict with or be inconsistent with CEQA Guideline section 15064.3, subdivision (b). This would be considered a significant and unavoidable impact.

The Fresno COG activity-based travel demand model was used to estimate base year (2019) VMT for the transportation analysis zones (TAZs) that comprise the project. **Table 9** presents VMT per capita and VMT per employee findings for base year conditions in Fresno County and for the project at buildout. The project is considered to have a significant impact if the VMT per capita or VMT per employee of the project exceeds a threshold based on 13 percent below the regional averages for Fresno County.

**Table 10** lists the total regional daily VMT for the base year with the project, without the retail commercial component and with the retail commercial component. The total regional VMT is projected to decrease with the addition of retail commercial uses within the project. This indicates that the proposed retail uses would provide services close to residents and reduce the need to make longer trips to access services.

**Table 9: VMT Per Capita and Per Employee**

| | VMT per Capita | VMT per Employee |
|---|---|---|
| Fresno County | 16.1 | 25.6 |
| Impact Threshold (13% below regional average) | 14.1 | 22.3 |
| Project Area | 30.4 | 44.3 |
| Percent Compared to Impact Threshold | +116% | +99% |
| Significant Impact | **Yes** | **Yes** |

Source: Kittelson & Associates, 2024, based on Fresno COG travel model and VMT calculation tool

**Table 10: Regional VMT Without and With Retail**

| | Total Regional Daily VMT |
|---|---|
| With Project Without Retail | 22,029,977 |
| With Project With Retail | 22,026,474 |
| Difference | -3,503 |
| Significant Impact | **No** |

Source: Kittelson & Associates, 2024, based on Fresno COG travel model

The project would exceed the impact thresholds for both residential and employment land uses. This would have a **significant impact** for residential and employment uses. The project retail uses would decrease total regional VMT. This would have a **less than significant impact** for retail uses.

## Mitigation

Mitigation for VMT impacts for residential and employment uses would include mitigation measures TRAF-2-1 through TRAF-2-5. The potential effectiveness of mitigation measures for VMT has been estimated using the CAPCOA *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*[4].

**Mitigation Measure TRAF-2.1:** Future employers within the Vista Ranch project shall implement a commute trip reduction program, consistent with other trip reduction programs in the City of Clovis. The program would include the following components:

- trip reduction targets

[4] California Air Pollution Control Officers Association (CAPCOA), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December, 2021, https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf

- measures to discourage single occupancy vehicles while encouraging alternative modes of transportation such as carpooling, ridesharing, vanpooling, subsidized transit passes and other benefits,
- include a guaranteed ride home for eligible employers,
- establish applicable fees and funding mechanisms,
- define monitoring measures and frequency, and strategies for non-compliance.

The CAPCOA Handbook Measure T-5 estimates that a voluntary commute trip reduction program can reduce commute VMT by up to 4.0 percent with full participation of all eligible employees. Commute VMT to and from employers within Vista Ranch is projected to account for a maximum of 7.5 percent of total VMT. Therefore, the maximum VMT reduction from a commute trip reduction program would be 4.0 percent times 7.5 percent or 0.3 percent VMT reduction.

**Mitigation Measure TRAF-2.2:** Provide bicycle facilities that include bike parking and bike lockers. The CAPCOA Handbook Measure T-10 estimates that provision of end-of-trip bicycle facilities can reduce commute VMT by up to 4.4 percent depending on the existing propensity for commuters to use bicycles. The potential VMT reduction for employers in Clovis is estimated at 0.61 percent. Commute VMT to and from employers within Vista Ranch is projected to account for a maximum of 7.5 percent of total VMT. Therefore, the maximum VMT reduction from bicycle end-of-trip facilities would be 0.61 percent times 7.5 percent or 0.05 percent VMT reduction.

**Mitigation Measure TRAF-2.3:** Provide a well-connected street network, particularly for non-motorized connections. Characteristics of street network connectivity include short block lengths, numerous three and four-way intersections, and minimal dead-ends (cul-de-sacs). Street connectivity helps to facilitate shorter vehicle trips and greater numbers of walk and bike trips and thus a reduction in VMT. CAPCOA Handbook Measure T-17 uses increased vehicle intersection density as a proxy for street connectivity improvements. The CAPCOA Handbook estimates that VMT can be reduced up to 30 percent if a development provides a street grid that has much greater density (up to about three times) of streets and street intersections than the average American street grid density of 36 street intersections per square mile.

Based on the Vista Ranch Illustrative Plan in the September 15, 2023 Draft of the Vista Ranch Master Development Plan, there would be approximately 53 intersections within the Master Plan area that would provide direct network connectivity connecting clusters of housing with other clusters and the main street network. The total Master Plan area is approximately 507 acres (0.79 square miles), resulting in an average intersection density of about 67 street intersections per square mile providing street network connectivity for all modes of travel. The proposed intersection density would be 86 percent higher than the American average. Therefore, the proposed street grid would be expected to provide up to a 12 percent reduction in VMT compared to typical development areas.

The proposed site plan shows that many of the local streets and residences would be separated from the collectors and arterials within the site by walls or fencing except at a relatively small number of vehicle access intersections. Adding additional bicycle and pedestrian access points through these walls or fences to facilitate more direct pedestrian and bicycle connections has the potential to reduce VMT by providing more direct paths of travel between the various neighborhoods for non-auto modes.

**Mitigation Measure TRAF-2.4:** Increase the length of the area bicycle network, including separated trails available to bicycles as well as on-street bike lanes. The project proposes to add 4.5 miles of Class I separated trails. This would increase the mileage of bicycle facilities in Clovis from the existing 21.2 miles to 25.7 miles, an increase of 21 percent. The CAPCOA Handbook Measure T-20 estimates that a 21 percent increase in bike network mileage could reduce citywide VMT by 0.01 percent. The total daily VMT generated in Clovis is approximately 4,285,900, so the project bike network would reduce daily VMT by approximately 350. This would represent a 0.2 percent reduction from the unmitigated project total daily VMT of 188,900. Note that these VMT reductions would occur citywide and would not exclusively affect project trips.

**Mitigation Measure TRAF-2.5:** Contribute to implementation of expanded transit service in Clovis, including potentially service to the project area. Implementation of expanded transit service would require both capital expenditures for support facilities, including construction of transit stops and facilitating extensions of future transit routes. The CAPCOA Handbook Measure T-25 estimates that a 25 percent increase in transit service hours could reduce citywide VMT by 0.3 percent. The total daily VMT generated in Clovis is approximately 4,285,900, so the expanded transit network would reduce daily VMT by approximately 12,600. This would represent a 6.7 percent reduction from the unmitigated project total daily VMT of 188,900. Note that these VMT reductions would occur citywide and would not exclusively affect project trips.

### *SIGNIFICANCE AFTER MITIGATION*

VMT reduction depends on factors such as actual implementation of planned land use development, demographic change, household preferences for housing types and locations, the cost of fuel, and the competitiveness of transit relative to driving, which relates to congestion along vehicular commute routes that are not under the project's jurisdiction, as well as transit provided by parties other than the project or the city of Clovis. The feasibility and effectiveness of the mitigation measures is either insufficient or unknown at this time. The project cannot demonstrate definitively that implementation of these policies would achieve VMT reductions to meet the VMT per capita or VMT per employee thresholds. With implementation of the project and the recommended mitigation measures, this impact would remain **significant and unavoidable.**

## TRAF-3 The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). This would be considered a less than significant impact.

The Master Plan Area implements a desire for a mixed use planned community as depicted in the city of Clovis General Plan and proposed an amended Focus Area 13a. The proposed Master Plan will be a designated land use of Mixed Use Village, with multiple zoned districts, within focus area 13a. The Master Plan Area includes the following guiding principles related to transportation and hazards:

- Provide infrastructure that meets City standards and is integrated with existing and planned facilities and connections.

- Develop a strong pedestrian network that links activities, recreational amenities, local commercial and neighborhoods together.
- Establish a logical phasing plan designed to ensure that each phase of development would include necessary public improvements required to meet City standards.

Buildout of the proposed Master Plan would result in some changes to the City's circulation network in the vicinity of the project but would not increase hazards or incompatible uses due to design features. All future roadway system improvements associated with development activities under the Master Plan would be designed in accordance with the established roadway design standards, and as depicted in the Circulation Element of the General Plan.

These improvements will be subject to review and future consideration by the city of Clovis. An evaluation of the roadway alignments, intersection geometrics, and traffic control features will be needed during development application. Roadway improvements would have to be made in accordance with the City's Circulation Plan, roadway functional design guidelines, and would have to meet design guidelines such as the accessibility requirements of Title 24 (California Building Code), ADA and PROWAG standards, California Manual of Uniform Traffic Control Devices (MUTCD), and the Caltrans Roadway Design Manual.

Implementation of the Master Plan would not result in hazardous conditions or create conflicting uses. With implementation of policies and ordinance listed in this report, and application of the conditions of approval at the time of review of land development projects, the Master Plan would be designed to ensure that no hazardous circulation conditions are created as a result of implementation of the proposed project. The Master Plan would implement components of the roadway system consistent with the City's standards and guidelines. Therefore, potential impacts related to hazards due to a geometric design feature or incompatible uses would be **less than significant**, and no mitigation measures would be required.

## TRAF-4 The proposed project would result in adequate emergency access. This would be considered a less than significant impact.

Emergency response requires a balance of emergency response time and evacuation needs with other community concerns, such as urban design, walking and biking needs, and traffic calming. Future roadway improvements associated with buildout of the Master Plan Area would be made in accordance with the city of Clovis General Plan Circulation Element and roadway functional design guidelines.

With the application of the conditions of approval at the time of review of land development projects, the Master Plan Area would be designed to ensure that adequate emergency access is provided. The Master Plan would implement components of the roadway system consistent with the City's General Plan. Therefore, impacts related to inadequate emergency access would be **less than significant**, and no mitigation measures would be required.

# Near-Term Conditions

The near-term conditions include approved and pending development projects which can reasonably be expected to be in place when the first phases of Vista Ranch are constructed.

## NEAR-TERM DEVELOPMENT

The City of Clovis provided a list of approved and pending development projects (**Table 11**). This list is consistent with the near-term development list from the Environmental Impact Report for the Shepherd North Project (July 2023).

**Table 11: Near Term Development and Trip Generation**

| Project No. | Project | Land Use | AM Peak Hour Trips | PM Peak Hour Trips | Daily Trips |
|---|---|---|---|---|---|
| CL01<br>CL02 | Enzon's Table | 258 DU Single Family<br>24.287 KSF Retail | 180<br>57 | 242<br>96 | 2,433<br>793 |
| CL03 | Heritage Grove Phase 1 | 3,509 DU Single Family<br>2,108 DU Multi Family<br>996.116 KSF Retail<br>650 Students Elementary | 2,368<br>843<br>1,046<br>555 | 3,153<br>1,076<br>2,637<br>121 | 32,309<br>14,208<br>28,533<br>1,703 |
| CL04 | Tract Map 6348, northeast of Timmy & Nees | 10 DU Single Family | 7 | 10 | 94 |
| CL05 | TM 6262 | 105 DU Single Family | 86 | 104 | 1,356 |
| CL06 | The Well Church | 80.000 KSF Church | 27 | 40 | 556 |
| CL07 | Tract Map 6343 | 590 DU Single Family | 413 | 555 | 5,564 |
| CL08 | Tract Map 6050 | 255 DU Single Family | 189 | 252 | 2,407 |
| CL09 | Lennar Tract 6200 Phase 1 | 176 DU Single Family | 130 | 174 | 1,661 |
| CL10 | Tract 6263 | 137 DU Single Family | 101 | 136 | 1,293 |
| CL11 | Tract Map 6268, southwest of Clovis & Riordan | 10 DU Single Family | 7 | 10 | 94 |
| CL12 | 622 N. Pollaskey Ave. | 15.100 KSF Warehouse | 2 | 3 | 26 |
| CL13 | 466 Spruce Ave. | 11.470 KSF Warehouse | 1 | 1 | 20 |
| CL14 | 541 DeWitt Ave. | 7.800 KSF Warehouse | 1 | 1 | 13 |

**Table 11: Near Term Development and Trip Generation**

| Project No. | Project | Land Use | AM Peak Hour Trips | PM Peak Hour Trips | Daily Trips |
|---|---|---|---|---|---|
| CL15 | 520 Park Creek | 9.897 KSF Warehouse | 1 | 1 | 17 |
| CL16 | Tru Hotel Site, west of Clovis & Palo Alto | 86 Rooms Hotel | 39 | 51 | 687 |
| CL17 | 100 N. Clovis Ave. | 4.406 KSF Medical Office | 14 | 17 | 159 |
| CL18 | 153 N. Clovis Ave. | 3.298 KSF Office | 5 | 5 | 36 |
| CL19 | Tract Map 6284 | 74 DU Single Family | 56 | 74 | 700 |
| CL20 | Tract Map 6154 | 95 DU Single Family | 72 | 95 | 906 |
| CL21 | Tract Map 5807 (southwest of Herndon & Armstrong) | 252 DU Multi Family | 101 | 129 | 1,698 |
| CL22 | Tract Map 6367 (west of Temperance & Nees) | 8 DU Single Family | 5 | 8 | 75 |
| CL23 | Tract Map 6309 (east of Temperance & Shepherd) | 101 DU Single Family | 71 | 95 | 952 |
| CL24 | SPR 90-088A12 (Clovis Community Medical Center Master Plan) | 468.844 KSF Hospital<br>354.392 KSF Medical Office<br>150 Beds Hotel<br>100 Beds Assisted Living | 1,622 | 2,652 | 30,008 |
| CL25 | SPR 2018-020 | 150 Beds Assisted Living | 28 | 37 | 390 |
| CL26 | Tract 6339 | 37 DU Single Family | 27 | 37 | 349 |
| CL27 | Tract Map 6239 | 162 DU Single Family | 120 | 160 | 1,529 |
| FC01 | CUP 3588 (northwest of Cooper & Auberry) | 38.030 Acres Campground/RV Park | 19 | 37 | 278 |

**Table 11: Near Term Development and Trip Generation**

| Project No. | Project | Land Use | AM Peak Hour Trips | PM Peak Hour Trips | Daily Trips |
|---|---|---|---|---|---|
| FC02 | CUP 3526 (northwest of Cooper & Locan) | 38.910 Acres Campground/RV Park | 19 | 38 | 284 |
| F01 | Copper River Apartments (1000 E. Copper Ave.) | 501 DU Multu-Family | 200 | 255 | 3,377 |
| F02 | 1880 E. Copper Ave. | 23.400 KSF Retail<br>4 Fuel Positions Gas/Convenience | 81 | 125 | 1,210 |
| F03 | 11075 N. Knotting Hill Dr. | 28.000 KSF Office | 43 | 41 | 304 |
| F04 | 2066 E. Copper Ave. | 43.560 KSF Medical Office | 135 | 171 | 1,568 |
| F05 | Maple & Behymer Commercial and Self-Storage Project | 164.611 KSF Mini Warehouse<br>6.900 KSF Retail<br>4.587 KSF Fast Food<br>2.420 KSF Car Wash<br>16 Fuel Positions Gas/Convenience | 215 | 228 | 2,902 |
| F06 | 7521 N. Chestnut Ave. | 105 DU Multi-Family | 43 | 54 | 708 |
| F07 | 2471 E. Fir Ave. | 18.175 KSF Office | 27 | 26 | 197 |
| F08 | 11479 N. Willow Ave. | 518 DU Single Family | 362 | 487 | 4,885 |
| F09 | 10047 N. Chestnut Ave. | 106 DU Multu-Family | 43 | 54 | 714 |
| F10 | Tract 6249 | 274 DU Single Family<br>28.000 KSF Retail | 220 | 343 | 3,537 |
| F11 | 2884 E. Shepherd Ave. | 1.070 KSF Fast Food | 23 | 16 | 229 |

Source: Draft Environmental Impact Report for the Shepherd North Project, Appendix I, LSA, Transportation Impact Analysis, July, 2023, Table 5-B.

# NEAR-TERM TRAFFIC OPERATIONS

Near term traffic operations are evaluated for three scenarios:

- Near-term with development listed in **Table 11**, without Vista Ranch
- Near-term with Vista Ranch MPArea 1 development
- Near-term with Vista Ranch Master Plan MPArea 1+2 development

The near-term scenarios assume existing intersection lane configurations and traffic control types. This is a somewhat conservative assumption as some street improvements may be implemented by approved and pending development projects. The figures illustrating lane configurations and peak hour traffic volumes for the near-term scenarios are attached as Appendix F.

## Near-Term with MPArea 1

Intersection operations were evaluated with near-term development plus Vista Ranch MPArea 1 (**Table 12)**.

### *WITHOUT PROJECT*

Five intersections have deficient operations in existing conditions and would continue to have deficient operations with near-term development without Vista Ranch:

5. Minnewawa Ave. & Behymer Ave.
20. Fowler Ave. & Behymer Ave.
27. Fowler Ave. & SR 168 EB Ramps
35. Temperance Ave. & SR 168 EB Ramps
40. De Wolf Ave. & Owens Mountain Pkwy.

Five additional intersections would have deficient operations with the addition of near-term development without Vista Ranch:

16. Sunnyside Ave. & Shepherd Ave.
17. Sunnyside Ave. & Nees Ave.
18. Sunnyside Ave. & Alluvial Ave.
25. Fowler Ave. & Alluvial Ave.
30. Armstrong Ave. & Shepherd Ave.

### *WITH PROJECT*

The addition of Vista Ranch MPArea 1 traffic to the near-term development traffic would cause six additional intersections to have deficient operations:

4. Minnewawa Ave. & International Ave. (AM and PM)
12. Clovis Ave. & Herndon Ave. (PM)
19. Sunnyside Ave. & Herndon Ave. (PM)
21. Fowler Ave. & Perrin Ave. (AM and PM)
31. Temperance Ave. & Shepherd Ave. (AM)

36. Locan Ave. & Shepherd Ave. (PM)

The addition of Vista Ranch MPArea 1 traffic would also add delay to 6 of the 10 intersections which would be deficient without the project:

5. Minnewawa Ave. & Behymer Ave.
17. Sunnyside Ave. & Nees Ave.
18. Sunnyside Ave. & Alluvial Ave.
20. Fowler Ave. & Behymer Ave.
25. Fowler Ave. & Alluvial Ave.
40. De Wolf Ave. & Owens Mountain Pkwy.

Delays are projected to reduce at the other four intersections due to changes in traffic patterns with the project.

Improvements to address the deficient locations caused by project traffic are discussed in the Mitigations and Recommendations section, page 103

**Table 12: Near-Term Intersection Operations with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Existing | | | Near Term without Project | | | Near Term with MPArea 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 1 | Willow Ave & International Ave | Signal | AM | 0.55 | 26.9 | C | 0.65 | 29.8 | C | 0.64 | 30.6 | C |
| | | | PM | 0.44 | 19.8 | B | 0.47 | 23.3 | C | 0.48 | 24.1 | C |
| 2 | Willow Ave & Behymer Ave | Signal | AM | 0.54 | 27.6 | C | 0.55 | 27.3 | C | 0.63 | 34.6 | C |
| | | | PM | 0.43 | 22.1 | C | 0.47 | 23.3 | C | 0.48 | 24.1 | C |
| 3 | Willow Ave & Shepherd Ave | Signal | AM | 0.42 | 24.8 | C | 0.54 | 27.6 | C | 0.61 | 30.0 | C |
| | | | PM | 0.45 | 25.6 | C | 0.54 | 28.1 | C | 0.60 | 29.9 | C |
| 4 | Minnewawa Ave & International Ave | 2W Stop | AM | **n.a.** | **42.9** | **E** | n.a. | 26.0 | D | n.a. | **52.8** | **F** |
| | | | PM | n.a. | 30.3 | D | n.a. | 22.4 | C | **n.a.** | **47.1** | **E** |
| 5 | Minnewawa Ave & Behymer Ave | AW Stop | AM | **1.11** | **59.8** | **F** | 0.93 | 29.5 | D | **1.70** | **185.7** | **F** |
| | | | PM | **1.03** | **56.7** | **F** | **1.20** | **69.8** | **F** | **1.49** | **174.2** | **F** |
| 6 | Minnewawa Ave & Shepherd Ave | Signal | AM | 0.52 | 20.7 | C | 0.65 | 25.7 | C | 0.89 | 53.8 | D |
| | | | PM | 0.47 | 17.6 | B | 0.59 | 22.4 | C | 0.70 | 29.8 | C |
| 7 | Clovis Ave & International Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 8 | Clovis Ave & Behymer Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 9 | Clovis Ave & Shepherd Ave | Signal | AM | 0.32 | 20.7 | C | 0.63 | 25.9 | C | 0.78 | 39.1 | D |
| | | | PM | 0.29 | 18.3 | B | 0.52 | 24.5 | C | 0.71 | 37.6 | D |

**Table 12: Near-Term Intersection Operations with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Existing | | | Near Term without Project | | | Near Term with MPArea 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 10 | Clovis Ave & Nees Ave | Signal | AM | 0.53 | 21.4 | C | 0.74 | 31.1 | C | 0.70 | 33.0 | C |
| | | | PM | 0.50 | 19.3 | B | 0.63 | 25.9 | C | 0.81 | 48.9 | D |
| 11 | Clovis Ave & Alluvial Ave | Signal | AM | 0.62 | 24.3 | C | 0.79 | 36.5 | D | 0.77 | 35.0 | D |
| | | | PM | 0.54 | 24.3 | C | 0.65 | 26.9 | C | 0.71 | 34.6 | C |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 0.60 | 36.5 | D | 0.71 | 39.0 | D | 0.86 | 44.1 | D |
| | | | PM | 0.74 | 43.3 | D | 0.88 | 52.6 | D | **0.95** | **59.6** | **E** |
| 13 | SR 168 EB Ramps & Herndon Ave | Signal | AM | 0.41 | 19.3 | B | 0.45 | 18.6 | B | 0.53 | 18.9 | B |
| | | | PM | 0.61 | 23.1 | C | 0.73 | 37.0 | D | 0.82 | 54.2 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signal | AM | 0.65 | 22.3 | C | 0.68 | 21.1 | C | 1.00 | 35.3 | D |
| | | | PM | 0.53 | 11.9 | B | 0.54 | 11.6 | B | 0.60 | 12.9 | B |
| 15 | Behymer Ave & Sunnyside Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 16 | Sunnyside Ave & Shepherd Ave | AW Stop | AM | 0.58 | 13.4 | B | **1.08** | **49.7** | **E** | **1.02** | **42.8** | **E** |
| | | | PM | 0.60 | 13.2 | B | 0.95 | 31.6 | D | 0.74 | 18.0 | C |
| 17 | Sunnyside Ave & Nees Ave | AW Stop | AM | 0.83 | 23.4 | C | **1.26** | **86.0** | **F** | **1.65** | **191.0** | **F** |
| | | | PM | 0.90 | 28.0 | D | **1.65** | **174.7** | **F** | **2.31** | **327.3** | **F** |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | 0.70 | 26.8 | C | **1.00** | **89.6** | **F** | **1.06** | **105.9** | **F** |
| | | | PM | 0.45 | 18.6 | B | 0.52 | 19.6 | B | 0.60 | 24.8 | C |

**Table 12: Near-Term Intersection Operations with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Existing | | | Near Term without Project | | | Near Term with MPArea 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 19 | Sunnyside Ave & Herndon Ave | Signal | AM | 0.47 | 27.0 | C | 0.48 | 30.0 | C | 0.65 | 35.8 | D |
| | | | PM | 0.69 | 34.1 | C | 0.77 | 45.4 | D | **0.86** | **57.4** | **E** |
| 20 | Fowler Ave & Behymer Ave | AW Stop | AM | **0.99** | **38.5** | **E** | **0.99** | **38.5** | **E** | **1.29** | **94.7** | **F** |
| | | | PM | 0.91 | 28.5 | D | **1.23** | **88.8** | **F** | **1.19** | **75.6** | **F** |
| 21 | Fowler Ave & Perrin Ave | 2W Stop | AM | n.a. | 0.0 | 0 | n.a. | 18.0 | C | **n.a.** | **383.7** | **F** |
| | | | PM | n.a. | 0.0 | 0 | n.a. | 17.7 | C | **n.a.** | **146.6** | **F** |
| 22 | Fowler Ave & Shepherd Ave | Signal | AM | 0.53 | 18.4 | B | 0.56 | 19.9 | B | 0.78 | 35.0 | C |
| | | | PM | 0.38 | 16.9 | B | 0.49 | 18.3 | B | 0.63 | 21.9 | C |
| 23 | Fowler Ave & Teague Ave | 2W Stop | AM | n.a. | 13.5 | B | n.a. | 13.4 | B | n.a. | 25.0 | D |
| | | | PM | n.a. | 14.7 | B | n.a. | 16.2 | C | n.a. | 32.9 | D |
| 24 | Fowler Ave & Nees Ave | Signal | AM | 0.60 | 15.5 | B | 0.57 | 15.1 | B | 0.68 | 21.3 | C |
| | | | PM | 0.59 | 15.4 | B | 0.69 | 19.0 | B | 0.78 | 25.8 | C |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | 0.63 | 21.8 | C | **0.94** | **80.4** | **F** | **1.03** | **97.1** | **F** |
| | | | PM | 0.49 | 17.4 | B | 0.52 | 17.6 | B | 0.61 | 19.5 | B |
| 26 | Fowler Ave & SR 168 WB Ramps | Signal | AM | 0.83 | 34.2 | C | 0.80 | 25.9 | C | 0.87 | 35.1 | D |
| | | | PM | 0.49 | 13.4 | B | 0.51 | 13.3 | B | 0.57 | 14.6 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signal | AM | 0.59 | 22.9 | C | 0.72 | 27.5 | C | 0.71 | 25.8 | C |
| | | | PM | **0.83** | **55.4** | **E** | **0.92** | **66.6** | **E** | 0.75 | 32.2 | C |

**Table 12: Near-Term Intersection Operations with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Existing | | | Near Term without Project | | | Near Term with MPArea 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 28 | Perrin Rd & Burgan Ave | 2W Stop | AM | n.a. | 8.7 | A | n.a. | 8.7 | A | n.a. | 20.8 | C |
| | | | PM | n.a. | 8.6 | A | n.a. | 8.6 | A | n.a. | 20.0 | C |
| 29 | Burgan Ave & Shepherd Ave | 2W Stop | AM | n.a. | 17.4 | C | n.a. | 20.3 | C | n.a. | 18.4 | C |
| | | | PM | n.a. | 9.6 | A | n.a. | 10.2 | B | n.a. | 12.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | 2W Stop | AM | n.a. | 18.2 | C | **n.a.** | **37.2** | **E** | n.a. | 29.8 | D |
| | | | PM | n.a. | 12.9 | B | n.a. | 15.1 | C | n.a. | 12.0 | B |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | 0.46 | 16.8 | B | 0.60 | 20.1 | C | **0.89** | **68.9** | **E** |
| | | | PM | 0.28 | 14.2 | B | 0.46 | 15.7 | B | 0.78 | 48.5 | D |
| 32 | Nees Ave & Temperance Ave | Signal | AM | 0.56 | 19.8 | B | 0.67 | 23.8 | C | 0.67 | 25.1 | C |
| | | | PM | 0.42 | 17.0 | B | 0.46 | 17.3 | B | 0.60 | 20.0 | C |
| 33 | Temperance Ave & Alluvial Ave | RBT | AM | 0.00 | 8.3 | A | 0.00 | 11.4 | B | 0.00 | 14.5 | B |
| | | | PM | 0.00 | 6.7 | A | 0.00 | 8.3 | A | 0.00 | 10.0 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signal | AM | 0.54 | 7.1 | A | 0.51 | 6.9 | A | 0.65 | 8.2 | A |
| | | | PM | 0.31 | 5.0 | A | 0.38 | 4.8 | A | 0.45 | 4.7 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | **AM** | **0.96** | **67.8** | **E** | **1.05** | **101.0** | **F** | **1.02** | **93.5** | **F** |
| | | | **PM** | **1.03** | **100.8** | **F** | **1.24** | **152.0** | **F** | **1.09** | **98.9** | **F** |
| 36 | Locan Ave & Shepherd Ave | 2W Stop | AM | n.a. | 14.6 | B | n.a. | 17.2 | C | n.a. | 28.1 | D |
| | | | PM | n.a. | 12.3 | B | n.a. | 13.0 | B | **n.a.** | **39.3** | **E** |

**Table 12: Near-Term Intersection Operations with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Existing | | | Near Term without Project | | | Near Term with MPArea 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 37 | Locan Ave & Nees Ave | AW Stop | AM | 0.43 | 9.4 | A | 0.51 | 10.4 | B | 0.68 | 13.6 | B |
| | | | PM | 0.37 | 9.2 | A | 0.39 | 9.5 | A | 0.58 | 12.2 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 39 | De Wolf Ave & Shepherd Ave | Signal | AM | 0.37 | 8.4 | A | 0.37 | 8.3 | A | 0.35 | 8.4 | A |
| | | | PM | 0.24 | 7.3 | A | 0.28 | 7.3 | A | 0.45 | 8.9 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | AW Stop | AM | **1.13** | **75.1** | **F** | **1.10** | **68.5** | **F** | **1.46** | **180.0** | **F** |
| | | | PM | 0.69 | 16.0 | C | 0.71 | 16.7 | C | **1.02** | **46.8** | **E** |
| 41 | Owens Mountain Pkwy & SR 168 | Signal | AM | 0.66 | 46.1 | D | 0.57 | 39.2 | D | 0.67 | 50.2 | D |
| | | | PM | 0.48 | 31.6 | C | 0.45 | 31.0 | C | 0.54 | 38.7 | D |
| 4101 | Owens Mntn Pkwy & SR 168 WB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 4102 | Owens Mntn Pkwy & SR 168 EB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 42 | Shepherd Ave & SR 168 | Signal | AM | 0.36 | 8.4 | A | 0.31 | 26.6 | C | 0.35 | 27.5 | C |
| | | | PM | 0.48 | 31.6 | C | 0.19 | 23.5 | C | 0.22 | 24.2 | C |
| 4201 | Shepherd Ave & SR 168 WB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

**Table 12: Near-Term Intersection Operations with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Existing | | | Near Term without Project | | | Near Term with MPArea 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS | V/C | Delay | LOS |
| 4202 | Shepherd Ave & SR 168 EB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 43 | Shepherd Ave & Project Access South | Signal | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.17 | 10.8 | B |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.16 | 10.4 | B |
| 44 | Behymer Ave & Project Access North | Signal | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.14 | 9.2 | A |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.12 | 9.3 | A |

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout
V/C = Volume/capacity ratio
Delay = Average vehicle delay in seconds
**Bold** = Deficient LOS E or F

Source: Kittelson & Associates, 2024

## Near-Term with Master Plan MPArea 1+2

Intersection operations were evaluated with near-term development plus development of the full Vista Ranch Master Plan area, MPArea 1 and MPArea 2 (**Table 13**).

The addition of Vista Ranch Master Plan traffic to the near-term development traffic would cause five of the six intersections identified as deficient with MPArea 1 to continue to have deficient operations:

4. Minnewawa Ave. & International Ave. (AM and PM)
12. Clovis Ave. & Herndon Ave. (PM)
21. Fowler Ave. & Perrin Ave. (AM and PM)
31. Temperance Ave. & Shepherd Ave. (AM and PM)
36. Locan Ave. & Shepherd Ave. (AM and PM)

Intersection 19, Sunnyside Ave. & Herndon Ave. is not projected to have deficient operations with the full Master Plan. This is most likely due to increased internalization of traffic with more mixed uses within Vista Ranch that would reduce traffic at this location.

The addition of Vista Ranch Master Plan traffic to the near-term development traffic would cause five additional intersections to have deficient operations beyond those identified with MPArea 1 development:

6. Minnewawa Ave. & Shepherd Ave. (AM)
9. Clovis Ave. & Shepherd Ave. (AM)
10. Clovis Ave. & Nees Ave. (AM)
23. Fowler Ave. & Teague Ave. (PM)
41. Owens Mountain Pkwy. & SR 168 (PM)

The project would also add delay to five intersections which are projected to have deficient operations with near-term development without the Vista Ranch project:

17. Sunnyside Ave. & Nees Ave.
18. Sunnyside Ave. & Alluvial Ave.
20. Fowler Ave. & Behymer Ave.
25. Fowler Ave. & Alluvial Ave.
40. De Wolf Ave. & Owens Mountain Pkwy.

Improvements to address the deficient locations caused by project traffic are discussed in the Mitigations and Recommendations section, page 103.

**Table 13: Near-Term Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Near Term without Project | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 1 | Willow Ave & International Ave | Signal | AM | 0.65 | 29.8 | C | 0.65 | 30.4 | C |
| | | | PM | 0.52 | 22.4 | C | 0.59 | 25.4 | C |
| 2 | Willow Ave & Behymer Ave | Signal | AM | 0.55 | 27.3 | C | 0.63 | 33.6 | C |
| | | | PM | 0.47 | 23.3 | C | 0.50 | 24.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signal | AM | 0.54 | 27.6 | C | 0.54 | 25.9 | C |
| | | | PM | 0.54 | 28.1 | C | 0.68 | 33.3 | C |
| 4 | Minnewawa Ave & International Ave | 2W Stop | AM | n.a. | 26.0 | D | **n.a.** | **75.5** | **F** |
| | | | PM | n.a. | 22.4 | C | **n.a.** | **47.8** | **E** |
| 5 | Minnewawa Ave & Behymer Ave | AW Stop | AM | 0.93 | 29.5 | D | **1.94** | **235.4** | **F** |
| | | | PM | **1.20** | **69.8** | **F** | **1.63** | **220.2** | **F** |
| 6 | Minnewawa Ave & Shepherd Ave | Signal | AM | 0.65 | 25.7 | C | **0.97** | **78.8** | **E** |
| | | | PM | 0.59 | 22.4 | C | 0.70 | 30.5 | C |
| 7 | Clovis Ave & International Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 8 | Clovis Ave & Behymer Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 9 | Clovis Ave & Shepherd Ave | Signal | AM | 0.63 | 25.9 | C | **0.85** | **59.6** | **E** |
| | | | PM | 0.52 | 24.5 | C | 0.72 | 41.4 | D |

**Table 13: Near-Term Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Near Term without Project | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 10 | Clovis Ave & Nees Ave | Signal | AM | 0.74 | 31.1 | C | **0.87** | **60.1** | **E** |
| | | | PM | 0.63 | 25.9 | C | 0.75 | 37.6 | D |
| 11 | Clovis Ave & Alluvial Ave | Signal | AM | 0.79 | 36.5 | D | 0.81 | 48.2 | D |
| | | | PM | 0.65 | 26.9 | C | 0.72 | 31.8 | C |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 0.71 | 39.0 | D | 0.81 | 43.6 | D |
| | | | PM | 0.88 | 52.6 | D | **1.01** | **71.3** | **E** |
| 13 | SR 168 EB Ramps & Herndon Ave | Signal | AM | 0.45 | 18.6 | B | 0.51 | 18.1 | B |
| | | | PM | 0.73 | 37.0 | D | 0.83 | 54.6 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signal | AM | 0.68 | 21.1 | C | 1.01 | 36.2 | D |
| | | | PM | 0.54 | 11.6 | B | 0.58 | 13.6 | B |
| 15 | Behymer Ave & Sunnyside Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 16 | Sunnyside Ave & Shepherd Ave | AW Stop | AM | **1.08** | **49.7** | **E** | 0.75 | 19.0 | C |
| | | | PM | 0.95 | 31.6 | D | 0.73 | 18.7 | C |
| 17 | Sunnyside Ave & Nees Ave | AW Stop | AM | **1.26** | **86.0** | **F** | **1.92** | **238.4** | **F** |
| | | | PM | **1.65** | **174.7** | **F** | **2.55** | **344.9** | **F** |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | **1.00** | **89.6** | **F** | **1.15** | **138.9** | **F** |
| | | | PM | 0.52 | 19.6 | B | 0.70 | 27.1 | C |

**Table 13: Near-Term Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Near Term without Project | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 19 | Sunnyside Ave & Herndon Ave | Signal | AM | 0.48 | 30.0 | C | 0.66 | 37.7 | D |
| | | | PM | 0.77 | 45.4 | D | 0.82 | 49.4 | D |
| 20 | Fowler Ave & Behymer Ave | AW Stop | AM | **0.99** | **38.5** | **E** | **1.35** | **103.4** | **F** |
| | | | PM | **1.23** | **88.8** | **F** | **1.22** | **109.5** | **F** |
| 21 | Fowler Ave & Perrin Ave | 2W Stop | AM | n.a. | 18.0 | C | **n.a.** | **431.4** | **F** |
| | | | PM | n.a. | 17.7 | C | **n.a.** | **109.5** | **F** |
| 22 | Fowler Ave & Shepherd Ave | Signal | AM | 0.56 | 19.9 | B | 0.77 | 34.9 | C |
| | | | PM | 0.49 | 18.3 | B | 0.63 | 21.6 | C |
| 23 | Fowler Ave & Teague Ave | 2W Stop | AM | n.a. | 13.4 | B | n.a. | 27.0 | D |
| | | | PM | n.a. | 16.2 | C | **n.a.** | **63.1** | **F** |
| 24 | Fowler Ave & Nees Ave | Signal | AM | 0.57 | 15.1 | B | 0.71 | 20.8 | C |
| | | | PM | 0.69 | 19.0 | B | 0.76 | 23.2 | C |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | **0.94** | **80.4** | **F** | **1.11** | **132.8** | **F** |
| | | | PM | 0.52 | 17.6 | B | 0.67 | 21.5 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signal | AM | 0.80 | 25.9 | C | 0.90 | 42.2 | D |
| | | | PM | 0.51 | 13.3 | B | 0.57 | 14.3 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signal | AM | 0.72 | 27.5 | C | 0.71 | 26.2 | C |
| | | | PM | **0.92** | **66.6** | **E** | 0.76 | 30.1 | C |

**Table 13: Near-Term Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Near Term without Project | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 28 | Perrin Rd & Burgan Ave | 2W Stop | AM | n.a. | 8.7 | A | n.a. | 22.6 | C |
| | | | PM | n.a. | 8.6 | A | n.a. | 21.3 | C |
| 29 | Burgan Ave & Shepherd Ave | 2W Stop | AM | n.a. | 20.3 | C | n.a. | 14.7 | B |
| | | | PM | n.a. | 10.2 | B | n.a. | 12.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | 2W Stop | AM | **n.a.** | **37.2** | **E** | n.a. | 20.4 | C |
| | | | PM | n.a. | 15.1 | C | n.a. | 12.0 | B |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | 0.60 | 20.1 | C | **0.98** | **98.7** | **F** |
| | | | PM | 0.46 | 15.7 | B | **0.83** | **63.6** | **E** |
| 32 | Nees Ave & Temperance Ave | Signal | AM | 0.67 | 23.8 | C | 0.73 | 29.0 | C |
| | | | PM | 0.46 | 17.3 | B | 0.67 | 23.0 | C |
| 33 | Temperance Ave & Alluvial Ave | RBT | AM | n.a. | 11.4 | B | n.a. | 16.6 | C |
| | | | PM | n.a. | 8.3 | A | n.a. | 9.8 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signal | AM | 0.51 | 6.9 | A | 0.69 | 9.0 | A |
| | | | PM | 0.38 | 4.8 | A | 0.42 | 4.9 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | **AM** | **1.05** | **101.0** | **F** | **1.01** | **88.9** | **F** |
| | | | **PM** | **1.24** | **152.0** | **F** | **1.01** | **75.1** | **F** |
| 36 | Locan Ave & Shepherd Ave | 2W Stop | AM | n.a. | 17.2 | C | n.a. | **>999** | **F** |
| | | | PM | n.a. | 13.0 | B | n.a. | **652.2** | **F** |

**Table 13: Near-Term Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Near Term without Project | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 37 | Locan Ave & Nees Ave | AW Stop | AM | 0.51 | 10.4 | B | 0.75 | 15.8 | C |
| | | | PM | 0.39 | 9.5 | A | 0.77 | 18.3 | C |
| 38 | Locan Ave & Owens Mountain Pkwy | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 39 | De Wolf Ave & Shepherd Ave | Signal | AM | 0.37 | 8.3 | A | 0.49 | 9.0 | A |
| | | | PM | 0.28 | 7.3 | A | 0.55 | 10.4 | B |
| 40 | De Wolf Ave & Owens Mountain Pkwy | AW Stop | AM | **1.10** | **68.5** | **F** | **1.59** | **226.0** | **F** |
| | | | PM | 0.71 | 16.7 | C | **1.20** | **91.9** | **F** |
| 41 | Owens Mountain Pkwy & SR 168 | Signal | AM | 0.57 | 39.2 | D | 0.70 | 54.7 | D |
| | | | PM | 0.45 | 31.0 | C | **0.57** | **55.9** | **E** |
| 4101 | Owens Mntn Pkwy & SR 168 WB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 4102 | Owens Mntn Pkwy & SR 168 EB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 42 | Shepherd Ave & SR 168 | Signal | AM | 0.31 | 26.6 | C | 0.39 | 28.8 | C |
| | | | PM | 0.19 | 23.5 | C | 0.21 | 24.1 | C |
| 4201 | Shepherd Ave & SR 168 WB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

**Table 13: Near-Term Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Near Term without Project | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 4202 | Shepherd Ave & SR 168 EB Ramps | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 43 | Shepherd Ave & Project Access South | 2W Stop | AM | n.a. | n.a. | n.a. | n.a. | 10.0 | B |
| | | | PM | n.a. | n.a. | n.a. | n.a. | 10.3 | B |
| 44 | Behymer Ave & Project Access North | 2W Stop | AM | n.a. | n.a. | n.a. | n.a. | 9.6 | A |
| | | | PM | n.a. | n.a. | n.a. | n.a. | 9.5 | A |

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout
V/C = Volume/capacity ratio
Delay = Average vehicle delay in seconds
**Bold** = Deficient LOS E or F

Source: Kittelson & Associates, 2024

# Cumulative Conditions

Cumulative land use assumptions and traffic levels without the Vista Ranch project are consistent with the Fresno COG travel model forecasts for the RTP/SCS horizon year of 2046. The Vista Ranch Master Plan land uses were then added to the Fresno COG 2046 forecast to represent cumulative conditions with the project.

In consultation with the city of Clovis, a number of road improvements consistent with the Clovis General Plan were assumed to be implemented for the 2046 cumulative horizon year (**Table 14**). Figures illustrating the lane configurations and peak hour traffic volumes for the cumulative scenarios are attached as Appendix G.

With the assumed improvements, all but three of the study intersections are projected to operate at acceptable LOS with cumulative conditions without the project. The Vista Ranch project is projected to cause the following changes in traffic operations compared to cumulative conditions without the project:

- Change from non-deficient LOS without the project to deficient LOS with the project
  - 20. Fowler Ave & Behymer Ave: Change LOS from C to F in the AM peak hour
  - 21. Fowler Avenue & Perrin Avenue: Change LOS from D to F in the PM peak hour
- Add delay to an intersection which would be deficient without the project
  - 12. Clovis Avenue & Herndon Avenue: Change LOS from E to F
  - 21. Fowler Avenue & Perrin Avenue: Add delay to LOS F in the AM peak hour
- Reduce delay due to changes in traffic patterns
  - 27. Fowler Avenue & SR 168 EB Ramps: Improve LOS from E to D
  - 35. Temperance Avenue & SR 168 EB Ramps: Improve LOS from F to E but intersection would still be deficient

Improvements to address the deficient locations caused by project traffic are discussed in the Mitigations and Recommendations section, page 103.

**Table 14: Cumulative Conditions Assumed Road Improvements**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| 1 | Willow Ave & International Ave | Add 2nd WB Through | |
| 4 | Minnewawa Ave & International Ave | | Roundabout replaces Two-way stop |
| 5 | Minnewawa Ave & Behymer Ave | Add left-turn lanes NB and SB;<br>Add left and right-turn lanes EB and WB | Signal replaces All-way stop |
| 7 | Clovis Ave & International Ave | Extend Clovis as 4 lane road | Install signal |
| 8 | Clovis Ave & Behymer Ave | Extend Clovis as 4 lane road | Install signal |
| 16 | Sunnyside Ave & Shepherd Ave | Add right-turn lanes NB and SB;<br>Widen Shepherd from 2 to 4 lanes | Signal replaces All-way stop |
| 17 | Sunnyside Ave & Nees Ave | | Signal replaces All-way stop |
| 20 | Fowler Ave & Behymer Ave | Add left-turn lanes on all approaches | Signal replaces All-way stop |
| 22 | Fowler Ave & Shepherd Ave | Add right-turn lane SB | |
| 23 | Fowler Ave & Teague Ave | Add 2nd through lane and right-turn lane NB;<br>Add left and right-turn lanes EB and WB | Signal replaces Two-way stop |
| 24 | Fowler Ave & Nees Ave | Add 2nd through lane and right-turn lane SB | |
| 25 | Fowler Ave & Alluvial Ave | Add right-turn lane SB;<br>Narrow from 2 to 1 through lanes WB | |
| 29 | Burgan Ave & Shepherd Ave | Widen from 1 to 2 lanes WB | |
| 31 | Temperance Ave & Shepherd Ave | Add left-turn lane SB;<br>Widen from 1 to 2 through lanes WB | |

**Table 14: Cumulative Conditions Assumed Road Improvements**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| 32 | Nees Ave & Temperance Ave | Widen from 1 to 2 through lanes EB and WB | |
| 36 | Locan Ave & Shepherd Ave | Add left-turn lane SB; Add right-turn lane EB; Add 2nd through lane and right-turn lane WB | |
| 37 | Locan Ave & Nees Ave | Add left-turn lane NB; Add 2nd through lane SB; Add 2nd through lane and right-turn lane EB and WB | Signal replaces All-way stop |
| 38 | Locan Ave & Owens Mountain Pkwy | New intersection with 2 through lanes EB and WB | Install signal |
| 40 | De Wolf Ave & Owens Mountain Pkwy | | Roundabout replaces All-way stop |
| 41 | Owen Mountain Pkwy & SR 168 | Diamond interchange with 2 intersections replaces at-grade intersection | Install 2 signals |
| 42 | Shepherd Ave & SR 168 | Diamond interchange with 2 intersections replaces at-grade intersection | Install 2 signals |

Source: Kittelson & Associates, City of Clovis, 2024

**Table 15: Cumulative Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Cumulative without Project | | | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 1 | Willow Ave & International Ave | Signal | AM | 0.57 | 26.3 | C | 0.56 | 26.1 | C |
| | | | PM | 0.44 | 20.3 | C | 0.44 | 20.9 | C |
| 2 | Willow Ave & Behymer Ave | Signal | AM | 0.53 | 27.8 | C | 0.54 | 28.5 | C |
| | | | PM | 0.44 | 22.6 | C | 0.44 | 22.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signal | AM | 0.58 | 30.8 | C | 0.56 | 29.7 | C |
| | | | PM | 0.58 | 32.6 | C | 0.53 | 29.1 | C |
| 4 | Minnewawa Ave & International Ave | **RBT** | AM | n.a. | 4.5 | A | n.a. | 4.3 | A |
| | | | PM | n.a. | 4.3 | A | n.a. | 4.3 | A |
| 5 | Minnewawa Ave & Behymer Ave | **Signal** | AM | 0.50 | 20.3 | C | 0.57 | 21.7 | C |
| | | | PM | 0.45 | 18.6 | B | 0.45 | 18.8 | B |
| 6 | Minnewawa Ave & Shepherd Ave | Signal | AM | 0.70 | 29.1 | C | 0.81 | 40.4 | D |
| | | | PM | 0.60 | 23.0 | C | 0.57 | 21.7 | C |
| 7 | Clovis Ave & International Ave | **Signal** | AM | 0.42 | 8.5 | A | 0.40 | 9.8 | A |
| | | | PM | 0.33 | 8.3 | A | 0.33 | 9.1 | A |
| 8 | Clovis Ave & Behymer Ave | **Signal** | AM | 0.60 | 12.4 | B | 0.63 | 15.1 | B |
| | | | PM | 0.47 | 11.4 | B | 0.47 | 13.2 | B |
| 9 | Clovis Ave & Shepherd Ave | Signal | AM | 0.60 | 34.3 | C | 0.49 | 28.6 | C |
| | | | PM | 0.45 | 23.4 | C | 0.49 | 26.1 | C |

**Table 15: Cumulative Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Cumulative without Project | | | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 10 | Clovis Ave & Nees Ave | Signal | AM | 0.58 | 23.2 | C | 0.62 | 25.9 | C |
| | | | PM | 0.59 | 24.2 | C | 0.63 | 27.4 | C |
| 11 | Clovis Ave & Alluvial Ave | Signal | AM | 0.62 | 25.7 | C | 0.66 | 27.7 | C |
| | | | PM | 0.67 | 32.6 | C | 0.67 | 31.2 | C |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 0.75 | 39.9 | D | 0.81 | 42.2 | D |
| | | | PM | **0.98** | **69.9** | **E** | **1.06** | **85.0** | **F** |
| 13 | SR 168 EB Ramps & Herndon Ave | Signal | AM | 0.52 | 20.8 | C | 0.53 | 19.9 | B |
| | | | PM | 0.77 | 33.6 | C | 0.83 | 45.0 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signal | AM | 0.92 | 28.0 | C | 0.93 | 28.4 | C |
| | | | PM | 0.55 | 11.5 | B | 0.56 | 11.6 | B |
| 15 | Behymer Ave & Sunnyside Ave | Future | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 16 | Sunnyside Ave & Shepherd Ave | **Signal** | AM | 0.44 | 17.8 | B | 0.49 | 21.7 | C |
| | | | PM | 0.49 | 20.4 | C | 0.48 | 20.1 | C |
| 17 | Sunnyside Ave & Nees Ave | **Signal** | AM | 0.64 | 26.0 | C | 0.75 | 35.8 | D |
| | | | PM | 0.64 | 24.3 | C | 0.79 | 43.8 | D |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | 0.68 | 25.6 | C | 0.85 | 45.5 | D |
| | | | PM | 0.55 | 22.6 | C | 0.69 | 26.9 | C |

**Table 15: Cumulative Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Cumulative without Project | | | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 19 | Sunnyside Ave & Herndon Ave | Signal | AM | 0.52 | 30.3 | C | 0.63 | 33.4 | C |
| | | | PM | 0.71 | 35.9 | D | 0.86 | 47.1 | D |
| 20 | Fowler Ave & Behymer Ave | **Signal** | AM | 0.72 | 28.5 | C | **0.84** | **86.3** | **F** |
| | | | PM | 0.72 | 27.5 | C | 0.83 | 47.0 | D |
| 21 | Fowler Ave & Perrin Ave | 2W Stop | AM | **n.a.** | **53.8** | **F** | **n.a.** | **278.6** | **F** |
| | | | PM | n.a. | 31.4 | D | **n.a.** | **65.0** | **F** |
| 22 | Fowler Ave & Shepherd Ave | Signal | AM | 0.81 | 39.3 | D | 0.77 | 34.6 | C |
| | | | PM | 0.72 | 28.1 | C | 0.70 | 27.7 | C |
| 23 | Fowler Ave & Teague Ave | **Signal** | AM | 0.39 | 8.4 | A | 0.39 | 10.0 | A |
| | | | PM | 0.35 | 8.2 | A | 0.36 | 10.0 | A |
| 24 | Fowler Ave & Nees Ave | Signal | AM | 0.60 | 17.5 | B | 0.59 | 17.4 | B |
| | | | PM | 0.52 | 14.6 | B | 0.57 | 16.0 | B |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | 0.71 | 25.4 | C | 0.87 | 45.4 | D |
| | | | PM | 0.64 | 22.1 | C | 0.68 | 23.9 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signal | AM | 0.83 | 30.2 | C | 0.84 | 31.9 | C |
| | | | PM | 0.50 | 12.6 | B | 0.50 | 12.4 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signal | AM | 0.68 | 23.9 | C | 0.71 | 26.1 | C |
| | | | PM | **0.93** | **62.3** | **E** | 0.82 | 37.0 | D |

**Table 15: Cumulative Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Cumulative without Project | | | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 28 | Perrin Rd & Burgan Ave | 2W Stop | AM | n.a. | 8.6 | A | n.a. | 14.6 | B |
| | | | PM | n.a. | 8.6 | A | n.a. | 17.8 | C |
| 29 | Burgan Ave & Shepherd Ave | 2W Stop | AM | n.a. | 17.8 | C | n.a. | 20.7 | C |
| | | | PM | n.a. | 12.6 | B | n.a. | 16.0 | C |
| 30 | Armstrong Ave & Shepherd Ave | 2W Stop | AM | n.a. | 22.9 | C | n.a. | 24.2 | C |
| | | | PM | n.a. | 16.3 | C | n.a. | 16.0 | C |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | 0.47 | 18.0 | B | 0.77 | 45.7 | D |
| | | | PM | 0.40 | 15.6 | B | 0.63 | 31.7 | C |
| 32 | Nees Ave & Temperance Ave | Signal | AM | 0.48 | 16.8 | B | 0.50 | 17.2 | B |
| | | | PM | 0.46 | 14.9 | B | 0.50 | 15.6 | B |
| 33 | Temperance Ave & Alluvial Ave | RBT | AM | n.a. | 18.5 | C | n.a. | 20.7 | C |
| | | | PM | n.a. | 9.4 | A | n.a. | 12.9 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signal | AM | 0.51 | 6.5 | A | 0.61 | 7.3 | A |
| | | | PM | 0.36 | 4.4 | A | 0.44 | 4.6 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | **AM** | **1.06** | **89.6** | **F** | **0.96** | **66.6** | **E** |
| | | | **PM** | **1.15** | **124.4** | **F** | **0.97** | **65.2** | **E** |
| 36 | Locan Ave & Shepherd Ave | **Signal** | AM | 0.20 | 9.7 | A | 0.54 | 32.1 | C |
| | | | PM | 0.14 | 8.4 | A | 0.66 | 37.0 | D |

**Table 15: Cumulative Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Cumulative without Project | | | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 37 | Locan Ave & Nees Ave | **Signal** | AM | 0.29 | 13.0 | B | 0.32 | 13.6 | B |
| | | | PM | 0.26 | 12.3 | B | 0.52 | 15.7 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | **Signal** | AM | 0.31 | 9.8 | A | 0.52 | 12.4 | B |
| | | | PM | 0.21 | 9.5 | A | 0.52 | 14.2 | B |
| 39 | De Wolf Ave & Shepherd Ave | Signal | AM | 0.23 | 7.4 | A | 0.29 | 7.8 | A |
| | | | PM | 0.19 | 7.0 | A | 0.33 | 8.2 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | **RBT** | AM | n.a. | 5.2 | A | n.a. | 6.9 | A |
| | | | PM | n.a. | 4.7 | A | n.a. | 5.5 | A |
| 41 | Owens Mountain Pkwy & SR 168 | **None** | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 4101 | Owens Mntn Pkwy & SR 168 WB Ramps | **Signal** | AM | 0.50 | 10.3 | B | 0.61 | 12.2 | B |
| | | | PM | 0.26 | 4.0 | A | 0.28 | 3.8 | A |
| 4102 | Owens Mntn Pkwy & SR 168 EB Ramps | **Signal** | AM | 0.16 | 7.3 | A | 0.17 | 7.5 | A |
| | | | PM | 0.23 | 9.9 | A | 0.26 | 10.3 | B |
| 42 | Shepherd Ave & SR 168 | **None** | AM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| | | | PM | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 4201 | Shepherd Ave & SR 168 WB Ramps | **Signal** | AM | 0.30 | 8.2 | A | 0.33 | 8.8 | A |
| | | | PM | 0.19 | 5.2 | A | 0.23 | 5.5 | A |

**Table 15: Cumulative Intersection Operations with Vista Ranch Master Plan (MPArea 1 and MPArea 2)**

| ID | Intersection | Control Type | Peak Hour | Cumulative without Project | | | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | V/C | Delay | LOS |
| 4202 | Shepherd Ave & SR 168 EB Ramps | **Signal** | AM | 0.16 | 7.3 | A | 0.17 | 7.5 | A |
| | | | PM | 0.23 | 9.9 | A | 0.26 | 10.3 | B |
| 43 | Shepherd Ave & Project Access South | **2W Stop** | AM | n.a. | 0.0 | A | n.a. | 12.5 | B |
| | | | PM | n.a. | 0.0 | A | n.a. | 10.8 | B |
| 44 | Behymer Ave & Project Access North | **2W Stop** | AM | n.a. | 0.0 | A | n.a. | 8.9 | A |
| | | | PM | n.a. | 8.5 | A | n.a. | 9.2 | A |

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout, **Bold** = Assumed cumulative improvement
V/C = Volume/capacity ratio
Delay = Average vehicle delay in seconds
**Bold** = Deficient LOS E or F

Source: Kittelson & Associates, 2024

# Site Access and Circulation

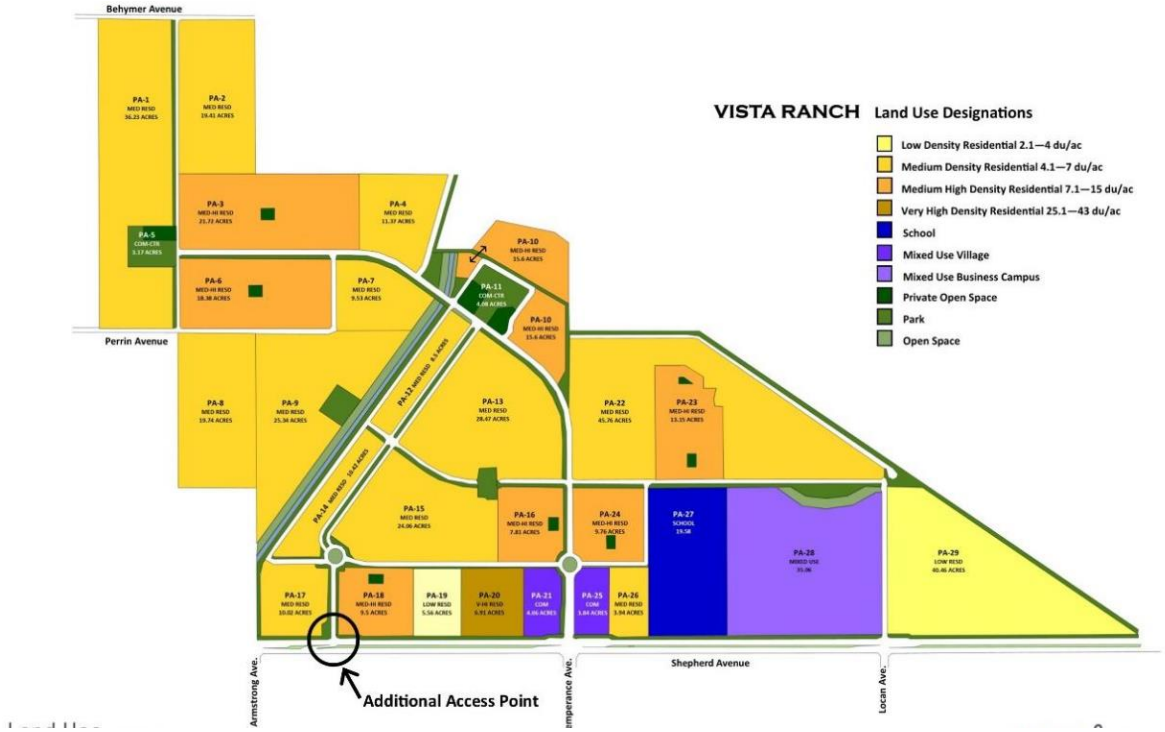
The Master Plan proposes a hierarchy of roadways to accommodate the capacity needs of the existing street network as well as provide additional vehicular access to the Master Plan. Shepherd Avenue and Temperance Avenue are the main expressway/arterial/collector roadways providing access to the project. The neighborhoods within the Master Plan will include a network of public and private residential streets supplemented by trails to provide an efficient flow of traffic and bicycle and pedestrian mobility through the area. Sidewalks will be included per the City of Clovis standards.

An additional vehicular access point is being requested along the limited access designation of Shepherd Avenue adjacent to the proposed Focus Area 13 modified site, as shown in **Figure 11.** Current City of Clovis policy is to allow permanent street access points at the 0.5-mile points along this portion of Shepherd Avenue. While there is an intersection access at Armstrong Avenue, the Shenandoah Farms residential development (approved in the County of Fresno) precludes any extension of Armstrong Avenue to the north.

The proposed modification would move what would have been an allowable access point approximately 500 feet to the east creating a non-signalized "right-in, right-out, left-in" ingress and egress on the north side of Shepherd Avenue. This configuration would interface appropriately with the currently existing Armstrong/Shepherd Avenue intersection.

Two recent and similar modifications have recently been approved along Shepherd Avenue addressing unique site and circulation needs. In this case, this access point will assist in providing the required two points of access for initial phases of development as well as accommodate "build-out" traffic circulation in a manner envisioned in the Clovis General Plan.

**Figure 11: Shepherd Avenue Access Modification**



# Roadway Segment Analysis

Intersection operations control the operations of the roadway segments under most circumstances. However, a roadway segment analysis may be used to identify traffic operation characteristics for rural roadways that do not have frequent intersections. The following roadway segments were evaluated due to their rural nature and limited number of intersections:

1. Behymer Avenue from Willow Avenue to Minnewawa Avenue
2. Behymer Avenue from Minnewawa Avenue to Sunnyside Avenue
3. Behymer Avenue from Sunnyside Avenue to Fowler Avenue
4. Behymer Avenue from Fowler Avenue to Project Access North
5. Fowler Avenue from Behymer Avenue to Shepherd Avenue
6. Fowler Avenue from Shepherd Avenue to Teague Avenue
7. Fowler Avenue from Teague Avenue to Nees Avenue

**Table 16** identifies the thresholds for the roadway segments, from the Clovis General Plan and Development Code Update. **Table 17** and

**Table** 18 summarize the results of the analysis and shows that the following roadway segments are forecast to operate at a deficient LOS under the noted scenarios:

- Behymer Avenue from Sunnyside Avenue to Fowler Avenue
  - Near-Term Plus Project (MPArea 1) – AM, PM
  - Near-Term Plus Project (MPArea 1 + MPArea 2) – AM, PM
- Fowler Avenue from Beyhymer Avenue to Shepherd Avenue
  - Near-Term Plus Project (MPArea 1) – AM, PM
  - Near-Term Plus Project (MPArea 1 + MPArea 2) – AM, PM
  - Cumulative No Project – AM
  - Cumulative Plus Project (MPArea 1 + MPArea 2) – AM

**Table 16: Roadway Segment Thresholds**

| Roadway Segment | Existing Classification[1] | Existing Peak Hour Roadway Capacity[2] | Threshold | | | Cumulative Condition Classification | Threshold | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | LOS C | LOS D | LOS E | | LOS C | LOS D | LOS E |
| Segments on Behymer Avenue | | | | | | | | | |
| 1. from Willow Avenue to Minnewawa Avenue | 2-Lane Undivided Arterial | 1,310 | 570 | 1,230 | 1,310 | 4-Lane Median Arterial[3] | 1,950 | 3,580 | 3,780 |
| 2. from Minnewawa Avenue to Sunnyside Avenue | 2-Lane Undivided Collector | 1,310 | 570 | 1,230 | 1,310 | 4-Lane Median Arterial[3] | 1,950 | 3,580 | 3,780 |
| 3. from Sunnyside Avenue to Fowler Avenue | 2-Lane Undivided Rural Collector | 1,000 | 570 | 930 | 1,000 | 2-Lane TWLTL Collector | 810 | 1,680 | 1,790 |
| 4. from Fowler Avenue to Project Access North | Local | 1,000 | 570 | 930 | 1,000 | 2-Lane Undivided Rural Collector | 570 | 930 | 1,000 |
| Segments on Fowler Avenue | | | | | | | | | |
| 5. from Behymer Avenue to Shepherd Avenue | 2-Lane Undivided Rural Collector | 1,000 | 570 | 930 | 1,000 | 2-Lane Undivided Rural Arterial | 570 | 1,230 | 1,310 |
| 6. from Shepherd Avenue to Teague Avenue | 3-Lane Raised Median Arterial | 2,830 | 1,400 | 2,670 | 2,830 | 5-Lane Raised Median Arterial | 2,500 | 4,480 | 4,730 |
| 7. from Teague Avenue to Nees Avenue | 2-Lane Undivided Arterial | 1,310 | 570 | 1,230 | 1,310 | 4-Lane Raised Median Arterial | 1,950 | 3,580 | 3,780 |

Notes:
1 Classifications for all segments have been obtained from the City of Clovis's General Plan Circulation Diagram, dated December 2014
2 Roadway capacities for all segments have been obtained from the Clovis General Plan and Development Code Update Draft PEIR, dated June 2014
3 Classifications under Cumulative Conditions have been obtained from Heritage Grove Master Plan and Design Guidelines, dated December 2016

**Table 17: Segments on Behymer Avenue**

| Roadway Segment | Hour | AM Peak Hour | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | Near-Term No Project | | Near-Term Plus Project (MPArea 1) | | Near-Term Plus Project (MPArea 1 + MPArea 2) | | Cumulative No Project | | Cumulative Plus Project (MPArea 1 + MPArea 2) | |
| | | Vol. | LOS | Vol. | LOS | Vol. | LOS | Vol. | LOS | Vol. | LOS | Vol. | LOS |
| 1. from Willow Avenue to Minnewawa Avenue | AM | 538 | C | 521 | C | 840 | D | 804 | D | 858 | C | 988 | C |
| | PM | 482 | C | 503 | C | 631 | D | 714 | D | 769 | C | 875 | C |
| 2. from Minnewawa Avenue to Sunnyside Avenue | AM | 816 | D | 818 | D | 1055 | D | 1128 | D | 963 | C | 1070 | C |
| | PM | 799 | D | 966 | D | 1051 | D | 1180 | D | 928 | C | 1005 | C |
| 3. from Sunnyside Avenue to Fowler Avenue | AM | 818 | D | 821 | D | **1057** | **F** | **1131** | **F** | 853 | D | 1126 | D |
| | PM | 788 | D | 955 | E | **1041** | **F** | **1168** | **F** | 807 | C | 1050 | D |
| 4. from Fowler Avenue to Project Access North | AM | 12 | C | 12 | C | 184 | C | 267 | C | 38 | C | 78 | C |
| | PM | 7 | C | 7 | C | 239 | C | 314 | C | 12 | C | 109 | C |

**Table 18: Segments on Fowler Avenue**

| Roadway Segment | Hour | AM Peak Hour | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | Near-Term No Project | | Existing | | Near-Term No Project | | Existing | | Near-Term No Project | |
| | | Vol. | LOS | Vol. | LOS | Vol. | LOS | Vol. | LOS | Vol. | LOS | Vol. | LOS |
| 5. from Behymer Avenue to Shepherd Avenue | AM | 891 | D | 935 | E | **1239** | **F** | **1243** | **F** | **1316** | **F** | **1324** | **F** |
| | PM | 695 | D | 908 | D | **1125** | **F** | **1159** | **F** | 1056 | D | 1139 | D |
| 6. from Shepherd Avenue to Teague Avenue | AM | 472 | C | 484 | C | 841 | C | 874 | C | 1098 | C | 1117 | C |
| | PM | 562 | C | 642 | C | 974 | C | 1032 | C | 1146 | C | 1337 | C |
| 7. from Teague Avenue to Nees Avenue | AM | 436 | C | 437 | C | 626 | D | 661 | D | 980 | C | 930 | C |
| | PM | 594 | D | 657 | D | 873 | D | 916 | D | 1152 | C | 1241 | C |

# Queueing

An analysis of maximum design (95th percentile) queue lengths was performed for each scenario using Vistro software. Individual movement queues were compared against available storage lengths in turn lanes or through lanes. Adverse effects are identified if queues would exceed available storage and the project would add trips to that movement. Turning movements with queue lengths that remain within the existing storage lengths are considered not to be a potential adverse effect and were not evaluated further. Appendix H includes the detailed queue length calculations.

## INTERSECTION QUEUES

The following describes queueing deficiencies at study intersections that would develop with the addition of project traffic:

- 2. Willow Avenue & Behymer Avenue
  - The AM peak hour queues in the westbound left-turn lane are predicted to exceed the available storage by 215′ in the Near Term Plus MPArea 1 and by 180′ in the Near Term Plus Project (MPArea 1+2) scenarios. In the PM peak hour, the queues in the westbound left-turn are predicted to exceed the available storage by 25′ in the Near Term Plus MPArea 1 and by 40′ in the Near Term Plus Project (MPArea 1+2) scenarios. The queues in the westbound left-turn are predicted to exceed the striped storage by 10′ in the Cumulative Plus Project in the AM peak hour and by 10′ in the PM peak hour. These queues are due to the assumed near-term development of Heritage Grove without assuming any associated street improvements. It is recommended that the westbound left-turn lane be extended to have a storage length of 240′ to accommodate queues and signal timing be optimized for future traffic volumes.
- 3. Willow Avenue & Shepherd Avenue
  - The AM peak hour queues in the southbound right-turn lane are predicted to exceed the available storage by 35′ in the Near Term Plus MPArea 1 and by 65′ in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the southbound right-turn lane be extended to have a storage length of 215′ to accommodate queues and signal timing be optimized for future traffic volumes.
  - The AM peak hour queues in the eastbound right-turn lane are predicted to exceed the available storage by 90′ in the Near Term Plus MPArea 1 and by 10′ in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the eastbound right-turn lane be extended to have a storage length of at least 190′ as planned improvements are implemented on Shepherd Avenue.
  - The queues in the westbound right-turn are predicted to exceed the striped storage by 75′ in the Cumulative Plus Project in the AM peak hour and by 75′ in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 5. Minnewawa Avenue & Behymer Avenue

- The queues in the southbound left-turn are predicted to exceed the striped storage by 3′ in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.

- 6. Minnewawa Avenue & Shepherd Avenue
  - The queues in the northbound left-turn are predicted to exceed the striped storage by 20′ in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The queues in the westbound left-turn are predicted to exceed the striped storage by 35′ in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.

- 9. Clovis Avenue & Shepherd Avenue
  - The queues in the southbound right-turn are predicted to exceed the available storage by 5′ in the Near Term Plus MPArea 1 scenario in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The queues in the northbound right-turn are predicted to exceed the striped storage by 80′ in the Cumulative Plus Project in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.

- 10. Clovis Avenue & Nees Avenue
  - The PM peak hour queues in the southbound right-turn lane are predicted to exceed the striped storage by 60′ in the Near Term Plus MPArea 1 and by 55′ in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the southbound right-turn lane be extended to have a storage length of 210′ to accommodate queues and signal timing be optimized for future traffic volumes.
  - The queues in the eastbound left-turn lane are predicted to exceed the striped storage by 10′ in the Near Term Plus Project (MPArea 1+2) scenario in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.

- 11. Clovis Avenue & Alluvial Avenue
  - The AM peak hour queues in the southbound right-turn lane are predicted to exceed the available storage by 5′ in the Near Term Plus MPArea 1 and by 180′ in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the southbound right-turn lane be extended to have a storage length of 420′ to accommodate queues and signal timing be optimized for future traffic volumes.
  - The queues in the eastbound right-turn are predicted to exceed the striped storage by 45′ in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.

- 12. Clovis Avenue & Herndon Avenue
  - The queues in the northbound left-turn are predicted to exceed the available storage by 10′ in the Near Term Plus MPArea 1 scenario in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.

- The queues in the westbound left-turn lane are predicted to exceed the available storage by 2′ in the Near Term Plus Project (MPArea 1) in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- The PM peak hour queues in the westbound right-turn lane are predicted to exceed the available storage by 115′ in the Near Term Plus MPArea 1 and by 110′ in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that signal timing be optimized for future traffic volumes.

- 16. Sunnyside Avenue & Shepherd Avenue
  - The queues in the southbound right-turn are predicted to exceed the striped storage by 12′ in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 17. Sunnyside Ave & Nees Avenue
  - The queues in the eastbound left-turn are predicted to exceed the striped storage by 25′ in the Cumulative Plus Project in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 18. Sunnyside Avenue & Alluvial Avenue
  - The queues in the eastbound left-turn lane are predicted to exceed the available storage by 45′ in the Near Term Plus Project (MPArea 1+2) in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The PM peak hour queues in the westbound right-turn lane are predicted to exceed the available storage by 15′ in the Near Term Plus MPArea 1 and by 65′ in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the westbound right-turn lane be extended to have a storage length of 115′ to accommodate queues and signal timing be optimized to future traffic volumes.
  - The queues in the eastbound right-turn are predicted to exceed the striped storage by 8′ in the Cumulative Plus Project in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 19. Sunnyside Avenue & Herndon Avenue
  - The queues in the eastbound left-turn lane are predicted to exceed the available storage by 25′ in the Near Term Plus MPArea 1 scenario in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The queues in the southbound left-turn are predicted to exceed the striped storage by 40′ in the Cumulative Plus Project in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The queues in the westbound right-turn are predicted to exceed the striped storage by 3′ in the Cumulative Plus Project in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage

- 25. Fowler Avenue & Alluvial Avenue
  - The queues in the northbound left-turn are predicted to exceed the striped storage by 400' in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The queues in the westbound left-turn are predicted to exceed the striped storage by 40' in the Cumulative Plus Project in the AM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 31. Temperance Avenue & Shepherd Avenue
  - The PM peak hour queues in the westbound left-turn lane are predicted to exceed the available storage by 90' in the Near Term Plus MPArea 1 and by 400' in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the westbound left-turn lane be extended to have a storage length of 500' to accommodate queues and signal timing be optimized for future traffic volumes.
- 32. Nees Avenue & Temperance Avenue
  - The queues in the northbound right-turn lane are predicted to exceed the available storage by 5' in the Near Term Plus Project (MPArea 1+2) in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
  - The queues in the eastbound left-turn lane are predicted to exceed the available storage by 20' in the Near Term Plus Project (MPArea 1+2) in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 36. Locan Avenue & Shepherd Avenue
  - The queues in the northbound left-turn are predicted to exceed the striped storage by 12' in the Cumulative Plus Project in the AM peak hour and by 50' in the PM peak hour. With optimized signal timing, the queues are expected to be contained within the striped storage.
- 41. Owens Mountain Pkwy & SR 168
  - The AM peak hour queues in the southbound right-turn are predicted to exceed the available storage by 140' in the Near Term Plus MPArea 1 and by 225' in the Near Term Plus Project (MPArea 1+2) scenarios. It is recommended that the southbound right-turn lane be extended to have a storage length of 675' to accommodate queues and signal timing be optimized to future traffic volumes. Alternatively, the planned grade-separated interchange could be constructed.
  - The queues in the eastbound left-turn are predicted to exceed the available storage by 75' in the Near Term Plus Project (MPArea 1+2) scenario in the PM peak hour. It is recommended that the eastbound left-turn lane be extended to have a storage length of 490' to accommodate queues and signal timing be optimized to future traffic volumes. Alternatively, the planned grade-separated interchange could be constructed.

# FREEWAY RAMP QUEUES

Queues are evaluated on the off-ramps at the three SR 168 interchanges included in the study area.

## SR 168 at Herndon Avenue

The storage length on the eastbound off-ramp is estimated at 700 feet. The 95th percentile queue with project traffic is estimated at 200 feet in the AM peak hour and 400 feet in the PM peak hour. The freeway mainline would not be impacted.

The storage length on the westbound off-ramp is estimated at 700 feet. The 95th percentile queue with project traffic is estimated at 190 feet in the AM peak hour and 280 feet in the PM peak hour. The freeway mainline would not be impacted.

## SR 168 at Fowler Avenue

The storage length on the eastbound off-ramp is estimated at 1300 feet. The 95th percentile queue with project traffic is estimated at 450 feet in the AM peak hour and 580 feet in the PM peak hour. The freeway mainline would not be impacted.

The storage length on the westbound off-ramp is estimated at 1400 feet. The 95th percentile queue with project traffic is estimated at 220 feet in the AM peak hour and 90 feet in the PM peak hour. The freeway mainline would not be impacted.

## SR 168 at Temperance Avenue

The storage length on the eastbound off-ramp is estimated at 1550 feet. The 95th percentile queue in the single right-turn lane with project traffic is estimated at 2090 feet in the AM peak hour and 1770 feet in the PM peak hour. The freeway mainline could be impacted by these queues. As described in the Mitigation and Recommendation section starting on page 103, it is recommended that the off-ramp be reconfigured to provide one shared lane and one right-turn lane. Allowing right turns from two lanes would improve LOS and also shorten the maximum queues in the right-turn lane.

The storage length on the westbound off-ramp is estimated at 1400 feet. The 95th percentile queue with project traffic is estimated at 90 feet in the AM peak hour and 30 feet in the PM peak hour. The freeway mainline would not be impacted.

# Signal Warrants

Analysis of signal warrants were conducted using the Manual on Uniform Traffic Control Devices (MUTCD) for 8-hour, 4- hour, and peak hour study periods for the plus-project scenarios. Table 19 lists a summary of signal warrants findings for near-term conditions and Table 20 lists signal warrant findings for cumulative conditions. A "Y" indicates that the intersection would meet the warrant for any of the three signal warrant analysis; a "N" indicates that the intersection did not meet the warrants. Signal warrant calculations using the Vistro software are included in Appendix D.

## NEAR-TERM SIGNAL WARRANTS

Of the 15 study intersections that are currently unsignalized, 11 intersections would meet one or more signal warrants with near term development plus Vista Ranch MPArea 1. One fewer intersection would meet one or more signal warrants with full Vista Ranch Master Plan development, as traffic at the intersection of Armstrong Avenue and Shepherd Avenue is projected to decrease with increased internal trips within the Master Plan area.

## CUMULATIVE SIGNAL WARRANTS

Nine of the study intersections are assumed to have traffic signals installed as part of planned improvements under cumulative conditions. Of the six study intersections that would still be unsignalized in cumulative conditions, one or more signal warrants would be met at two of the intersections with cumulative traffic plus the Vista Ranch Master Plan.

**Table 19: Near-Term Conditions Signal Warrants**

| ID | Intersection | Near Term with MPArea 1 | | | Near Term with MPArea 1+2 | | |
|---|---|---|---|---|---|---|---|
| | | 8 HR | 4 HR | 1 HR | 8 HR | 4 HR | 1 HR |
| 4 | Minnewawa Ave & International Ave | **Y** | **Y** | N | N | **Y** | N |
| 5 | Minnewawa Ave & Behymer Ave | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| 16 | Sunnyside Ave & Shepherd Ave | N | **Y** | **Y** | N | **Y** | **Y** |
| 17 | Sunnyside Ave & Nees Ave | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| 20 | Fowler Ave & Behymer Ave | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| 21 | Fowler Ave & Perrin Ave | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| 23 | Fowler Ave & Teague Ave | N | N | N | N | N | N |
| 28 | Perrin Rd & Burgan Ave | N | N | N | N | N | N |
| 29 | Burgan Ave & Shepherd Ave | N | N | N | N | N | N |
| 30 | Armstrong Ave & Shepherd Ave | **Y** | **Y** | N | N | N | N |
| 36 | Locan Ave & Shepherd Ave | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| 37 | Locan Ave & Nees Ave | N | **Y** | **Y** | N | **Y** | **Y** |
| 40 | De Wolf Ave & Owens Mountain Pkwy | N | **Y** | **Y** | N | **Y** | **Y** |
| 43 | Shepherd Ave & Project Access South | **Y** | **Y** | N | **Y** | N | N |
| 44 | Behymer Ave & Project Access North | N | N | N | N | N | N |

Source: Kittelson & Associates, 2024

**Table 20: Cumulative Conditions Signal Warrants**

| ID | Intersection | Cumulative with MPArea 1+2 | | |
|---|---|---|---|---|
| | | 8 HR | 4 HR | 1 HR |
| 21 | Fowler Ave & Perrin Ave | **Y** | **Y** | **Y** |
| 28 | Perrin Rd & Burgan Ave | N | N | N |
| 29 | Burgan Ave & Shepherd Ave | N | N | N |
| 30 | Armstrong Ave & Shepherd Ave | N | N | N |
| 43 | Shepherd Ave & Project Access South | **Y** | **Y** | **Y** |
| 44 | Behymer Ave & Project Access North | N | N | N |

Source: Kittelson & Associates, 2024

# Mitigation and Recommendations

The CEQA section describes environmental impacts and recommended mitigation appropriate for the environmental review process.

Traffic operations issues as described in the Near Term and Cumulative sections are not considered environmental impacts, and therefore do not require mitigation under the environmental review process. This section describes recommendations to improve traffic operations deficiencies that are projected to be caused by the Vista Ranch project.

# NEAR-TERM RECOMMENDATIONS

Recommendations are provided for changes in lanes and traffic control to address LOS deficiencies for near-term conditions with the Vista Ranch project. Separate recommendations are provided for MPArea 1 only and for development of the entire Master Plan MPArea 1+2.

## Near-Term MPArea 1 Recommendations

**Table 21** lists the recommendations for near-term traffic with development of Vista Ranch MPArea 1. These recommendations assume that all intersections have their existing lanes and traffic controls, and no improvements have been implemented by any of the other near-term development projects.

**Table 21: Recommendations for Near-Term with MPArea 1**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| **Recommended Without or With Vista Ranch** | | | |
| 5 | Minnewawa Ave & Behymer Ave* | Add left-turn lanes NB and SB; | Meets signal warrant, replace All-way stop with signal |
| 16 | Sunnyside Ave & Shepherd Ave | Widen Shepherd to 2 lanes each direction with left and right-turn lanes EB and WB | Meets signal warrant, replace All-way stop with signal |
| 17 | Sunnyside Ave & Nees Ave* | Add left-turn lanes NB and SB;<br>Add 2nd through lane WB | Meets signal warrant, replace All-way stop with signal |
| 18 | Sunnyside Ave & Alluvial Ave* | No planned improvements identified | |
| 20 | Fowler Ave & Behymer Ave* | Add left-turn lanes on all approaches | Meets signal warrant, replace All-way stop with signal |
| 25 | Fowler Ave & Alluvial Ave* | Add right-turn lane SB | |

**Table 21: Recommendations for Near-Term with MPArea 1**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| 27 | Fowler Ave & SR 168 EB Ramps | No planned improvements identified | |
| 30 | Armstrong Ave & Shepherd Ave | No planned improvements identified | |
| 35 | Temperance Ave & SR 168 EB Ramps | Revise EB ramp to provide 1 shared left-right lane and one right lane | |
| 40 | De Wolf Ave & Owens Mountain Pkwy* | Implement planned roundabout | Implement planned roundabout |
| **Recommended With Vista Ranch MPArea 1** | | | |
| 4 | Minnewawa Ave & International Ave | | Replace Two-way stop with All-way stop |
| 12 | Clovis Ave & Herndon Ave | | Adjust right-turn overlap timings |
| 19 | Sunnyside Ave & Herndon Ave | No planned improvements identified | |
| 21 | Fowler Ave & Perrin Ave | Add left-turn lane SB | Meets signal warrant, replace Two-way stop with signal |
| 31 | Temperance Ave & Shepherd Ave | Add through lane NB; Add left-turn lane SB; Widen from 1 to 2 through lanes WB | |
| 36 | Locan Ave & Shepherd Ave | Add right-turn lane NB and EB; Add 2nd through lane and right-turn lane WB | Meets signal warrant, replace Two-way stop with signal |

*Vista Ranch MPArea 1 traffic would also add delay to deficient intersection
Source: Kittelson & Associates, 2024

The intersection operations without and with recommended improvements are listed in **Table 22**.

**Table 22: Intersection Operations with Recommended Improvements, Near Term with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Near Term with MPArea 1 | | | Recommended Improvements | With MPArea 1 With Improvements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | | V/C | Delay | LOS |
| 4 | Minnewawa Ave & International Ave | 2W Stop | AM | **n.a.** | **52.8** | **F** | | n.a. | 19.0 | C |
| | | | PM | **n.a.** | **47.1** | **E** | AW Stop | n.a. | 16.9 | C |
| 5 | Minnewawa Ave & Behymer Ave | AW Stop | AM | **1.70** | **185.7** | **F** | Left-turn lanes | 0.92 | 36.8 | D |
| | | | PM | **1.49** | **174.2** | **F** | Signal | 0.69 | 24.1 | C |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 0.86 | 44.1 | D | | 0.86 | 44.1 | D |
| | | | PM | **0.95** | **59.6** | **E** | Right-turn overlap | 0.88 | 48.4 | D |
| 16 | Sunnyside Ave & Shepherd Ave | AW Stop | AM | **1.02** | **42.8** | **E** | Shepherd 4 lanes | 0.46 | 14.2 | B |
| | | | PM | 0.74 | 18.0 | C | Signal | 0.48 | 13.4 | B |
| 17 | Sunnyside Ave & Nees Ave | AW Stop | AM | **1.65** | **191.0** | **F** | Nees 4 lanes | 0.83 | 44.2 | D |
| | | | PM | **2.31** | **327.3** | **F** | Signal | 0.78 | 29.9 | C |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | **1.06** | **105.9** | **F** | | **1.06** | **105.9** | **F** |
| | | | PM | 0.60 | 24.8 | C | | 0.60 | 24.8 | C |
| 19 | Sunnyside Ave & Herndon Ave | Signal | AM | 0.65 | 35.8 | D | | 0.65 | 35.8 | D |
| | | | PM | **0.86** | **57.4** | **E** | | **0.81** | **55.3** | **E** |
| 20 | Fowler Ave & Behymer Ave | AW Stop | AM | **1.29** | **94.7** | **F** | Left-turn lanes | 0.82 | 52.8 | D |
| | | | PM | **1.19** | **75.6** | **F** | Signal | **0.78** | **77.9** | **E** |
| 21 | Fowler Ave & Perrin Ave | 2W Stop | AM | **n.a.** | **383.7** | **F** | Left-turn lane | n.a. | 25.8 | C |
| | | | PM | **n.a.** | **146.6** | **F** | Signal | **n.a.** | **77.9** | **E** |

**Table 22: Intersection Operations with Recommended Improvements, Near Term with Vista Ranch MPArea 1**

| ID | Intersection | Control Type | Peak Hour | Near Term with MPArea 1 | | | Recommended Improvements | With MPArea 1 With Improvements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | | V/C | Delay | LOS |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | **1.03** | **97.1** | **F** | Right-turn lane | **1.01** | **89.8** | **F** |
| | | | PM | 0.61 | 19.5 | B | | 0.61 | 19.2 | B |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | **0.89** | **68.9** | **E** | Turn lanes | 0.77 | 39.5 | D |
| | | | PM | 0.78 | 48.5 | D | Shepherd 4 lanes | 0.78 | 48.5 | D |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | **AM** | **1.02** | **93.5** | **F** | Revise ramp lanes | 0.57 | 14.2 | B |
| | | | **PM** | **1.09** | **98.9** | **F** | | **0.89** | **56.8** | **E** |
| 36 | Locan Ave & Shepherd Ave | 2W Stop | AM | n.a. | 28.1 | D | Shepherd 4 lanes | n.a. | 14.9 | B |
| | | | PM | **n.a.** | **39.3** | **E** | Signal | n.a. | 18.2 | B |
| 40 | De Wolf Ave & Owens Mountain Pkwy | AW Stop | AM | **1.46** | **180.0** | **F** | Roundabout | n.a. | 10.1 | B |
| | | | PM | **1.02** | **46.8** | **E** | | n.a. | 6.6 | A |

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout
V/C = Volume/capacity ratio
Delay = Average vehicle delay in seconds
**Bold** = Deficient LOS E or F

Source: Kittelson & Associates, 2024

The recommended improvements would provide LOS D or better operations at 8 of the 14 intersections that are projected to have deficient operations with near term development plus Vista Ranch MPArea 1. The following 6 intersections would still have deficient LOS E or F operations.

- 18. Sunnyside Avenue & Alluvial Avenue
  - No feasible improvements were identified within the available street right-of-way. As shown in Table 15, page 82, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. This is because planned citywide street improvements are expected to allow diversion of traffic away from Sunnyside Avenue and Alluvial Avenue. Conditions at this intersection should be monitored, and additional lanes provided if other planned street improvements are not implemented.
- 19. Sunnyside Avenue & Herndon Avenue
  - No feasible improvements were identified within the available street right-of-way. As shown in Table 15, page 82, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. This is because planned citywide street improvements are expected to allow diversion of traffic away from Sunnyside Avenue and Herndon Avenue. Conditions at this intersection should be monitored, and additional lanes provided if other planned street improvements are not implemented.
- 20. Fowler Avenue & Behymer Avenue
  - The recommended improvements would improve the AM peak hour LOS from F to D and the PM peak hour LOS from F to E, which would still be deficient. No feasible additional improvements were identified within the available street right-of-way.
- 21. Fowler Avenue & Perrin Road
  - The recommended improvements would improve the AM peak hour LOS from F to C and the PM peak hour LOS from F to E, which would still be deficient. No feasible additional improvements were identified within the available street right-of-way.
- 25. Fowler Avenue & Alluvial Avenue
  - No feasible improvements were identified within the available street right-of-way. As shown in Table 15, page 82, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. This is because planned citywide street improvements are expected to allow diversion of traffic away from Fowler Avenue and Alluvial Avenue. Conditions at this intersection should be monitored, and additional lanes provided if other planned street improvements are not implemented.
- 35. Temperance Avenue & SR 168 EB Ramps
  - The recommended improvements would improve the AM peak hour LOS from F to B and the PM peak hour LOS from F to E, which would still be deficient. No feasible additional improvements were identified within the available street right-of-way.

## Near-Term MPArea 1+2 Recommendations

Table 23 lists the additional recommendations for near-term traffic with development of Vista Ranch Master Plan MPAreas 1 and 2, above those recommended for MPArea1 only. These recommendations assume that all intersections have their existing lanes and traffic controls, and no improvements have been implemented by any of the other near-term development projects. The recommendations listed in Table 23 should be implemented along with recommendations listed in Table 21.

**Table 23: Additional Recommendations for Near-Term with MPArea 1+2**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| 6 | Minnewawa Ave & Shepherd Ave | Add 2nd through lanes NB and WB | |
| 9 | Clovis Ave & Shepherd Ave | Add 2nd left-turn lane NB | |
| 10 | Clovis Ave & Nees Ave | Add 2nd through lane EB | |
| 17 | Sunnyside Ave & Nees Ave* | Add left-turn lanes NB and SB;<br>Add 2nd through lane WB | Meets signal warrant, replace All-way stop with signal |
| 18 | Sunnyside Ave & Alluvial Ave* | No planned improvements identified | |
| 20 | Fowler Ave & Behymer Ave* | Add left-turn lanes on all approaches | Meets signal warrant, replace All-way stop with signal |
| 23 | Fowler Ave & Teague Ave | | Replace Two-way stop with All-way stop |
| 25 | Fowler Ave & Alluvial Ave* | Add right-turn lane SB | |
| 40 | De Wolf Ave & Owens Mountain Pkwy* | Implement planned roundabout | Implement planned roundabout |
| 41 | Owens Mountain Pkwy. & SR 168 | Implement planned interchange | |

*Improvement also recommended for traffic conditions without Vista Ranch project

Source: Kittelson & Associates, 2024

**Table 24: Intersection Operations with Recommended Improvements, Near-Term with MPArea 1+2**

| ID | Intersection | Control Type | Peak Hour | Near Term with MPArea 1+2 | | | Recommended Improvements | With MPArea 1+2 With Improvements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | | V/C | Delay | LOS |
| 4 | Minnewawa Ave & International Ave | 2W Stop | AM | **n.a.** | **75.5** | **F** | | n.a. | 25.4 | D |
| | | | PM | **n.a.** | **47.8** | **E** | AW Stop | n.a. | 16.1 | C |
| 5 | Minnewawa Ave & Behymer Ave | AW Stop | AM | **1.94** | **235.4** | **F** | NB, SB, EB, WB Left-turn lanes | 0.64 | 25.7 | C |
| | | | PM | **1.63** | **220.2** | **F** | Signal | 0.55 | 22.3 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signal | AM | **0.97** | **78.8** | **E** | WB and NB 2nd through lanes | 0.86 | 49.9 | D |
| | | | PM | 0.70 | 30.5 | C | | 0.70 | 30.5 | C |
| 9 | Clovis Ave & Shepherd Ave | Signal | AM | **0.85** | **59.6** | **E** | NB Left-turn lane | 0.79 | 53.1 | D |
| | | | PM | 0.72 | 41.4 | D | | 0.54 | 24.0 | C |
| 10 | Clovis Ave & Nees Ave | Signal | AM | **0.87** | **60.1** | **E** | EB 2nd through lane | 0.81 | 39.8 | D |
| | | | PM | 0.75 | 37.6 | D | | 0.74 | 33.2 | C |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 0.81 | 43.6 | D | | 0.81 | 43.0 | D |
| | | | PM | **1.01** | **71.3** | **E** | Right-turn overlap | **0.93** | **56.2** | **E** |
| 17 | Sunnyside Ave & Nees Ave | AW Stop | AM | **1.92** | **238.4** | **F** | Turn lanes | **1.00** | **78.8** | **E** |
| | | | PM | **2.55** | **344.9** | **F** | Signal | 0.83 | 37.4 | D |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | **1.15** | **138.9** | **F** | None identified | **1.15** | **138.9** | **F** |
| | | | PM | 0.70 | 27.1 | C | | 0.70 | 27.1 | C |

**Table 24: Intersection Operations with Recommended Improvements, Near-Term with MPArea 1+2**

| ID | Intersection | Control Type | Peak Hour | Near Term with MPArea 1+2 | | | Recommended Improvements | With MPArea 1+2 With Improvements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | | V/C | Delay | LOS |
| 20 | Fowler Ave & Behymer Ave | AW Stop | AM | **1.35** | **103.4** | **F** | Left-turn lanes | 0.81 | 50.9 | D |
| | | | PM | **1.22** | **109.5** | **F** | Signal | **1.01** | **109.3** | **F** |
| 21 | Fowler Ave & Perrin Ave | 1W Stop | AM | **1.79** | **431.4** | **F** | SB Left-turn lane | 0.83 | 31.4 | C |
| | | | PM | **1.20** | **109.5** | **F** | Signal | 0.84 | 31.1 | C |
| 23 | Fowler Ave & Teague Ave | 2W Stop | AM | n.a. | 27.0 | D | | n.a. | 16.1 | C |
| | | | PM | **n.a.** | **63.1** | **F** | AW Stop | n.a. | 27.7 | D |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | **1.11** | **132.8** | **F** | SB Right-turn lane; 2nd SB through lane | **1.10** | **125.8** | **F** |
| | | | PM | 0.67 | 21.5 | C | | 0.67 | 20.9 | C |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | **0.98** | **98.7** | **F** | Add 2nd WB through lane; NB through lane | 0.81 | 50.3 | D |
| | | | PM | **0.83** | **63.6** | **E** | Shepherd 4 lanes | 0.76 | 44.3 | D |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | **AM** | **1.01** | **88.9** | **F** | Revise ramp lanes | 0.63 | 15.2 | B |
| | | | **PM** | **1.01** | **75.1** | **F** | | 0.85 | 45.3 | D |
| 36 | Locan Ave & Shepherd Ave | 2W Stop | AM | **>2.0** | **>999** | **F** | Shepherd 4 lanes | 0.74 | 50.5 | D |
| | | | PM | **0.51** | **652.2** | **F** | Signal | 0.56 | 28.0 | C |
| 40 | De Wolf Ave & Owens Mountain Pkwy | AW Stop | AM | **n.a.** | **226.0** | **F** | Roundabout | n.a. | 11.8 | B |
| | | | PM | **n.a.** | **91.9** | **F** | | n.a. | 7.8 | A |

**Table 24: Intersection Operations with Recommended Improvements, Near-Term with MPArea 1+2**

| ID | Intersection | Control Type | Peak Hour | Near Term with MPArea 1+2 | | | Recommended Improvements | With MPArea 1+2 With Improvements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | | V/C | Delay | LOS |
| 41 | Owens Mountain Pkwy & SR 168 | Signal | AM | 0.70 | 54.7 | D | Interchange | 0.70 | 54.6 | D |
| | | | PM | **0.57** | **55.9** | **E** | | 0.57 | 54.9 | D |

Notes:
Control Types: 1W = One-way stop control, 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout
V/C = Volume/capacity ratio **Bold** = Deficient LOS E or F
Delay = Average vehicle delay in seconds Source: Kittelson & Associates, 2024

The recommended improvements would provide LOS D or better operations at 12 of the 17 intersections that are projected to have deficient operations with near term development plus Vista Ranch MPArea 1+2. The following 5 intersections would still have deficient LOS E or F operations.

- 12. Clovis Avenue & Herndon Avenue
  - The recommended improvements would reduce delay, but the intersection would still operate at deficient LOS E in the PM peak hour. No feasible additional improvements were identified within the available street right-of-way.
- 17. Sunnyside Avenue & Nees Avenue
  - The recommended improvements would improve the AM peak hour LOS from F to E, still deficient, and the PM peak hour LOS from F to D. As shown in Table 15, page 82, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. This is because planned citywide street improvements are expected to allow diversion of traffic away from Sunnyside Avenue and Nees Avenue. Conditions at this intersection should be monitored, and additional lanes provided if other planned street improvements are not implemented.
- 18. Sunnyside Avenue & Alluvial Avenue
  - No feasible improvements were identified within the available street right-of-way. As shown in Table 15, page 82, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. This is because planned citywide street improvements are expected to allow diversion of traffic away from Sunnyside Avenue and Alluvial Avenue. Conditions at this intersection should be monitored, and additional lanes provided if other planned street improvements are not implemented.
- 20. Fowler Avenue & Behymer Avenue
  - The recommended improvements would improve the AM peak hour LOS from F to D but the PM peak hour LOS would remain at F, which would still be deficient. No feasible additional improvements were identified within the available street right-of-way.
- 25. Fowler Avenue & Alluvial Avenue
  - No feasible improvements were identified within the available street right-of-way. As shown in Table 15, page 82, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. This is because planned citywide street improvements are expected to allow diversion of traffic away from Fowler Avenue and Alluvial Avenue. Conditions at this intersection should be monitored, and additional lanes provided if other planned street improvements are not implemented.

# CUMULATIVE RECOMMENDATIONS

**Table 25** lists the recommendations for cumulative traffic with development of Vista Ranch Master Plan MPAreas 1 and 2. These recommendations assume implementation of the planned improvements listed in Table 14, page 80.

**Table 25: Recommendations for Cumulative with MPArea 1+2**

| ID | Intersection | Lane Changes | Intersection Control Change |
|---|---|---|---|
| 12 | Clovis Ave & Herndon Ave | | Implement right-turn overlap phase SB |
| 20 | Fowler Ave & Behymer Ave | | Adjust signal timing for NB left turn |
| 21 | Fowler Ave & Perrin Ave | | Meets signal warrant, replace Two-way stop with signal |
| 35 | Temperance Ave & SR 168 EB Ramps | Revise ramp lanes | |

Source: Kittelson & Associates, 2024

**Table 26: Intersection Operations with Recommended Improvements, Cumulative plus Vista Ranch MPArea 1+2**

| ID | Intersection | Control Type | Peak Hour | Cumulative with MPArea 1+2 | | | Recommended Improvements | With MPArea 1+2 With Improvements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | V/C | Delay | LOS | | V/C | Delay | LOS |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 0.81 | 42.2 | D | Add right-turn phase | 0.81 | 42.2 | D |
| | | | PM | **1.06** | **85.0** | **F** | | **0.96** | **57.7** | **E** |
| 20 | Fowler Ave & Behymer Ave | Signal | AM | **0.84** | **86.3** | **F** | Adjust signal timing | 0.81 | 41.8 | D |
| | | | PM | 0.83 | 47.0 | D | | 0.83 | 47.0 | D |
| 21 | Fowler Ave & Perrin Ave | 2W Stop | AM | **n.a.** | **278.6** | **F** | Signal | n.a. | 7.2 | A |
| | | | PM | **n.a.** | **65.0** | **F** | | n.a. | 7.6 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | AM | **0.96** | **66.6** | **E** | Revise ramp lanes | 0.65 | 17.0 | B |
| | | | PM | **0.97** | **65.2** | **E** | | 0.58 | 35.5 | D |

Notes:
Control Types: 2W Stop = Two-way stop control, AW Stop = All-way stop control, RBT = Roundabout, **Bold** = Assumed cumulative improvement from existing conditions
V/C = Volume/capacity ratio
Delay = Average vehicle delay in seconds
**Bold** = Deficient LOS E or F

Source: Kittelson & Associates, 2024

The recommended improvements would provide LOS D or better operations at 2 of the 4 intersections that are projected to have deficient operations with cumulative development plus Vista Ranch MPArea 1+2. Only one intersection would still have deficient LOS E operations.

- 12. Clovis Avenue & Herndon Avenue
  - The recommended improvements would reduce delay, but the intersection would still operate at deficient LOS E in the PM peak hour. No feasible additional improvements were identified within the available street right-of-way.

# Appendix

A. Scoping Agreement
B. Traffic Counts
C. Fresno COG Model Runs and Turning Movement Forecast Outputs
D. Signal Warrants
E. Level of Service Calculation Sheets – Existing Conditions
F. Level of Service Calculation Sheets – Near Term Conditions
G. Level of Service Calculation Sheets – Cumulative Conditions
H. Queue Calculation Sheets

# Appendix A

## Scoping Agreement

KITTELSON & ASSOCIATES
155 Grand Avenue, Suite 505
Oakland, CA 94612
P 510.839.1742

January 30, 2024

Project #: 28949

Mr. Sean Smith
Engineering Division, City of Clovis
1033 Fifth Street
Clovis, CA 93612

RE: Scoping Agreement for Vista Ranch

Dear Sean:

Kittelson & Associates, Inc. (Kittelson) will be preparing a transportation impact analysis (TIA) report including a local transportation assessment (LTA) for the Vista Ranch Project (project) in the city of Clovis.

# Project Description

The project site includes approximately 952 acres located within the city's planning area and is bounded on the north by Behymer Avenue, on the east by the Big Dry Creek Reservoir, on the south by East Shepherd and East Perrin Avenues, and on the west by North Fowler and North Sunnyside Avenues. The project contains both a master plan area and a non-development sphere of influence expansion. The master plan area is mostly vacant but there are a few businesses and residences. The non-development sphere of influence area is primarily rural residential under existing conditions.

The master plan area is approximately 507 acres and proposes the construction of up to 3,286 residential units, approximately 48 acres of commercial/mixed uses, approximately 19 acres for an elementary school, and approximately 57 acres of parks, trails, and open space. The non-development area is approximately 445 acres and will not receive any entitlements other than to be included in the sphere of influence expansion.

# Proposed Scope of Work

Kittelson proposes the following scope of work for completing the LTA. This scope of work is based on the Clovis Transportation Impact Analysis Guidelines dated September 15, 2022.

## PROJECT TRIP GENERATION

Trip generation for the proposed project was estimated using the Institute of Transportation Engineer (ITE) Trip Generation Manual (11th Edition). The master plan area is split between two different areas. MPArea 1 is an approximately 368 acre area proposed for immediate development. MPArea 2 is an area of approximately 139 acres that is anticipated for future development.

Based on the land use information provided to Kittelson, the project will consist of:

- MPArea 1
  - Up to 1,291 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 1,039 medium high density residential dwelling units (Zoned R-2)
  - Up to 472 very high density residential dwelling units (Zoned R-4)

    - Up to 85,000 square feet of gateway commercial (Zoned C-1)
    - An accessible public park of 2.74 acres
- MPArea 2
    - Up to 137 low density residential dwelling units (Zoned R-1)
    - Up to 319 medium density residential dwelling units (Zoned R-1-MD)
    - Up to 115,000 square feet of gateway commercial (Zoned C-1)
    - Mini self-storage facility with up to 421,356 square feet of building (Zoned C-P)
    - Elementary school with up to 750 students (Zoned R-1-MD)

The elementary school site has the potential to also develop as up to 118 medium density residential dwelling units (R-1-MD) in the event a school is not constructed. However, the total daily, AM peak hour, and PM peak hour trip generation is higher if developed as an elementary school so the trip generation estimates will assume the more conservative case of the land being developed as a school.

Kittelson is assuming that these uses are most equivalent to the following land use codes in the ITE Trip Generation Manual:

- Low density residential (ITE 210: Single Family Detached Housing)
- Medium density residential (ITE 210: Single Family Detached Housing)
- Medium high density residential (ITE 210: Single Family Detached Housing)
- Very high density residential (ITE 220: Multifamily Housing (Low Rise))
- Gateway commercial (ITE 821: Shopping Plaza)
- Mini self-storage (ITE 151: Mini-Warehouse)
- Elementary school (ITE 520: Elementary School)
- Accessible park (ITE 411: Public Park)

Shopping plaza (ITE 821) without a supermarket was chosen to represent the gateway commercial area because the trip generation for ITE 821 (no supermarket) falls between the trip generation of shopping center (ITE 820) and shopping plaza (ITE 821 no supermarket). Therefore, it provides the most flexibility for development of a commercial parcel without being too conservative. The accessible park at 2.74 acres is smaller than most parks included in the ITE trip generation manual. Therefore, the trip generation estimate is based on the park from the ITE data that was most equivalent in size which was a 4 acre park.

The resulting trip generation for MPArea 1, MPArea 2, and the combined master plan area is shown in Table 1. As shown, the total trip generation for the master plan area is estimated to be 45,366 daily trips with 3,094 occurring in the AM peak hour and 4,097 occurring in the PM peak hour.

## PROJECT TRIP DISTRIBUTION

The project trip distribution will be derived from the Fresno Council of Governments' (Fresno COG) activity-based travel model for the LTA. To assist with determining the study area for this scoping letter, Kittelson ran a "select zone" analysis for the project area to better understand distribution patterns for the traffic analysis zones containing the project. The select zone trips were factored to equal the trip generation reported in Table 1. This select zone analysis is attached as appendix A to this letter.

## PROPOSED STUDY AREA

Based on the trip generation, trip distribution, and engineering judgement, Kittelson proposes the following 28 intersections be evaluated for this study.

1. Willow Avenue/International Avenue
2. Willow Avenue/Behymer Avenue
3. Willow Avenue/Shepherd Avenue
4. Minnewawa Avenue/International Avenue
5. Minnewawa Avenue/Behymer Avenue
6. Minnewawa Avenue/Shepherd Avenue
7. Clovis Avenue/International Avenue (Future Intersection)
8. Clovis Avenue/Behymer Avenue (Future Intersection)
9. Clovis Avenue/Shepherd Avenue
10. Clovis Avenue/Nees Avenue
11. Clovis Avenue/Alluvial Avenue
12. Clovis Avenue/Herndon Avenue
13. SR168 EB Ramps/Herndon Avenue
14. SR 168 WB Ramps/Herndon Avenue
15. Sunnyside Avenue/Behymer Avenue (Future Intersection)
16. Sunnyside Avenue/Shepherd Avenue
17. Sunnyside Avenue/Nees Avenue
18. Sunnyside Avenue/Alluvial Avenue
19. Sunnyside Avenue/Herndon Avenue
20. Fowler Avenue/Behymer Avenue
21. Fowler Avenue/Perrin Road (Future Intersection)
22. Fowler Avenue/Shepherd Avenue
23. Fowler Avenue/Teague Avenue
24. Fowler Avenue/Nees Avenue
25. Fowler Avenue/Alluvial Avenue
26. Fowler Avenue/SR-168 Westbound Ramps
27. Fowler Avenue/SR-168 Eastbound Ramps
28. Armstrong Avenue/Shepherd Avenue
29. Temperance Avenue/Shepherd Avenue
30. Temperance Avenue/Nees Avenue
31. Temperance Avenue/Alluvial Avenue
32. Temperance Avenue/SR-168 Westbound Ramps
33. Temperance Avenue/SR-168 Eastbound Ramps
34. Locan Avenue/Shepherd Avenue
35. Locan Avenue/Nees Avenue
36. Locan Avenue/Owens Mountain Parkway (Future Intersection)
37. De Wolf Avenue/Shepherd Avenue
38. De Wolf Avenue/Owens Mountain Parkway
39. SR-168/Shepherd Avenue
40. Project Access South/Shepherd Avenue (Future Intersection)
41. Project Access North/Behymer Avenue (Future Intersection)

A Google map showing these locations can be accessed at:
https://www.google.com/maps/d/u/0/edit?mid=1UpG8eG6Hj6J0Ox_c7p-yH6hc0tuc1vo&usp=sharing

Study intersections will be evaluated for the AM peak hour, occurring between 7-9 AM, and PM peak hour, occurring between 4-6 PM. Intersection level of service (LOS) for these peak hours will be calculated using the Highway Capacity Manual 7th Edition methodologies as implemented by the Vistro traffic analysis software.

Intersection operations control the operations of the roadway segments under most circumstances. However, a roadway segment analysis can still be beneficial to identify traffic operation characteristics for rural roadways that do not have frequent intersections. Kittelson proposes the following roadway segments be evaluated due to their rural nature and limited number of intersections:

1. Behymer Avenue from Willow Avenue to Minnewawa Avenue
2. Behymer Avenue from Minnewawa Avenue to Sunnyside Avenue
3. Behymer Avenue from Sunnyside Avenue to Fowler Avenue
4. Behymer Avenue from Fowler Avenue to Project Access North
5. Fowler Avenue from Behymer Avenue to Shepherd Avenue
6. Fowler Avenue from Shepherd Avenue to Teague Avenue
7. Fowler Avenue from Teague Avenue to Nees Avenue

Daily traffic operations at roadway segments will be analyzed based on the peak hour level of service volume thresholds obtained from Chapter 5.16, Transportation and Traffic, of the city's General Plan and Development Code Update Draft Program Environmental Impact Report, dated June 2014.

## ANALYSIS SCENARIOS

The LTA will examine traffic operations at the study intersections and roadway segments for the following scenarios in the AM and PM peak hours:

- Existing Conditions
  - Provides an overview of intersection operations today.
- Near-Term No Project Conditions (Includes existing plus approved/pending projects)
  - Estimates a baseline condition that includes approved/pending projects not yet constructed.
- Near-Term Plus Project (MPArea 1) Conditions
  - Provides an assessment of the effect MPArea 1 (first phase to be built) will have on the transportation infrastructure under conditions similar to today but with approved/pending projects.
- Near-Term Plus Project (MPArea 1 + MPArea 2) Conditions
  - Provides an assessment of how the master plan area would affect the transportation infrastructure under conditions similar to today but with approved/pending projects.
- Cumulative No Project Conditions
  - Estimates the way the transportation infrastructure will operate in the future based on reasonably foreseeable growth in the area without the project.
- Cumulative Plus Project (MPArea 1 + MP Area 2) Conditions
  - Provides an assessment of how the master plan area would affect the transportation infrastructure in the future with the project.

An existing plus project scenario is not proposed because it would be similar to the near-term plus project condition. The cumulative plus project scenario is not bifurcated into an MPArea 1 and MPArea 1/MPArea 2 analysis because MPArea 2 will be completed prior to the cumulative year.

The city shall provide a list of approved/pending projects to consider in the near-term scenario along with available information on the project descriptions, trip generation, and trip distribution.

## VOLUME DEVELOPMENT

Traffic volumes for existing conditions will be developed using new intersection turn movement data collected at the proposed study intersections. It is our understanding that Shepherd Avenue is closed in the vicinity of Sunnyside Avenue. This has the potential to affect traffic volumes at the study intersections. Therefore, Kittelson will work with the city of Clovis to locate intersection counts conducted prior to the road closure and factor prior counts as needed to account for recent traffic growth.

Intersection turn movement volumes for the other scenarios will be derived from the Fresno COG travel model. Under near-term no project conditions, Kittelson will update the land uses to account for pending and approved projects that are not already included in the model. The turn movements for scenarios with the project will also be derived from the model. This volume development will include transportation analysis zone (TAZ) splits in the project area as needed to accurately capture the subareas and access routes of the project and how they affect intersection volumes.

## INTERSECTION QUEUEING ANALYSIS

The 95$^{th}$ percentile queue length for each study intersection and lane group will be calculated for the various project scenarios. This analysis will be performed using the methodologies from the Highway Capacity Manual 7$^{th}$ Edition as implemented by the Vistro traffic analysis program.

## RAMP QUEUEING ANALYSIS

A ramp queueing analysis will be performed for the interchanges at SR 168/Herdon Avenue, SR 168/Fowler Avenue, and SR 168/Temperance Avenue to identify potential traffic safety impacts. The evaluation of safety impacts will include a review for speed differential between the exit ramps queue and the mainline of SR 168 during the same peak hour study period. The analysis will be performed per the Caltrans Interim Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance, dated July 2020.

## RECOMMENDED IMPROVEMENTS

Levels of service without the project will be compared with levels of service with the project for all analysis scenarios to determine operational deficiencies based on the LOS standards and operational deficiency criteria as applicable for the city. Should deficiencies be found, Kittelson will make recommendations for changes that can be made to improve the intersection to a non-deficient condition. Peak hour signal warrant analyses will be conducted as necessary to assess whether an unsignalized intersection meets the peak hour signal warrant.

Sincerely,
**KITTELSON & ASSOCIATES, INC.**



Aaron Elias, T.E.
Associate Engineer
510.433.8077
aelias@kittelson.com

**Figure 1: Master Plan Area Proposed Zoning Map**

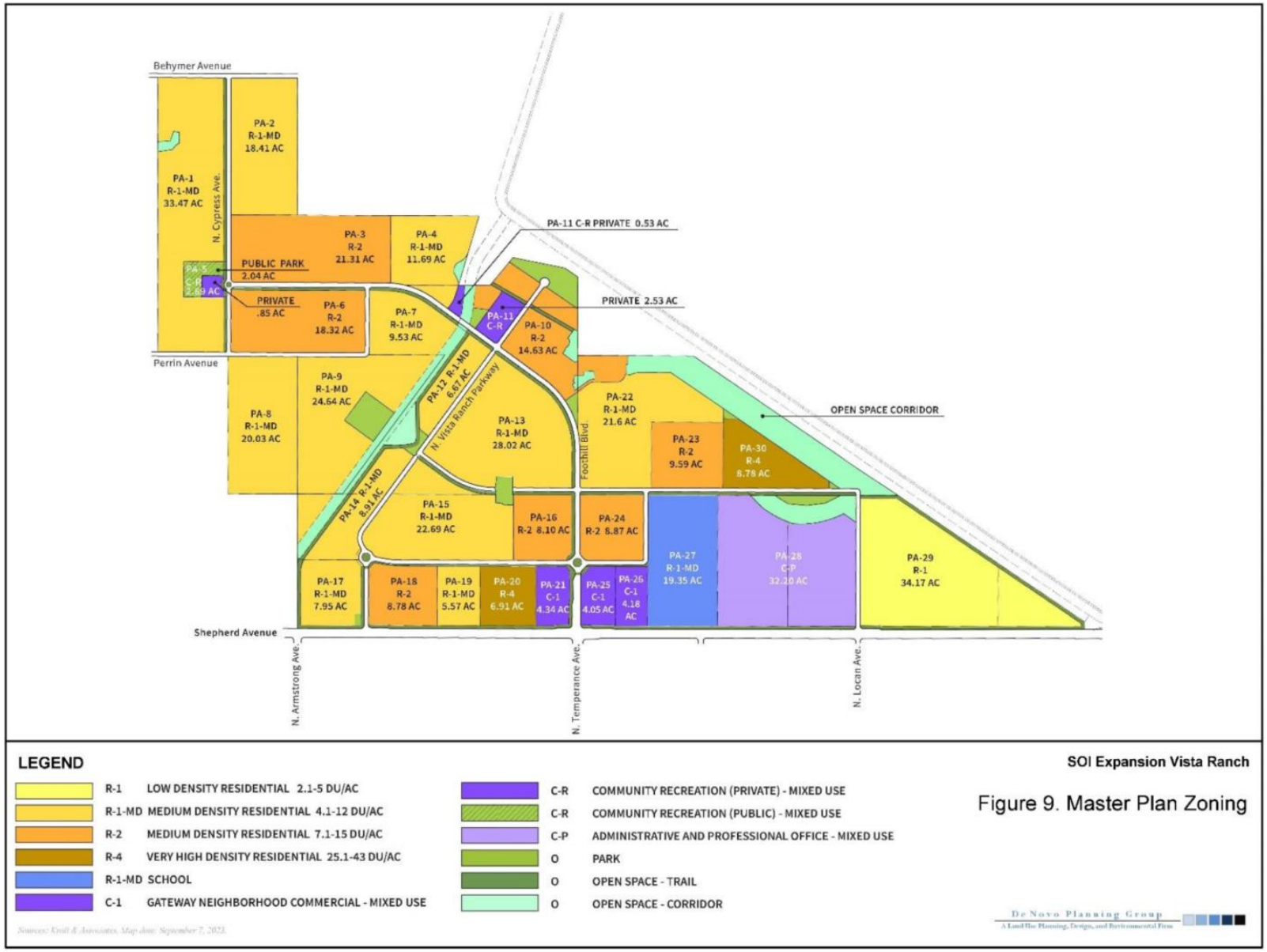


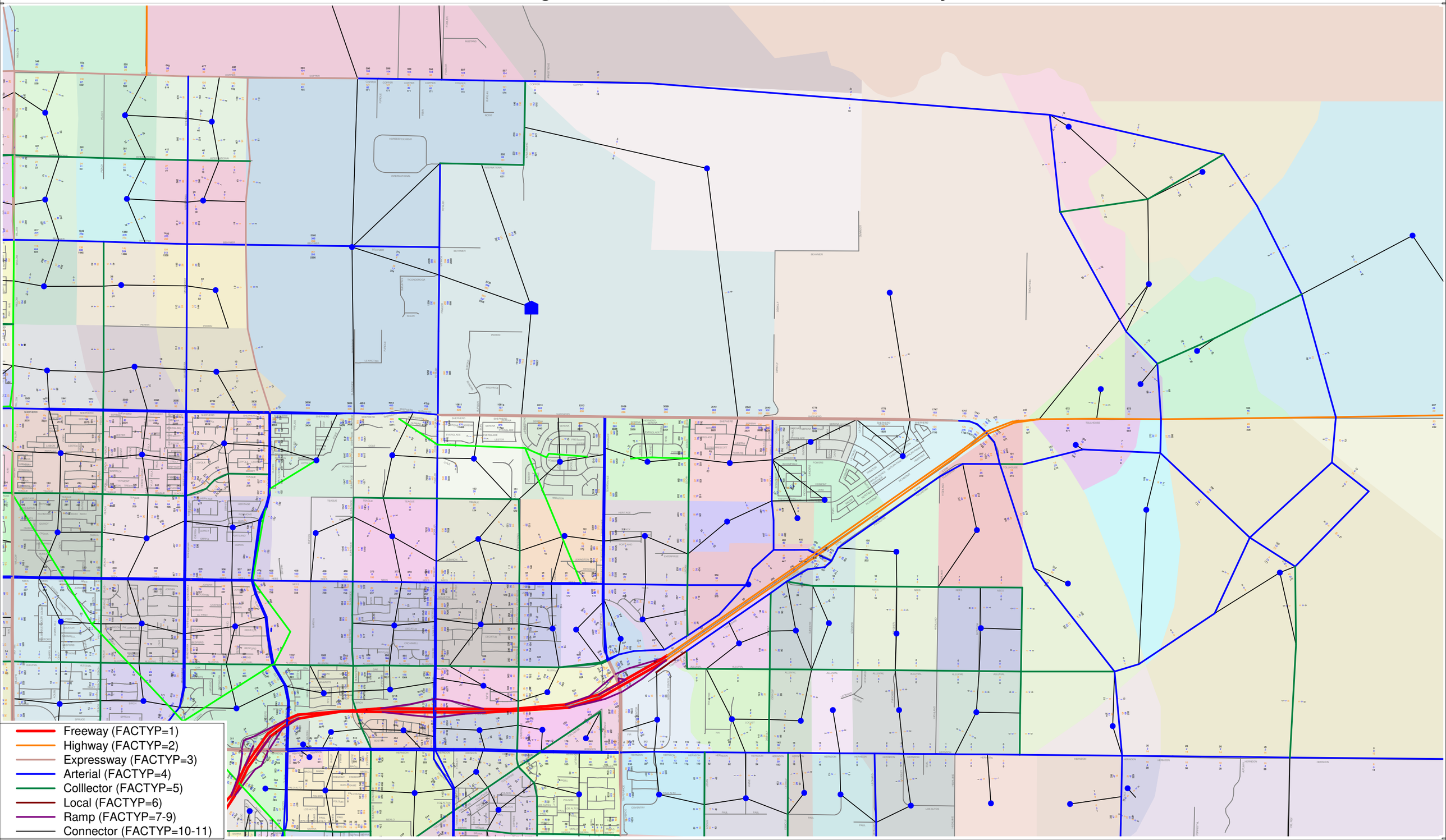
**Table 1: Trip Generation for the Proposed Master Plan Area**

| | ITE | IV Value | IV | Daily | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | In | Out | Total | In | Out | Total |
| **MPArea 1** | | | | | | | | | | |
| Medium Density Residential | 210 | 1,291 | DU | 12,175 | 226 | 678 | 904 | 765 | 449 | 1,214 |
| Medium High Density Residential | 210 | 1,039 | DU | 9,798 | 182 | 546 | 728 | 616 | 361 | 977 |
| Very High Density Residential | 220 | 472 | DU | 3,182 | 45 | 144 | 189 | 152 | 89 | 241 |
| C-1 Neighborhood Commercial | 821 | 85 | KSF | 5,740 | 92 | 56 | 148 | 217 | 225 | 442 |
| Accessible Public Park | 411 | 3 | Acres | 94 | 8 | 5 | 13 | 5 | 8 | 13 |
| MPArea 1 Total: | | | | 30,989 | 553 | 1,429 | 1,982 | 1,755 | 1,132 | 2,887 |
| **MPArea 2** | | | | | | | | | | |
| Low Density Residential | 210 | 137 | DU | 1,289 | 24 | 72 | 96 | 81 | 48 | 129 |
| Medium Density Residential | 210 | 319 | DU | 3,009 | 56 | 168 | 224 | 189 | 111 | 300 |
| C-1 Neighborhood Commercial | 821 | 115 | KSF | 7,765 | 123 | 76 | 199 | 293 | 304 | 597 |
| Mini Storage | 151 | 421 | KSF | 611 | 22 | 16 | 38 | 30 | 34 | 64 |
| School | 520 | 750 | Students | 1,703 | 300 | 255 | 555 | 55 | 65 | 120 |
| MPArea 2 Total: | | | | 14,377 | 525 | 587 | 1,112 | 648 | 562 | 1,210 |
| Master Plan Area: | | | | 45,366 | 1,078 | 2,016 | 3,094 | 2,403 | 1,694 | 4,097 |

Source: Kittelson & Associates, Inc. 2024
Based on ITE Trip Generation Manual 11th Edition
IV: Independent Variable
DU: Dwelling Units
KSF: Thousand Square Feet

# Appendix A: Select Zone Analysis

# Fresno COG Model
# 2042 Clovis Ranch Select Zone
# Orange = AM Pk Hr, Blue = PM Pk Hr, Black = Daily




(Licensed to Kittelson and Associates Inc)

# Appendix B

## Traffic Counts

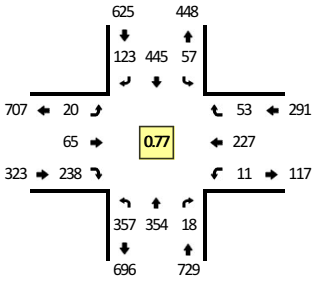
Type of peak hour being reported: Intersection Peak

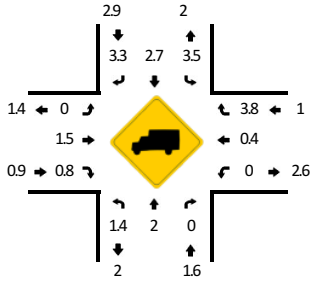
Method for determining peak hour: Total Entering Volume

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**CITY/STATE:** Fresno, CA

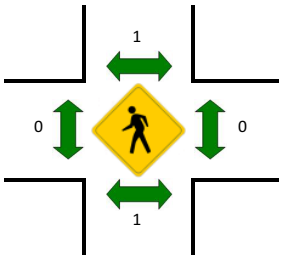
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**DATE:** Thu, Feb 8 2024

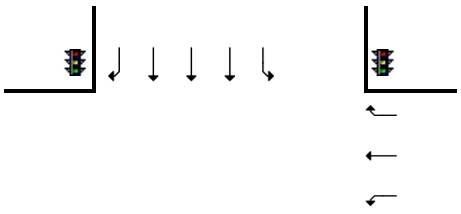
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**Peak 15-Min: 8:20 AM -- 8:35 AM**

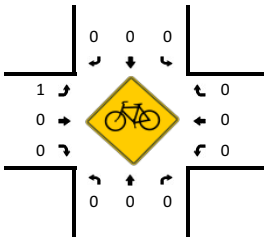


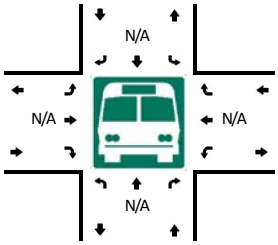



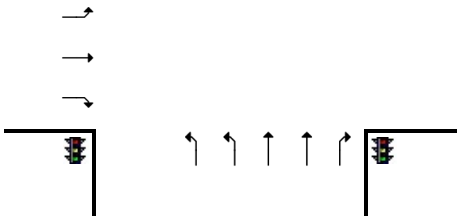

TRUE DATA TO IMPROVE MOBILITY

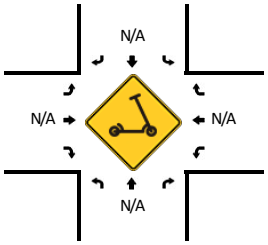







| 5-Min Count Period Beginning At | 1. N Willow Ave (Northbound) | | | | 1. N Willow Ave (Southbound) | | | | E International Ave (Eastbound) | | | | E International Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 10 | 12 | 1 | 0 | 1 | 10 | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 3 | 1 | 0 | 44 | |
| 7:05 AM | 5 | 11 | 0 | 0 | 0 | 21 | 1 | 0 | 0 | 3 | 6 | 0 | 1 | 4 | 2 | 0 | 54 | |
| 7:10 AM | 5 | 10 | 0 | 0 | 0 | 23 | 2 | 0 | 0 | 3 | 3 | 0 | 0 | 8 | 3 | 0 | 57 | |
| 7:15 AM | 11 | 17 | 1 | 1 | 2 | 19 | 3 | 0 | 0 | 6 | 3 | 0 | 1 | 13 | 3 | 0 | 80 | |
| 7:20 AM | 19 | 21 | 2 | 0 | 2 | 24 | 3 | 0 | 0 | 4 | 5 | 0 | 0 | 12 | 6 | 0 | 98 | |
| 7:25 AM | 15 | 17 | 1 | 0 | 2 | 40 | 5 | 0 | 1 | 2 | 16 | 1 | 2 | 10 | 4 | 0 | 116 | |
| 7:30 AM | 14 | 20 | 0 | 1 | 2 | 34 | 3 | 1 | 0 | 4 | 12 | 0 | 0 | 16 | 8 | 0 | 115 | |
| 7:35 AM | 12 | 24 | 1 | 0 | 0 | 36 | 10 | 1 | 1 | 3 | 14 | 0 | 0 | 7 | 5 | 0 | 114 | |
| 7:40 AM | 15 | 33 | 1 | 0 | 1 | 38 | 3 | 1 | 0 | 5 | 13 | 0 | 1 | 12 | 5 | 0 | 128 | |
| 7:45 AM | 18 | 18 | 0 | 0 | 0 | 37 | 6 | 0 | 1 | 3 | 8 | 0 | 1 | 11 | 6 | 0 | 109 | |
| 7:50 AM | 23 | 22 | 2 | 0 | 0 | 30 | 4 | 1 | 0 | 3 | 10 | 0 | 2 | 16 | 9 | 0 | 122 | |
| 7:55 AM | 24 | 27 | 1 | 0 | 4 | 30 | 9 | 2 | 1 | 3 | 15 | 2 | 0 | 11 | 2 | 0 | 131 | 1168 |
| 8:00 AM | 23 | 13 | 0 | 1 | 2 | 22 | 2 | 1 | 2 | 6 | 14 | 0 | 1 | 18 | 4 | 0 | 109 | 1233 |
| 8:05 AM | 26 | 23 | 2 | 0 | 2 | 23 | 10 | 1 | 1 | 4 | 17 | 0 | 3 | 20 | 4 | 0 | 136 | 1315 |
| 8:10 AM | 35 | 32 | 0 | 0 | 1 | 35 | 17 | 2 | 1 | 4 | 15 | 0 | 0 | 23 | 5 | 0 | 170 | 1428 |
| 8:15 AM | 48 | 45 | 3 | 0 | 4 | 52 | 7 | 1 | 2 | 8 | 20 | 0 | 0 | 22 | 6 | 0 | 218 | 1566 |
| 8:20 AM | 40 | 36 | 5 | 0 | 3 | 44 | 10 | 4 | 2 | 0 | 18 | 0 | 0 | 29 | 3 | 0 | 194 | 1662 |
| 8:25 AM | 26 | 34 | 0 | 1 | 7 | 49 | 20 | 3 | 1 | 13 | 30 | 0 | 1 | 24 | 3 | 0 | 212 | 1758 |
| 8:30 AM | 43 | 41 | 1 | 0 | 6 | 42 | 19 | 4 | 1 | 9 | 36 | 0 | 1 | 28 | 4 | 0 | 235 | 1878 |
| 8:35 AM | 29 | 30 | 2 | 0 | 3 | 44 | 11 | 2 | 4 | 7 | 29 | 0 | 0 | 18 | 2 | 0 | 181 | 1945 |
| 8:40 AM | 20 | 33 | 2 | 0 | 2 | 37 | 8 | 2 | 2 | 5 | 26 | 0 | 2 | 7 | 5 | 0 | 151 | 1968 |
| 8:45 AM | 10 | 18 | 5 | 0 | 0 | 25 | 5 | 0 | 0 | 5 | 14 | 1 | 1 | 3 | 1 | 0 | 88 | 1947 |
| 8:50 AM | 9 | 29 | 4 | 0 | 0 | 25 | 2 | 1 | 1 | 4 | 4 | 0 | 0 | 5 | 3 | 0 | 87 | 1912 |
| 8:55 AM | 6 | 41 | 6 | 0 | 0 | 10 | 0 | 0 | 0 | 2 | 8 | 0 | 0 | 2 | 2 | 0 | 77 | 1858 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 436 | 444 | 24 | 4 | 64 | 540 | 196 | 44 | 16 | 88 | 336 | 0 | 8 | 324 | 40 | 0 | 2564 |
| Heavy Trucks | 4 | 8 | 0 | | 0 | 20 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 0 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

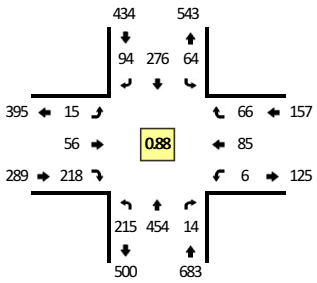
Type of peak hour being reported: Intersection Peak

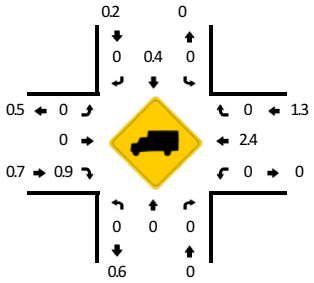
Method for determining peak hour: Total Entering Volume

**LOCATION:** 1. N Willow Ave -- E International Ave
**CITY/STATE:** Fresno, CA

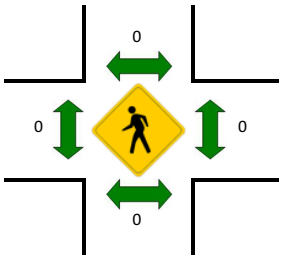
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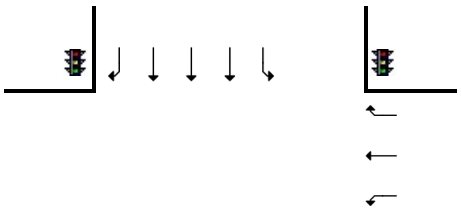
**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

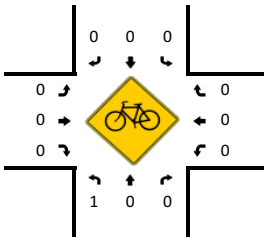


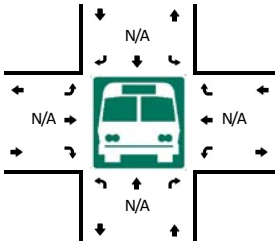



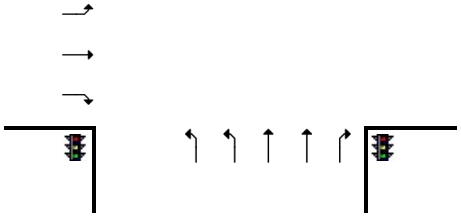

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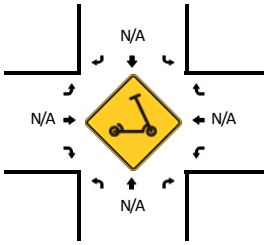







| 5-Min Count Period Beginning At | 1. N Willow Ave (Northbound) | | | | 1. N Willow Ave (Southbound) | | | | E International Ave (Eastbound) | | | | E International Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 12 | 33 | 3 | 1 | 1 | 23 | 3 | 0 | 0 | 3 | 16 | 0 | 1 | 5 | 4 | 0 | 105 | |
| 4:05 PM | 9 | 19 | 1 | 0 | 4 | 23 | 4 | 0 | 1 | 9 | 13 | 0 | 0 | 4 | 4 | 0 | 91 | |
| 4:10 PM | 8 | 20 | 2 | 1 | 0 | 29 | 5 | 0 | 3 | 6 | 12 | 0 | 2 | 6 | 6 | 0 | 100 | |
| 4:15 PM | 8 | 24 | 3 | 0 | 4 | 21 | 3 | 0 | 1 | 8 | 7 | 0 | 0 | 5 | 3 | 0 | 87 | |
| 4:20 PM | 16 | 36 | 1 | 0 | 1 | 22 | 3 | 0 | 1 | 5 | 14 | 0 | 1 | 4 | 5 | 0 | 109 | |
| 4:25 PM | 10 | 25 | 1 | 0 | 0 | 22 | 5 | 0 | 1 | 5 | 14 | 1 | 0 | 6 | 2 | 0 | 92 | |
| 4:30 PM | 7 | 24 | 3 | 1 | 0 | 18 | 2 | 1 | 1 | 7 | 12 | 1 | 1 | 3 | 1 | 0 | 82 | |
| 4:35 PM | 8 | 25 | 1 | 4 | 1 | 13 | 2 | 0 | 2 | 3 | 14 | 0 | 0 | 4 | 1 | 0 | 78 | |
| 4:40 PM | 10 | 39 | 2 | 0 | 1 | 20 | 1 | 0 | 0 | 3 | 10 | 0 | 0 | 3 | 3 | 0 | 92 | |
| 4:45 PM | 6 | 27 | 2 | 0 | 3 | 23 | 3 | 0 | 1 | 8 | 6 | 0 | 0 | 1 | 5 | 0 | 85 | |
| 4:50 PM | 11 | 46 | 0 | 0 | 0 | 22 | 3 | 0 | 0 | 2 | 14 | 0 | 0 | 6 | 3 | 0 | 107 | |
| 4:55 PM | 15 | 34 | 0 | 0 | 1 | 19 | 4 | 0 | 0 | 2 | 13 | 0 | 0 | 3 | 6 | 0 | 97 | 1125 |
| 5:00 PM | 14 | 39 | 1 | 0 | 4 | 17 | 14 | 4 | 2 | 3 | 24 | 0 | 1 | 9 | 6 | 0 | 138 | 1158 |
| 5:05 PM | 22 | 29 | 0 | 0 | 9 | 10 | 13 | 3 | 1 | 6 | 23 | 0 | 0 | 12 | 6 | 0 | 134 | 1201 |
| 5:10 PM | 22 | 47 | 1 | 0 | 1 | 10 | 23 | 1 | 1 | 9 | 31 | 0 | 0 | 11 | 7 | 0 | 164 | 1265 |
| 5:15 PM | 30 | 28 | 2 | 0 | 8 | 24 | 12 | 1 | 1 | 5 | 22 | 0 | 1 | 7 | 7 | 0 | 148 | 1326 |
| 5:20 PM | 20 | 33 | 3 | 1 | 6 | 17 | 5 | 0 | 3 | 4 | 21 | 1 | 0 | 4 | 10 | 0 | 128 | 1345 |
| 5:25 PM | 23 | 50 | 0 | 0 | 3 | 26 | 2 | 0 | 3 | 3 | 15 | 1 | 1 | 7 | 7 | 1 | 142 | 1395 |
| 5:30 PM | 16 | 40 | 2 | 0 | 7 | 28 | 2 | 0 | 0 | 5 | 18 | 0 | 0 | 9 | 3 | 0 | 130 | 1443 |
| 5:35 PM | 10 | 48 | 2 | 0 | 7 | 46 | 10 | 1 | 0 | 5 | 16 | 0 | 0 | 7 | 4 | 0 | 156 | 1521 |
| 5:40 PM | 20 | 37 | 0 | 0 | 6 | 39 | 5 | 0 | 2 | 5 | 10 | 0 | 1 | 5 | 3 | 0 | 133 | 1562 |
| 5:45 PM | 11 | 23 | 3 | 0 | 2 | 18 | 1 | 0 | 0 | 7 | 11 | 0 | 1 | 5 | 4 | 0 | 86 | 1563 |
| 5:50 PM | 14 | 38 | 1 | 1 | 1 | 14 | 5 | 0 | 1 | 2 | 15 | 0 | 1 | 2 | 2 | 0 | 97 | 1553 |
| 5:55 PM | 7 | 40 | 1 | 0 | 1 | 24 | 1 | 0 | 0 | 1 | 10 | 0 | 1 | 3 | 5 | 0 | 94 | 1550 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 296 | 416 | 12 | 0 | 72 | 176 | 192 | 20 | 12 | 80 | 304 | 0 | 4 | 120 | 80 | 0 | 1784 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

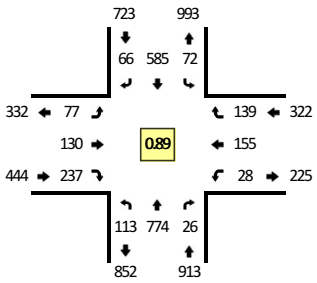
Type of peak hour being reported: Intersection Peak

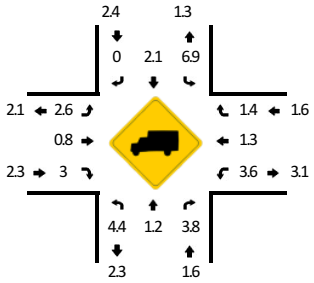
Method for determining peak hour: Total Entering Volume

**LOCATION:** 2. N Willow Ave -- E Behymer Ave
**CITY/STATE:** Fresno, CA

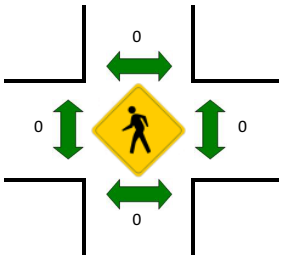
**QC JOB #:** 16475503
**DATE:** Thu, Feb 8 2024

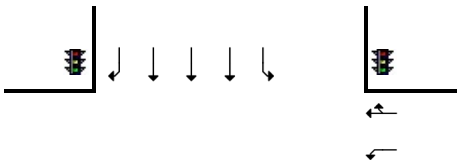
**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 8:20 AM -- 8:35 AM**

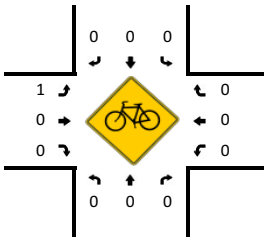


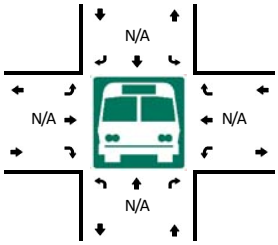



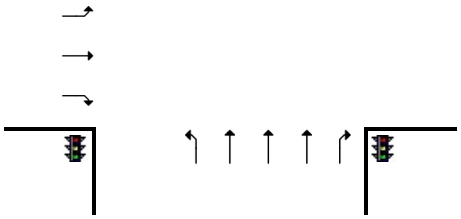

TRUE DATA TO IMPROVE MOBILITY

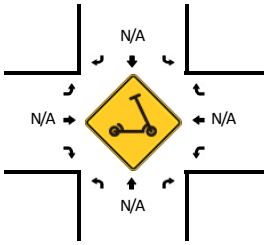







| 5-Min Count Period Beginning At | 2. N Willow Ave (Northbound) | | | | 2. N Willow Ave (Southbound) | | | | E Behymer Ave (Eastbound) | | | | E Behymer Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 4 | 15 | 4 | 0 | 1 | 16 | 0 | 0 | 2 | 3 | 8 | 0 | 3 | 3 | 3 | 0 | 62 | |
| 7:05 AM | 1 | 14 | 1 | 0 | 1 | 19 | 2 | 0 | 3 | 3 | 4 | 0 | 4 | 7 | 1 | 0 | 60 | |
| 7:10 AM | 4 | 18 | 3 | 0 | 1 | 27 | 0 | 0 | 1 | 6 | 9 | 0 | 1 | 7 | 4 | 0 | 81 | |
| 7:15 AM | 1 | 23 | 3 | 0 | 5 | 25 | 2 | 0 | 3 | 9 | 11 | 0 | 2 | 1 | 12 | 0 | 97 | |
| 7:20 AM | 2 | 33 | 2 | 0 | 2 | 21 | 4 | 0 | 3 | 6 | 11 | 0 | 2 | 9 | 4 | 0 | 99 | |
| 7:25 AM | 3 | 27 | 4 | 0 | 4 | 41 | 6 | 0 | 3 | 7 | 18 | 0 | 5 | 18 | 4 | 0 | 140 | |
| 7:30 AM | 7 | 30 | 1 | 0 | 1 | 37 | 7 | 0 | 2 | 9 | 17 | 0 | 4 | 22 | 7 | 0 | 144 | |
| 7:35 AM | 15 | 40 | 5 | 0 | 4 | 48 | 6 | 0 | 4 | 10 | 27 | 0 | 3 | 19 | 3 | 0 | 184 | |
| 7:40 AM | 18 | 43 | 2 | 0 | 6 | 37 | 2 | 0 | 3 | 14 | 31 | 0 | 5 | 28 | 8 | 0 | 197 | |
| 7:45 AM | 12 | 60 | 5 | 0 | 1 | 51 | 3 | 0 | 3 | 12 | 17 | 0 | 1 | 20 | 10 | 0 | 195 | |
| 7:50 AM | 13 | 43 | 4 | 0 | 3 | 34 | 2 | 1 | 5 | 12 | 33 | 0 | 5 | 18 | 9 | 0 | 182 | |
| 7:55 AM | 2 | 67 | 2 | 0 | 1 | 32 | 2 | 0 | 4 | 19 | 40 | 0 | 2 | 14 | 25 | 0 | 210 | 1651 |
| 8:00 AM | 6 | 60 | 2 | 0 | 5 | 51 | 3 | 0 | 5 | 18 | 14 | 0 | 0 | 11 | 7 | 0 | 182 | 1771 |
| 8:05 AM | 1 | 58 | 2 | 0 | 5 | 30 | 2 | 0 | 6 | 8 | 9 | 0 | 1 | 18 | 7 | 0 | 147 | 1858 |
| 8:10 AM | 10 | 59 | 1 | 0 | 4 | 45 | 4 | 1 | 7 | 10 | 14 | 0 | 2 | 7 | 14 | 0 | 178 | 1955 |
| 8:15 AM | 12 | 86 | 2 | 2 | 7 | 47 | 10 | 0 | 12 | 9 | 21 | 0 | 2 | 7 | 13 | 0 | 230 | 2088 |
| 8:20 AM | 12 | 93 | 1 | 0 | 5 | 54 | 5 | 0 | 10 | 7 | 15 | 0 | 2 | 3 | 19 | 0 | 226 | 2215 |
| 8:25 AM | 7 | 69 | 0 | 0 | 10 | 61 | 11 | 1 | 7 | 9 | 12 | 0 | 2 | 8 | 6 | 0 | 203 | 2278 |
| 8:30 AM | 11 | 72 | 3 | 0 | 16 | 70 | 9 | 0 | 9 | 6 | 17 | 0 | 4 | 13 | 13 | 0 | 243 | 2377 |
| 8:35 AM | 7 | 64 | 2 | 0 | 6 | 73 | 13 | 0 | 6 | 6 | 14 | 0 | 2 | 8 | 8 | 0 | 209 | 2402 |
| 8:40 AM | 7 | 51 | 2 | 1 | 4 | 64 | 3 | 0 | 4 | 17 | 16 | 0 | 3 | 6 | 12 | 0 | 190 | 2395 |
| 8:45 AM | 3 | 36 | 0 | 0 | 2 | 45 | 0 | 0 | 1 | 4 | 8 | 0 | 4 | 8 | 8 | 0 | 119 | 2319 |
| 8:50 AM | 4 | 49 | 2 | 1 | 2 | 27 | 1 | 0 | 1 | 2 | 6 | 0 | 2 | 6 | 11 | 0 | 114 | 2251 |
| 8:55 AM | 3 | 40 | 1 | 0 | 1 | 23 | 0 | 0 | 2 | 7 | 8 | 0 | 1 | 3 | 6 | 0 | 95 | 2136 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 120 | 936 | 16 | 0 | 124 | 740 | 100 | 4 | 104 | 88 | 176 | 0 | 32 | 96 | 152 | 0 | 2688 |
| Heavy Trucks | 0 | 4 | 0 | | 4 | 12 | 0 | | 0 | 4 | 8 | | 4 | 4 | 0 | | 40 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

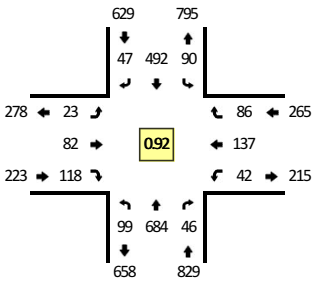
Type of peak hour being reported: Intersection Peak

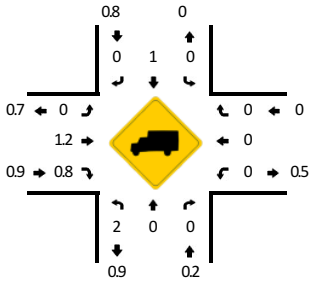
Method for determining peak hour: Total Entering Volume

**LOCATION:** 2. N Willow Ave -- E Behymer Ave
**CITY/STATE:** Fresno, CA

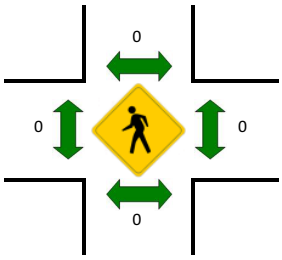
**QC JOB #:** 16475504
**DATE:** Thu, Feb 8 2024

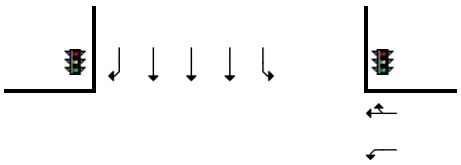
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

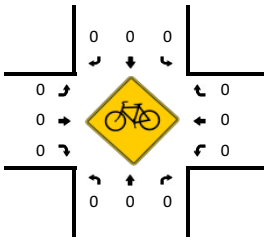


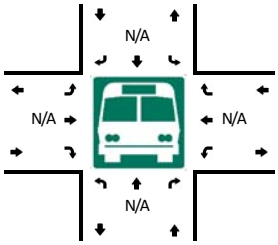



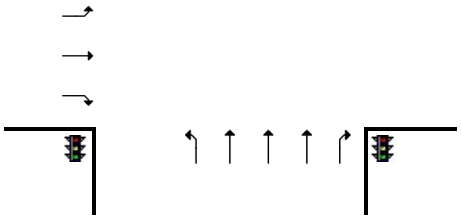

TRUE DATA TO IMPROVE MOBILITY

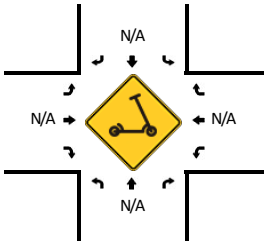







| 5-Min Count Period Beginning At | 2. N Willow Ave (Northbound) | | | | 2. N Willow Ave (Southbound) | | | | E Behymer Ave (Eastbound) | | | | E Behymer Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 12 | 46 | 2 | 0 | 4 | 40 | 2 | 0 | 0 | 10 | 9 | 0 | 3 | 13 | 11 | 0 | 152 | |
| 4:05 PM | 5 | 26 | 7 | 1 | 8 | 43 | 3 | 0 | 1 | 6 | 18 | 0 | 4 | 6 | 3 | 0 | 131 | |
| 4:10 PM | 13 | 36 | 1 | 0 | 5 | 47 | 6 | 0 | 1 | 15 | 11 | 0 | 3 | 12 | 2 | 0 | 152 | |
| 4:15 PM | 6 | 37 | 3 | 0 | 5 | 29 | 1 | 0 | 1 | 7 | 9 | 0 | 2 | 13 | 1 | 0 | 114 | |
| 4:20 PM | 7 | 44 | 5 | 2 | 4 | 35 | 3 | 0 | 2 | 1 | 6 | 0 | 1 | 3 | 7 | 0 | 120 | |
| 4:25 PM | 9 | 44 | 1 | 0 | 3 | 39 | 4 | 0 | 0 | 7 | 7 | 0 | 1 | 16 | 3 | 0 | 134 | |
| 4:30 PM | 5 | 31 | 3 | 0 | 7 | 38 | 3 | 0 | 0 | 5 | 9 | 0 | 5 | 7 | 6 | 0 | 119 | |
| 4:35 PM | 3 | 32 | 8 | 0 | 9 | 41 | 0 | 0 | 3 | 6 | 7 | 0 | 2 | 5 | 3 | 0 | 119 | |
| 4:40 PM | 8 | 51 | 3 | 3 | 4 | 28 | 2 | 0 | 1 | 9 | 2 | 0 | 3 | 10 | 4 | 0 | 128 | |
| 4:45 PM | 8 | 36 | 5 | 0 | 10 | 35 | 3 | 0 | 0 | 2 | 7 | 0 | 5 | 5 | 1 | 0 | 117 | |
| 4:50 PM | 9 | 46 | 4 | 0 | 1 | 25 | 4 | 0 | 4 | 5 | 9 | 0 | 4 | 9 | 8 | 0 | 128 | |
| 4:55 PM | 5 | 39 | 2 | 0 | 3 | 42 | 0 | 0 | 3 | 4 | 7 | 0 | 2 | 5 | 8 | 0 | 120 | 1534 |
| 5:00 PM | 3 | 56 | 5 | 0 | 10 | 38 | 5 | 0 | 2 | 8 | 8 | 0 | 2 | 10 | 6 | 0 | 153 | 1535 |
| 5:05 PM | 13 | 68 | 4 | 1 | 15 | 31 | 2 | 0 | 1 | 6 | 12 | 0 | 4 | 11 | 10 | 0 | 178 | 1582 |
| 5:10 PM | 5 | 59 | 5 | 1 | 9 | 57 | 2 | 0 | 1 | 5 | 8 | 0 | 1 | 9 | 6 | 0 | 168 | 1598 |
| 5:15 PM | 9 | 48 | 3 | 0 | 6 | 41 | 7 | 1 | 0 | 5 | 10 | 0 | 3 | 13 | 10 | 0 | 156 | 1640 |
| 5:20 PM | 17 | 75 | 5 | 0 | 5 | 47 | 1 | 0 | 0 | 4 | 8 | 0 | 5 | 21 | 2 | 0 | 190 | 1710 |
| 5:25 PM | 10 | 52 | 5 | 0 | 6 | 35 | 0 | 0 | 2 | 12 | 12 | 0 | 2 | 12 | 9 | 0 | 157 | 1733 |
| 5:30 PM | 7 | 45 | 3 | 2 | 6 | 45 | 9 | 1 | 4 | 9 | 9 | 0 | 9 | 15 | 15 | 0 | 179 | 1793 |
| 5:35 PM | 5 | 57 | 3 | 1 | 5 | 46 | 7 | 1 | 2 | 11 | 14 | 0 | 1 | 8 | 7 | 0 | 168 | 1842 |
| 5:40 PM | 5 | 56 | 2 | 0 | 11 | 56 | 4 | 0 | 4 | 9 | 13 | 0 | 3 | 13 | 4 | 0 | 180 | 1894 |
| 5:45 PM | 11 | 56 | 2 | 0 | 3 | 41 | 3 | 0 | 2 | 3 | 9 | 1 | 2 | 13 | 6 | 0 | 152 | 1929 |
| 5:50 PM | 5 | 57 | 2 | 0 | 6 | 22 | 2 | 0 | 1 | 7 | 8 | 0 | 4 | 5 | 9 | 0 | 128 | 1929 |
| 5:55 PM | 3 | 55 | 7 | 1 | 5 | 33 | 5 | 0 | 3 | 3 | 7 | 0 | 6 | 7 | 2 | 0 | 137 | 1946 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 68 | 632 | 32 | 12 | 88 | 588 | 80 | 8 | 40 | 116 | 144 | 0 | 52 | 144 | 104 | 0 | 2108 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

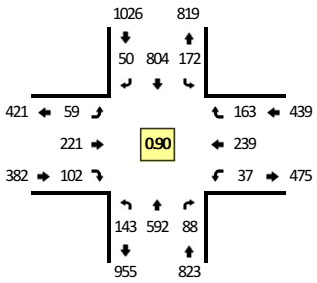
Type of peak hour being reported: Intersection Peak

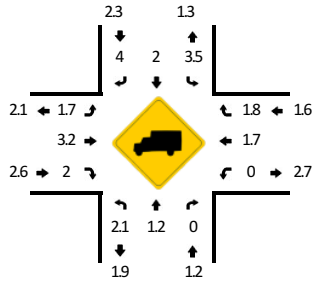
Method for determining peak hour: Total Entering Volume

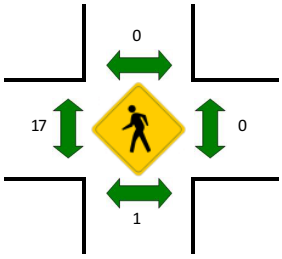
**LOCATION:** 3. N Willow Ave -- W Shepherd Ave
**CITY/STATE:** Clovis, CA

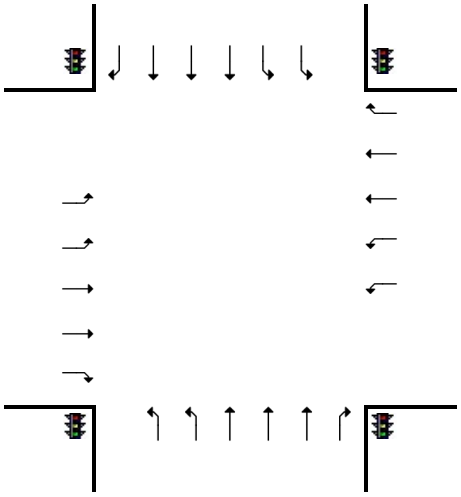
**QC JOB #:** 16475505
**DATE:** Thu, Feb 8 2024

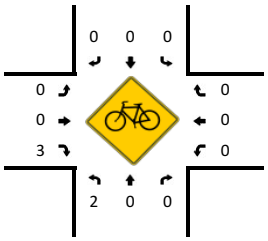
**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

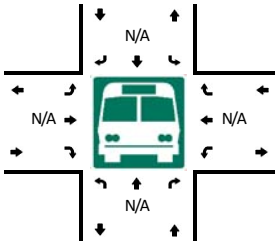


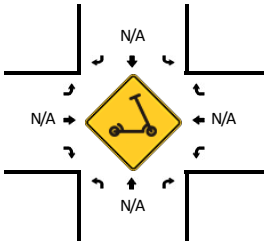






| 5-Min Count Period Beginning At | 3. N Willow Ave (Northbound) | | | | 3. N Willow Ave (Southbound) | | | | W Shepherd Ave (Eastbound) | | | | W Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 3 | 11 | 0 | 2 | 6 | 38 | 2 | 0 | 2 | 8 | 4 | 0 | 1 | 8 | 4 | 0 | 89 | |
| 7:05 AM | 7 | 27 | 2 | 0 | 4 | 35 | 4 | 1 | 0 | 15 | 5 | 0 | 0 | 9 | 5 | 0 | 114 | |
| 7:10 AM | 3 | 9 | 4 | 2 | 6 | 36 | 1 | 0 | 2 | 19 | 5 | 0 | 3 | 11 | 9 | 0 | 110 | |
| 7:15 AM | 8 | 26 | 5 | 1 | 12 | 48 | 3 | 0 | 0 | 22 | 3 | 0 | 3 | 16 | 12 | 0 | 159 | |
| 7:20 AM | 7 | 28 | 4 | 0 | 11 | 38 | 6 | 1 | 2 | 21 | 6 | 0 | 8 | 16 | 5 | 0 | 153 | |
| 7:25 AM | 8 | 24 | 5 | 2 | 8 | 82 | 3 | 0 | 1 | 13 | 9 | 0 | 2 | 12 | 9 | 0 | 178 | |
| 7:30 AM | 5 | 41 | 5 | 2 | 12 | 58 | 4 | 0 | 3 | 17 | 7 | 0 | 3 | 16 | 16 | 0 | 189 | |
| 7:35 AM | 10 | 30 | 4 | 3 | 17 | 53 | 2 | 0 | 1 | 23 | 14 | 0 | 4 | 17 | 18 | 0 | 196 | |
| 7:40 AM | 6 | 45 | 7 | 1 | 22 | 95 | 4 | 0 | 5 | 23 | 10 | 0 | 0 | 27 | 14 | 0 | 259 | |
| 7:45 AM | 17 | 63 | 7 | 4 | 11 | 60 | 7 | 0 | 3 | 23 | 12 | 0 | 6 | 27 | 23 | 0 | 263 | |
| 7:50 AM | 7 | 43 | 7 | 3 | 15 | 62 | 5 | 1 | 5 | 21 | 8 | 0 | 6 | 30 | 8 | 0 | 221 | |
| 7:55 AM | 16 | 43 | 8 | 0 | 20 | 54 | 3 | 0 | 5 | 14 | 8 | 0 | 2 | 16 | 14 | 0 | 203 | 2134 |
| 8:00 AM | 6 | 43 | 5 | 0 | 13 | 63 | 5 | 0 | 3 | 19 | 7 | 0 | 3 | 15 | 16 | 0 | 198 | 2243 |
| 8:05 AM | 9 | 39 | 4 | 1 | 13 | 54 | 4 | 0 | 5 | 20 | 8 | 0 | 4 | 23 | 14 | 0 | 198 | 2327 |
| 8:10 AM | 19 | 47 | 7 | 1 | 13 | 46 | 3 | 1 | 8 | 22 | 5 | 0 | 4 | 25 | 8 | 0 | 209 | 2426 |
| 8:15 AM | 12 | 60 | 6 | 0 | 11 | 64 | 2 | 1 | 3 | 15 | 3 | 0 | 2 | 15 | 17 | 0 | 211 | 2478 |
| 8:20 AM | 13 | 65 | 13 | 0 | 6 | 81 | 3 | 2 | 8 | 13 | 8 | 0 | 0 | 19 | 17 | 0 | 248 | 2573 |
| 8:25 AM | 4 | 52 | 8 | 1 | 14 | 82 | 3 | 1 | 5 | 15 | 11 | 1 | 2 | 15 | 15 | 0 | 229 | 2624 |
| 8:30 AM | 8 | 57 | 11 | 0 | 9 | 61 | 3 | 0 | 5 | 22 | 13 | 0 | 3 | 15 | 12 | 0 | 219 | 2654 |
| 8:35 AM | 14 | 35 | 5 | 1 | 19 | 82 | 8 | 0 | 3 | 14 | 9 | 0 | 5 | 12 | 5 | 0 | 212 | 2670 |
| 8:40 AM | 9 | 29 | 3 | 0 | 6 | 64 | 13 | 0 | 6 | 28 | 15 | 1 | 5 | 23 | 9 | 1 | 212 | 2623 |
| 8:45 AM | 14 | 44 | 9 | 2 | 12 | 51 | 9 | 0 | 3 | 16 | 7 | 0 | 1 | 25 | 10 | 0 | 203 | 2563 |
| 8:50 AM | 9 | 41 | 6 | 1 | 10 | 45 | 5 | 1 | 5 | 25 | 7 | 0 | 6 | 12 | 10 | 0 | 183 | 2525 |
| 8:55 AM | 7 | 42 | 7 | 0 | 7 | 33 | 3 | 0 | 1 | 12 | 6 | 0 | 2 | 18 | 8 | 0 | 146 | 2468 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 120 | 604 | 84 | 32 | 192 | 868 | 64 | 4 | 52 | 268 | 120 | 0 | 48 | 336 | 180 | 0 | 2972 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 8 | 4 | | 0 | 12 | 0 | | 0 | 12 | 0 | | 40 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 0 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 8 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

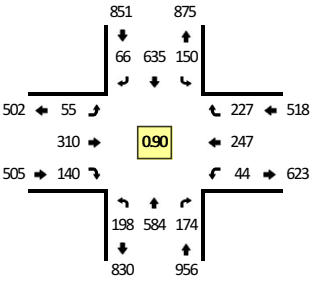
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 3. N Willow Ave -- W Shepherd Ave
**CITY/STATE:** Clovis, CA

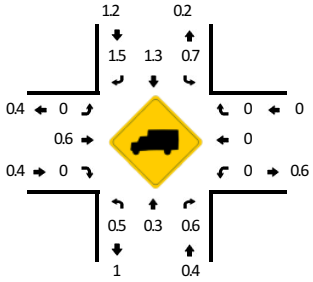
**QC JOB #:** 16475506
**DATE:** Thu, Feb 8 2024

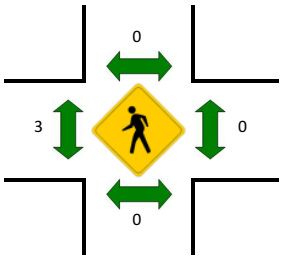
**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

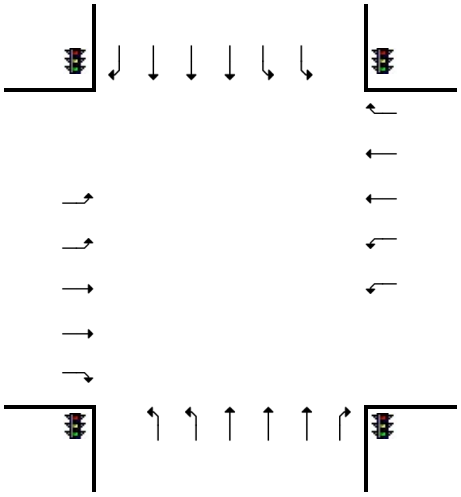


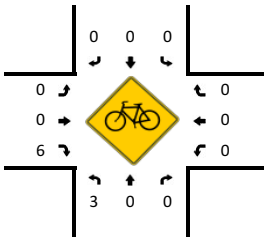


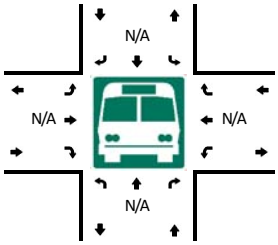


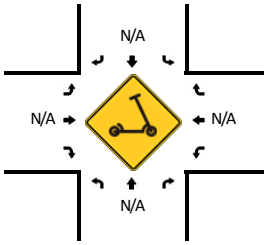





| 5-Min Count Period Beginning At | 3. N Willow Ave (Northbound) | | | | 3. N Willow Ave (Southbound) | | | | W Shepherd Ave (Eastbound) | | | | W Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 13 | 32 | 6 | 0 | 13 | 33 | 5 | 1 | 5 | 29 | 13 | 0 | 0 | 10 | 13 | 0 | 173 | |
| 4:05 PM | 12 | 38 | 8 | 1 | 17 | 67 | 4 | 0 | 2 | 26 | 13 | 0 | 2 | 17 | 12 | 0 | 219 | |
| 4:10 PM | 11 | 38 | 14 | 0 | 13 | 53 | 9 | 0 | 4 | 21 | 9 | 0 | 1 | 23 | 10 | 0 | 206 | |
| 4:15 PM | 11 | 47 | 8 | 0 | 5 | 48 | 5 | 2 | 11 | 14 | 9 | 0 | 5 | 22 | 10 | 0 | 197 | |
| 4:20 PM | 22 | 44 | 13 | 0 | 9 | 44 | 1 | 0 | 6 | 27 | 4 | 1 | 4 | 21 | 14 | 0 | 210 | |
| 4:25 PM | 16 | 53 | 6 | 1 | 7 | 57 | 6 | 0 | 1 | 8 | 7 | 0 | 2 | 15 | 10 | 0 | 189 | |
| 4:30 PM | 8 | 46 | 11 | 1 | 11 | 49 | 6 | 0 | 3 | 23 | 9 | 0 | 3 | 21 | 15 | 0 | 206 | |
| 4:35 PM | 18 | 39 | 10 | 1 | 9 | 41 | 2 | 0 | 4 | 27 | 9 | 0 | 3 | 17 | 12 | 0 | 192 | |
| 4:40 PM | 22 | 49 | 8 | 0 | 7 | 42 | 5 | 0 | 8 | 23 | 11 | 0 | 1 | 19 | 8 | 0 | 203 | |
| 4:45 PM | 19 | 62 | 9 | 2 | 10 | 35 | 4 | 0 | 5 | 21 | 7 | 0 | 0 | 10 | 17 | 0 | 201 | |
| 4:50 PM | 9 | 43 | 6 | 0 | 9 | 64 | 3 | 0 | 2 | 24 | 15 | 0 | 1 | 20 | 15 | 0 | 211 | |
| 4:55 PM | 10 | 51 | 12 | 0 | 9 | 48 | 3 | 1 | 4 | 24 | 11 | 0 | 7 | 21 | 14 | 0 | 215 | 2422 |
| 5:00 PM | 21 | 36 | 13 | 2 | 11 | 39 | 6 | 1 | 2 | 33 | 13 | 0 | 5 | 20 | 14 | 0 | 216 | 2465 |
| 5:05 PM | 18 | 56 | 27 | 1 | 13 | 46 | 3 | 0 | 6 | 25 | 10 | 0 | 2 | 25 | 24 | 0 | 256 | 2502 |
| 5:10 PM | 15 | 52 | 13 | 0 | 10 | 48 | 6 | 0 | 4 | 24 | 9 | 0 | 3 | 25 | 20 | 0 | 229 | 2525 |
| 5:15 PM | 18 | 55 | 14 | 1 | 22 | 54 | 8 | 0 | 3 | 42 | 13 | 0 | 6 | 22 | 17 | 0 | 275 | 2603 |
| 5:20 PM | 17 | 67 | 19 | 2 | 13 | 58 | 8 | 1 | 6 | 32 | 17 | 0 | 4 | 21 | 20 | 0 | 285 | 2678 |
| 5:25 PM | 15 | 32 | 12 | 1 | 8 | 46 | 4 | 0 | 4 | 22 | 9 | 2 | 3 | 26 | 15 | 0 | 199 | 2688 |
| 5:30 PM | 15 | 46 | 13 | 0 | 8 | 52 | 6 | 3 | 5 | 14 | 5 | 0 | 2 | 23 | 18 | 0 | 210 | 2692 |
| 5:35 PM | 9 | 60 | 17 | 0 | 11 | 64 | 10 | 4 | 7 | 16 | 13 | 0 | 2 | 21 | 16 | 0 | 250 | 2750 |
| 5:40 PM | 30 | 32 | 19 | 3 | 16 | 63 | 4 | 1 | 4 | 29 | 13 | 0 | 5 | 16 | 33 | 0 | 268 | 2815 |
| 5:45 PM | 10 | 54 | 9 | 1 | 9 | 53 | 5 | 0 | 6 | 25 | 12 | 0 | 4 | 7 | 21 | 0 | 216 | 2830 |
| 5:50 PM | 10 | 29 | 6 | 0 | 7 | 39 | 9 | 1 | 6 | 35 | 13 | 0 | 6 | 19 | 13 | 0 | 193 | 2812 |
| 5:55 PM | 14 | 61 | 23 | 0 | 12 | 39 | 10 | 0 | 7 | 12 | 10 | 0 | 3 | 17 | 18 | 1 | 227 | 2824 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 200 | 696 | 184 | 12 | 180 | 640 | 88 | 4 | 52 | 392 | 156 | 0 | 52 | 272 | 228 | 0 | 3156 |
| Heavy Trucks | 0 | 4 | 0 | | 4 | 12 | 4 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 8 | | 0 | 0 | 0 | | 12 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

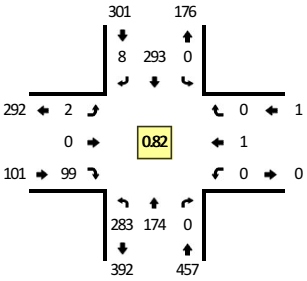
Type of peak hour being reported: Intersection Peak

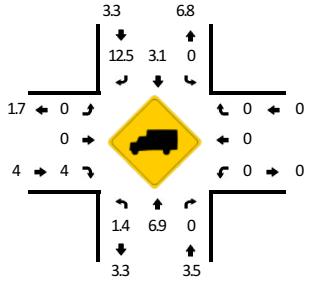
Method for determining peak hour: Total Entering Volume

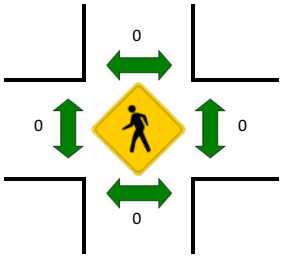
**LOCATION:** 4. N Minnewawa Ave -- E International Ave
**CITY/STATE:** Fresno, CA

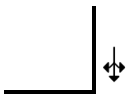
**QC JOB #:** 16475507
**DATE:** Tue, Feb 6 2024

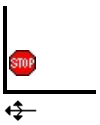
**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 8:15 AM -- 8:30 AM**

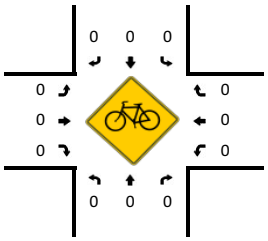


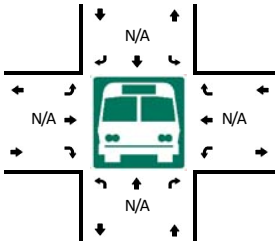



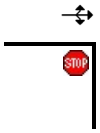



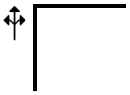


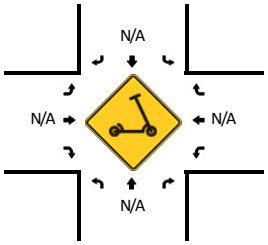







| 5-Min Count Period Beginning At | 4. N Minnewawa Ave (Northbound) | | | | 4. N Minnewawa Ave (Southbound) | | | | E International Ave (Eastbound) | | | | E International Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 4 | 7 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 25 | |
| 7:05 AM | 10 | 16 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 51 | |
| 7:10 AM | 17 | 12 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 49 | |
| 7:15 AM | 31 | 8 | 0 | 0 | 0 | 22 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 66 | |
| 7:20 AM | 20 | 6 | 0 | 0 | 0 | 21 | 1 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 54 | |
| 7:25 AM | 16 | 11 | 0 | 0 | 0 | 28 | 0 | 0 | 1 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 70 | |
| 7:30 AM | 12 | 8 | 0 | 0 | 0 | 22 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 49 | |
| 7:35 AM | 11 | 12 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 48 | |
| 7:40 AM | 14 | 16 | 0 | 0 | 0 | 22 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 57 | |
| 7:45 AM | 23 | 15 | 0 | 0 | 0 | 31 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 78 | |
| 7:50 AM | 9 | 17 | 0 | 0 | 0 | 26 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 60 | |
| 7:55 AM | 19 | 10 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 69 | 676 |
| 8:00 AM | 27 | 15 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 68 | 719 |
| 8:05 AM | 30 | 12 | 0 | 0 | 0 | 19 | 1 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 71 | 739 |
| 8:10 AM | 38 | 7 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 83 | 773 |
| 8:15 AM | 47 | 20 | 0 | 0 | 0 | 19 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 93 | 800 |
| 8:20 AM | 30 | 15 | 0 | 0 | 0 | 26 | 1 | 0 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 81 | 827 |
| 8:25 AM | 27 | 26 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 88 | 845 |
| 8:30 AM | 14 | 12 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 58 | 854 |
| 8:35 AM | 5 | 9 | 0 | 0 | 0 | 26 | 1 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 54 | 860 |
| 8:40 AM | 8 | 16 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 49 | 852 |
| 8:45 AM | 4 | 14 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 37 | 811 |
| 8:50 AM | 12 | 10 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 43 | 794 |
| 8:55 AM | 10 | 9 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 41 | 766 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 416 | 244 | 0 | 0 | 0 | 260 | 16 | 0 | 4 | 0 | 108 | 0 | 0 | 0 | 0 | 0 | 1048 |
| Heavy Trucks | 8 | 24 | 0 | | 0 | 20 | 4 | | 0 | 0 | 8 | | 0 | 0 | 0 | | 64 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

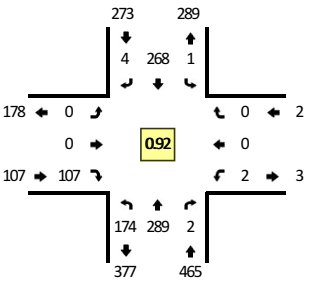
Type of peak hour being reported: Intersection Peak

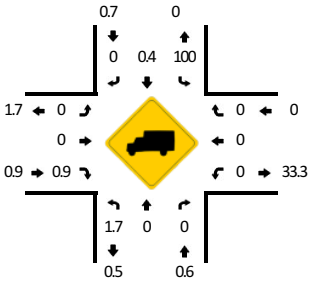
Method for determining peak hour: Total Entering Volume

**LOCATION:** 4. N Minnewawa Ave -- E International Ave
**CITY/STATE:** Fresno, CA

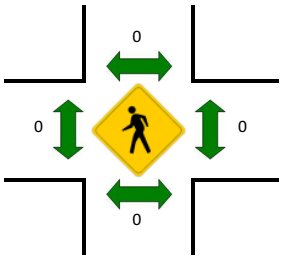
**QC JOB #:** 16475508
**DATE:** Tue, Feb 6 2024

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**



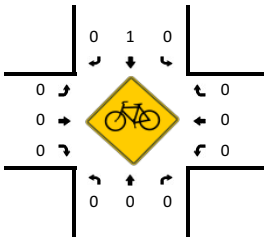



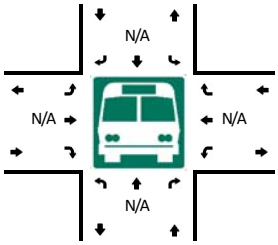

TRUE DATA TO IMPROVE MOBILITY





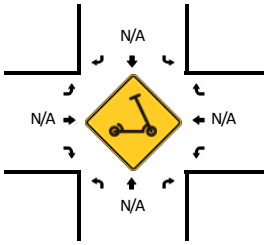











| 5-Min Count Period Beginning At | 4. N Minnewawa Ave (Northbound) | | | | 4. N Minnewawa Ave (Southbound) | | | | E International Ave (Eastbound) | | | | E International Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 5 | 28 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 58 | |
| 4:05 PM | 5 | 22 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 50 | |
| 4:10 PM | 9 | 24 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 46 | |
| 4:15 PM | 15 | 19 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 69 | |
| 4:20 PM | 9 | 19 | 1 | 0 | 0 | 18 | 0 | 0 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 55 | |
| 4:25 PM | 6 | 17 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 51 | |
| 4:30 PM | 10 | 29 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 69 | |
| 4:35 PM | 6 | 22 | 0 | 0 | 0 | 15 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 49 | |
| 4:40 PM | 12 | 21 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 66 | |
| 4:45 PM | 16 | 20 | 0 | 0 | 0 | 33 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 76 | |
| 4:50 PM | 18 | 23 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 63 | |
| 4:55 PM | 18 | 27 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 71 | 723 |
| 5:00 PM | 17 | 23 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 56 | 721 |
| 5:05 PM | 16 | 17 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 82 | 753 |
| 5:10 PM | 11 | 23 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 64 | 771 |
| 5:15 PM | 15 | 16 | 0 | 0 | 0 | 22 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 61 | 763 |
| 5:20 PM | 21 | 28 | 0 | 0 | 0 | 19 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 77 | 785 |
| 5:25 PM | 16 | 30 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 77 | 811 |
| 5:30 PM | 15 | 29 | 1 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 76 | 818 |
| 5:35 PM | 15 | 21 | 0 | 0 | 0 | 25 | 1 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 73 | 842 |
| 5:40 PM | 10 | 23 | 1 | 0 | 1 | 18 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 67 | 843 |
| 5:45 PM | 9 | 26 | 0 | 0 | 0 | 22 | 1 | 0 | 0 | 0 | 15 | 0 | 2 | 0 | 0 | 0 | 75 | 842 |
| 5:50 PM | 11 | 26 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 68 | 847 |
| 5:55 PM | 4 | 16 | 0 | 0 | 0 | 11 | 0 | 0 | 1 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 44 | 820 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 208 | 348 | 4 | 0 | 0 | 280 | 4 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 920 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

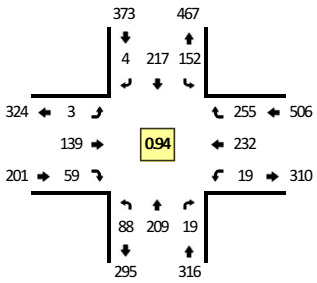
Report generated on 2/23/2024 2:41 PM

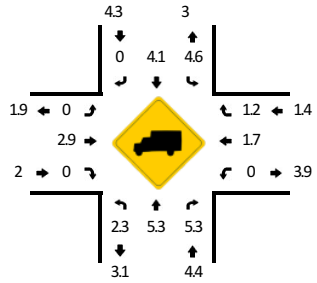
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

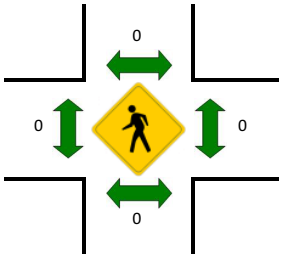
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

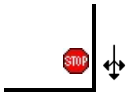
**LOCATION:** 5. N Minnewawa Ave -- E Behymer Ave | **QC JOB #:** 16475509
**CITY/STATE:** Fresno, CA | **DATE:** Tue, Feb 6 2024

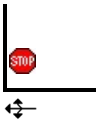
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 8:15 AM -- 8:30 AM**

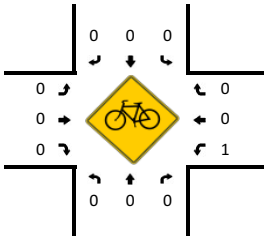


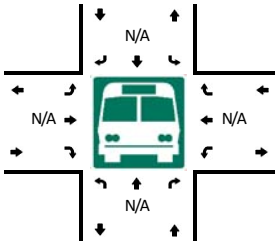



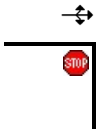



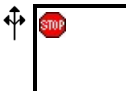



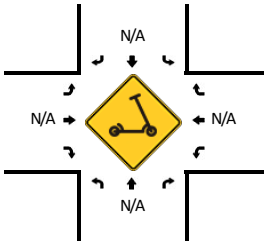




| 5-Min Count Period Beginning At | 5. N Minnewawa Ave (Northbound) | | | | 5. N Minnewawa Ave (Southbound) | | | | E Behymer Ave (Eastbound) | | | | E Behymer Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 2 | 4 | 0 | 0 | 4 | 8 | 0 | 0 | 0 | 7 | 1 | 0 | 2 | 5 | 7 | 0 | 40 | |
| 7:05 AM | 1 | 9 | 1 | 0 | 15 | 11 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 14 | 15 | 0 | 75 | |
| 7:10 AM | 2 | 13 | 2 | 0 | 6 | 16 | 0 | 0 | 0 | 8 | 3 | 0 | 0 | 15 | 23 | 0 | 88 | |
| 7:15 AM | 4 | 11 | 0 | 0 | 11 | 15 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 23 | 23 | 0 | 96 | |
| 7:20 AM | 2 | 15 | 0 | 0 | 12 | 14 | 0 | 0 | 0 | 6 | 5 | 0 | 2 | 24 | 15 | 0 | 95 | |
| 7:25 AM | 3 | 7 | 2 | 0 | 18 | 22 | 1 | 0 | 0 | 7 | 8 | 0 | 1 | 14 | 13 | 0 | 96 | |
| 7:30 AM | 6 | 10 | 3 | 0 | 9 | 19 | 1 | 0 | 0 | 11 | 4 | 0 | 3 | 18 | 13 | 0 | 97 | |
| 7:35 AM | 9 | 9 | 1 | 0 | 15 | 9 | 2 | 0 | 0 | 6 | 9 | 0 | 2 | 24 | 11 | 0 | 97 | |
| 7:40 AM | 8 | 15 | 1 | 0 | 7 | 14 | 0 | 0 | 2 | 15 | 6 | 0 | 1 | 26 | 20 | 0 | 115 | |
| 7:45 AM | 16 | 14 | 1 | 0 | 12 | 21 | 0 | 0 | 0 | 13 | 6 | 0 | 1 | 20 | 23 | 0 | 127 | |
| 7:50 AM | 11 | 14 | 1 | 0 | 15 | 22 | 1 | 0 | 0 | 16 | 7 | 0 | 2 | 25 | 11 | 0 | 125 | |
| 7:55 AM | 7 | 12 | 0 | 0 | 15 | 24 | 0 | 0 | 0 | 10 | 7 | 0 | 1 | 23 | 19 | 0 | 118 | 1169 |
| 8:00 AM | 4 | 22 | 2 | 0 | 13 | 20 | 0 | 0 | 0 | 14 | 5 | 0 | 3 | 22 | 18 | 0 | 123 | 1252 |
| 8:05 AM | 7 | 23 | 2 | 0 | 11 | 13 | 0 | 0 | 0 | 8 | 5 | 0 | 1 | 22 | 21 | 0 | 113 | 1290 |
| 8:10 AM | 2 | 17 | 0 | 0 | 12 | 18 | 0 | 0 | 0 | 9 | 3 | 0 | 0 | 11 | 37 | 0 | 109 | 1311 |
| 8:15 AM | 3 | 31 | 1 | 0 | 13 | 20 | 0 | 0 | 1 | 18 | 3 | 0 | 1 | 13 | 27 | 0 | 131 | 1346 |
| 8:20 AM | 6 | 21 | 4 | 0 | 14 | 17 | 0 | 0 | 0 | 15 | 2 | 0 | 2 | 13 | 28 | 0 | 122 | 1373 |
| 8:25 AM | 9 | 21 | 3 | 0 | 16 | 20 | 0 | 0 | 0 | 4 | 2 | 0 | 2 | 15 | 27 | 0 | 119 | 1396 |
| 8:30 AM | 4 | 14 | 4 | 0 | 16 | 17 | 0 | 0 | 0 | 14 | 3 | 0 | 1 | 7 | 6 | 0 | 86 | 1385 |
| 8:35 AM | 2 | 9 | 3 | 0 | 24 | 15 | 0 | 0 | 0 | 21 | 4 | 0 | 4 | 10 | 4 | 0 | 96 | 1384 |
| 8:40 AM | 5 | 13 | 1 | 0 | 15 | 11 | 0 | 0 | 0 | 12 | 4 | 0 | 1 | 11 | 11 | 0 | 84 | 1353 |
| 8:45 AM | 2 | 11 | 3 | 0 | 10 | 8 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 10 | 7 | 0 | 57 | 1283 |
| 8:50 AM | 2 | 15 | 4 | 0 | 10 | 14 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 12 | 8 | 0 | 71 | 1229 |
| 8:55 AM | 1 | 9 | 0 | 0 | 8 | 14 | 1 | 0 | 0 | 5 | 4 | 0 | 2 | 16 | 12 | 0 | 72 | 1183 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 72 | 292 | 32 | 0 | 172 | 228 | 0 | 0 | 4 | 148 | 28 | 0 | 20 | 164 | 328 | 0 | 1488 |
| Heavy Trucks | 0 | 20 | 4 | | 12 | 16 | 0 | | 0 | 8 | 0 | | 0 | 4 | 8 | | 72 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 5. N Minnewawa Ave -- E Behymer Ave

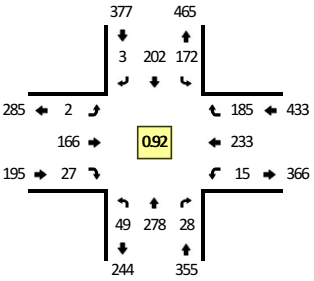
**CITY/STATE:** Fresno, CA

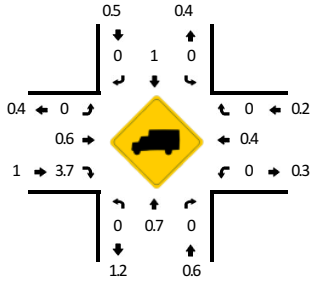
**QC JOB #:** 16475510

**DATE:** Tue, Feb 6 2024

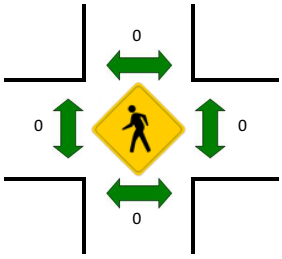
**Peak-Hour: 4:55 PM -- 5:55 PM**

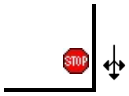
**Peak 15-Min: 5:20 PM -- 5:35 PM**

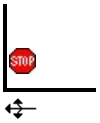


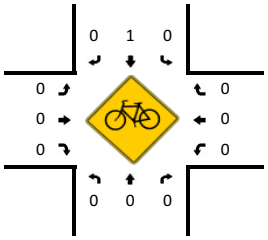



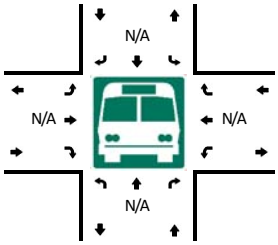

TRUE DATA TO IMPROVE MOBILITY

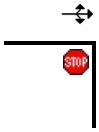


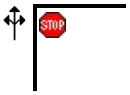



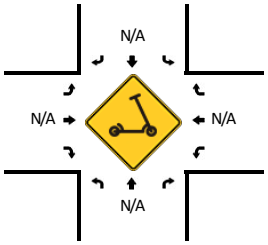




| 5-Min Count Period Beginning At | 5. N Minnewawa Ave (Northbound) | | | | 5. N Minnewawa Ave (Southbound) | | | | E Behymer Ave (Eastbound) | | | | E Behymer Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 8 | 18 | 1 | 0 | 11 | 13 | 0 | 0 | 0 | 9 | 2 | 0 | 1 | 14 | 14 | 0 | 91 | |
| 4:05 PM | 5 | 15 | 1 | 0 | 9 | 14 | 0 | 0 | 3 | 11 | 2 | 0 | 0 | 9 | 10 | 0 | 79 | |
| 4:10 PM | 2 | 23 | 3 | 0 | 5 | 8 | 0 | 0 | 1 | 14 | 4 | 0 | 2 | 9 | 12 | 0 | 83 | |
| 4:15 PM | 2 | 21 | 1 | 0 | 12 | 19 | 0 | 0 | 0 | 9 | 4 | 0 | 1 | 12 | 11 | 0 | 92 | |
| 4:20 PM | 3 | 17 | 3 | 0 | 6 | 22 | 0 | 0 | 0 | 13 | 4 | 0 | 1 | 11 | 13 | 0 | 93 | |
| 4:25 PM | 5 | 18 | 3 | 0 | 14 | 14 | 0 | 0 | 0 | 9 | 5 | 0 | 1 | 8 | 11 | 0 | 88 | |
| 4:30 PM | 3 | 18 | 1 | 0 | 11 | 21 | 0 | 0 | 1 | 11 | 0 | 0 | 2 | 13 | 15 | 0 | 96 | |
| 4:35 PM | 1 | 17 | 2 | 0 | 13 | 11 | 0 | 0 | 0 | 10 | 2 | 0 | 2 | 14 | 11 | 0 | 83 | |
| 4:40 PM | 1 | 12 | 1 | 0 | 13 | 17 | 0 | 0 | 0 | 11 | 3 | 0 | 1 | 16 | 19 | 0 | 94 | |
| 4:45 PM | 3 | 19 | 2 | 0 | 10 | 28 | 0 | 0 | 1 | 17 | 2 | 0 | 0 | 12 | 16 | 0 | 110 | |
| 4:50 PM | 3 | 27 | 2 | 0 | 7 | 11 | 1 | 0 | 1 | 7 | 3 | 0 | 2 | 15 | 17 | 0 | 96 | |
| 4:55 PM | 2 | 18 | 2 | 0 | 14 | 12 | 1 | 0 | 2 | 10 | 2 | 0 | 1 | 22 | 25 | 0 | 111 | 1116 |
| 5:00 PM | 3 | 18 | 2 | 0 | 8 | 10 | 1 | 0 | 0 | 15 | 1 | 0 | 1 | 13 | 17 | 0 | 89 | 1114 |
| 5:05 PM | 4 | 26 | 1 | 0 | 17 | 17 | 0 | 0 | 0 | 14 | 2 | 0 | 1 | 17 | 12 | 0 | 111 | 1146 |
| 5:10 PM | 6 | 23 | 3 | 0 | 22 | 18 | 0 | 0 | 0 | 18 | 3 | 0 | 3 | 14 | 10 | 0 | 120 | 1183 |
| 5:15 PM | 4 | 19 | 5 | 0 | 12 | 20 | 0 | 0 | 0 | 10 | 3 | 0 | 1 | 26 | 15 | 0 | 115 | 1206 |
| 5:20 PM | 7 | 28 | 3 | 0 | 13 | 7 | 0 | 0 | 0 | 15 | 0 | 0 | 2 | 22 | 19 | 0 | 116 | 1229 |
| 5:25 PM | 4 | 26 | 0 | 0 | 16 | 21 | 0 | 0 | 0 | 17 | 3 | 0 | 1 | 21 | 21 | 0 | 130 | 1271 |
| 5:30 PM | 3 | 26 | 2 | 0 | 14 | 22 | 0 | 0 | 0 | 12 | 3 | 0 | 2 | 25 | 13 | 0 | 122 | 1297 |
| 5:35 PM | 7 | 24 | 1 | 0 | 14 | 20 | 1 | 0 | 0 | 11 | 5 | 0 | 0 | 14 | 13 | 0 | 110 | 1324 |
| 5:40 PM | 1 | 23 | 3 | 0 | 15 | 10 | 0 | 0 | 0 | 19 | 1 | 0 | 0 | 17 | 12 | 0 | 101 | 1331 |
| 5:45 PM | 5 | 26 | 3 | 0 | 15 | 21 | 0 | 0 | 0 | 13 | 3 | 0 | 3 | 20 | 13 | 0 | 122 | 1343 |
| 5:50 PM | 3 | 21 | 3 | 0 | 12 | 24 | 0 | 0 | 0 | 12 | 1 | 0 | 0 | 22 | 15 | 0 | 113 | 1360 |
| 5:55 PM | 2 | 15 | 3 | 0 | 11 | 20 | 0 | 0 | 0 | 8 | 5 | 0 | 2 | 16 | 7 | 0 | 89 | 1338 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 56 | 320 | 20 | 0 | 172 | 200 | 0 | 0 | 0 | 176 | 24 | 0 | 20 | 272 | 212 | 0 | 1472 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

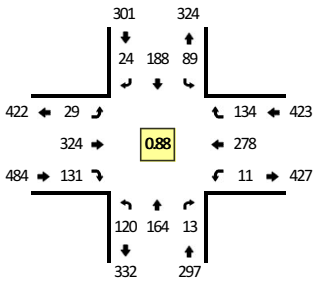
Type of peak hour being reported: Intersection Peak

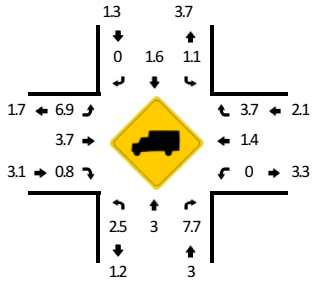
Method for determining peak hour: Total Entering Volume

**LOCATION:** 6. N Minnewawa Ave -- Shepherd Ave
**CITY/STATE:** Clovis, CA

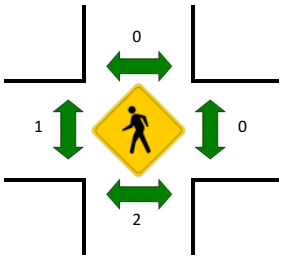
**QC JOB #:** 16475511
**DATE:** Tue, Feb 6 2024

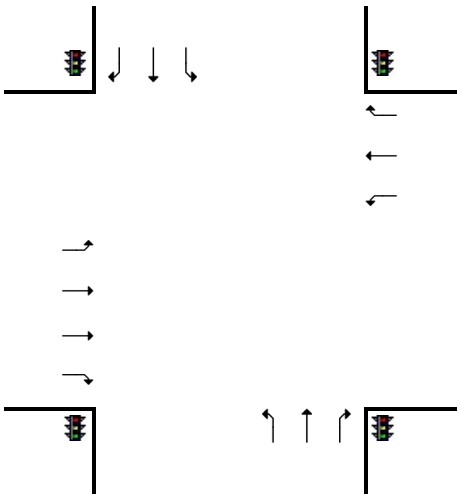
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

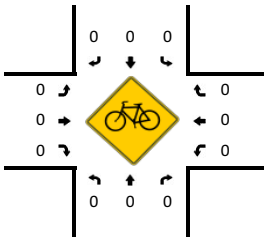


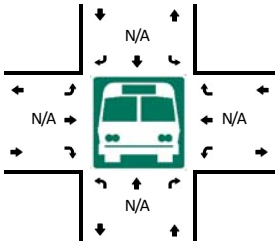



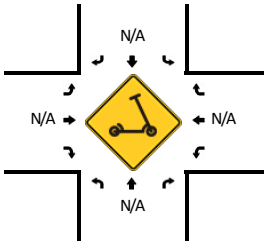

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 6. N Minnewawa Ave (Northbound) | | | | 6. N Minnewawa Ave (Southbound) | | | | Shepherd Ave (Eastbound) | | | | Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 1 | 10 | 0 | 0 | 4 | 10 | 1 | 0 | 0 | 4 | 6 | 1 | 1 | 4 | 2 | 0 | 44 | |
| 7:05 AM | 3 | 6 | 0 | 0 | 6 | 2 | 1 | 0 | 1 | 16 | 4 | 0 | 0 | 12 | 3 | 0 | 54 | |
| 7:10 AM | 5 | 10 | 0 | 0 | 4 | 16 | 2 | 0 | 1 | 11 | 4 | 0 | 0 | 12 | 6 | 0 | 71 | |
| 7:15 AM | 4 | 10 | 0 | 0 | 4 | 9 | 1 | 0 | 0 | 30 | 4 | 1 | 0 | 9 | 5 | 0 | 77 | |
| 7:20 AM | 5 | 7 | 1 | 0 | 9 | 6 | 3 | 0 | 1 | 23 | 8 | 0 | 1 | 16 | 8 | 0 | 88 | |
| 7:25 AM | 7 | 3 | 0 | 0 | 12 | 18 | 1 | 0 | 2 | 20 | 5 | 1 | 1 | 12 | 9 | 0 | 91 | |
| 7:30 AM | 2 | 6 | 0 | 0 | 10 | 19 | 1 | 0 | 4 | 14 | 13 | 0 | 1 | 29 | 8 | 0 | 107 | |
| 7:35 AM | 7 | 13 | 2 | 0 | 2 | 13 | 2 | 0 | 0 | 32 | 8 | 1 | 0 | 26 | 8 | 0 | 114 | |
| 7:40 AM | 15 | 9 | 1 | 0 | 12 | 7 | 5 | 0 | 1 | 40 | 13 | 0 | 0 | 25 | 14 | 0 | 142 | |
| 7:45 AM | 11 | 20 | 3 | 0 | 6 | 16 | 1 | 0 | 3 | 36 | 11 | 0 | 1 | 32 | 14 | 0 | 154 | |
| 7:50 AM | 7 | 12 | 0 | 0 | 12 | 16 | 3 | 0 | 1 | 35 | 15 | 0 | 1 | 25 | 5 | 0 | 132 | |
| 7:55 AM | 3 | 16 | 0 | 0 | 9 | 22 | 3 | 0 | 2 | 29 | 6 | 0 | 2 | 21 | 10 | 1 | 124 | 1198 |
| 8:00 AM | 14 | 10 | 1 | 1 | 15 | 20 | 3 | 0 | 3 | 25 | 14 | 0 | 2 | 20 | 12 | 0 | 140 | 1294 |
| 8:05 AM | 10 | 10 | 0 | 0 | 4 | 11 | 1 | 0 | 1 | 29 | 5 | 0 | 1 | 20 | 15 | 0 | 107 | 1347 |
| 8:10 AM | 17 | 21 | 0 | 0 | 7 | 8 | 1 | 0 | 1 | 19 | 6 | 0 | 0 | 21 | 8 | 0 | 109 | 1385 |
| 8:15 AM | 7 | 18 | 1 | 2 | 4 | 23 | 2 | 0 | 2 | 24 | 10 | 0 | 1 | 29 | 14 | 0 | 137 | 1445 |
| 8:20 AM | 14 | 18 | 3 | 0 | 3 | 13 | 1 | 0 | 6 | 20 | 18 | 0 | 0 | 20 | 16 | 0 | 132 | 1489 |
| 8:25 AM | 10 | 11 | 2 | 0 | 5 | 20 | 1 | 0 | 2 | 21 | 12 | 2 | 1 | 10 | 10 | 0 | 107 | 1505 |
| 8:30 AM | 6 | 16 | 1 | 0 | 7 | 7 | 1 | 0 | 4 | 29 | 11 | 0 | 0 | 19 | 4 | 0 | 105 | 1503 |
| 8:35 AM | 12 | 6 | 1 | 1 | 11 | 10 | 1 | 0 | 4 | 24 | 4 | 0 | 0 | 12 | 2 | 0 | 88 | 1477 |
| 8:40 AM | 7 | 11 | 0 | 0 | 11 | 11 | 3 | 0 | 3 | 22 | 7 | 0 | 0 | 10 | 5 | 0 | 90 | 1425 |
| 8:45 AM | 4 | 13 | 0 | 0 | 5 | 7 | 0 | 0 | 2 | 20 | 4 | 0 | 1 | 13 | 5 | 0 | 74 | 1345 |
| 8:50 AM | 6 | 8 | 1 | 0 | 1 | 11 | 1 | 0 | 4 | 13 | 5 | 0 | 0 | 9 | 4 | 0 | 63 | 1276 |
| 8:55 AM | 6 | 8 | 0 | 0 | 2 | 12 | 2 | 0 | 3 | 11 | 10 | 0 | 0 | 9 | 5 | 0 | 68 | 1220 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 132 | 164 | 16 | 0 | 120 | 156 | 36 | 0 | 20 | 444 | 156 | 0 | 8 | 328 | 132 | 0 | 1712 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 0 | 0 | | 4 | 0 | 0 | | 0 | 4 | 0 | | 16 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 4 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

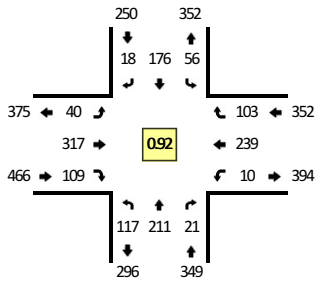
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

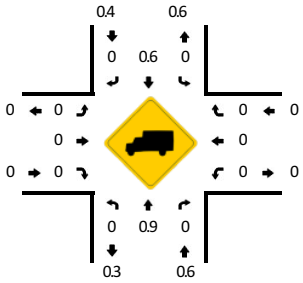
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** 6. N Minnewawa Ave -- Shepherd Ave
**CITY/STATE:** Clovis, CA

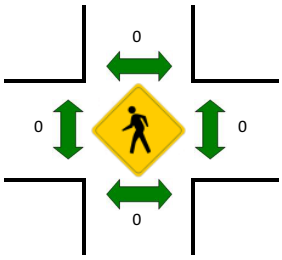
**QC JOB #:** 16475512
**DATE:** Tue, Feb 6 2024

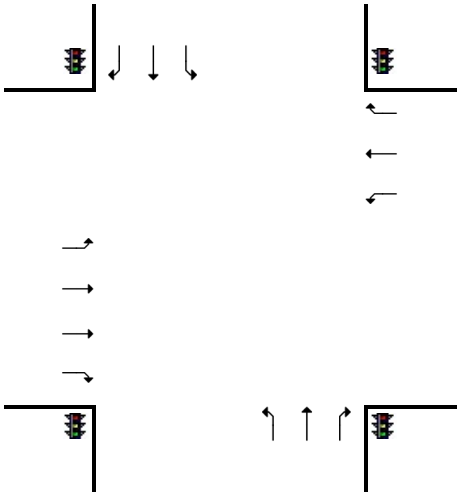
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

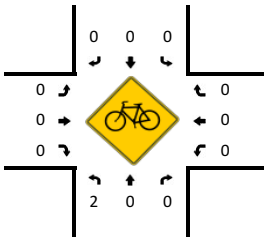


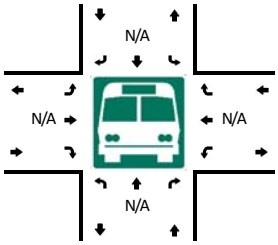



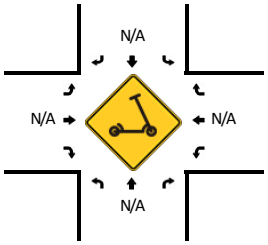

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 6. N Minnewawa Ave (Northbound) | | | | 6. N Minnewawa Ave (Southbound) | | | | Shepherd Ave (Eastbound) | | | | Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 8 | 15 | 1 | 0 | 4 | 13 | 1 | 0 | 1 | 21 | 5 | 1 | 1 | 4 | 9 | 0 | 84 | |
| 4:05 PM | 10 | 12 | 0 | 0 | 1 | 12 | 0 | 0 | 3 | 22 | 2 | 0 | 1 | 13 | 6 | 0 | 82 | |
| 4:10 PM | 9 | 12 | 1 | 0 | 4 | 13 | 1 | 0 | 4 | 30 | 5 | 1 | 0 | 23 | 10 | 0 | 113 | |
| 4:15 PM | 4 | 15 | 3 | 0 | 1 | 20 | 1 | 0 | 6 | 18 | 8 | 0 | 0 | 22 | 7 | 0 | 105 | |
| 4:20 PM | 8 | 18 | 1 | 0 | 6 | 12 | 2 | 0 | 1 | 29 | 6 | 1 | 0 | 16 | 2 | 0 | 102 | |
| 4:25 PM | 10 | 16 | 1 | 1 | 9 | 14 | 0 | 0 | 2 | 28 | 5 | 0 | 2 | 20 | 12 | 0 | 120 | |
| 4:30 PM | 8 | 8 | 1 | 0 | 8 | 10 | 1 | 0 | 2 | 22 | 8 | 0 | 0 | 17 | 7 | 0 | 92 | |
| 4:35 PM | 8 | 16 | 4 | 0 | 6 | 19 | 1 | 0 | 2 | 17 | 5 | 1 | 1 | 11 | 5 | 0 | 96 | |
| 4:40 PM | 2 | 14 | 2 | 0 | 7 | 10 | 1 | 0 | 2 | 30 | 12 | 0 | 0 | 19 | 1 | 0 | 100 | |
| 4:45 PM | 4 | 23 | 3 | 0 | 4 | 23 | 1 | 0 | 0 | 19 | 1 | 0 | 1 | 12 | 2 | 0 | 93 | |
| 4:50 PM | 13 | 15 | 0 | 0 | 2 | 17 | 1 | 0 | 3 | 30 | 6 | 0 | 0 | 20 | 8 | 0 | 115 | |
| 4:55 PM | 7 | 16 | 2 | 0 | 0 | 13 | 3 | 0 | 1 | 19 | 8 | 1 | 0 | 15 | 6 | 0 | 91 | 1193 |
| 5:00 PM | 11 | 16 | 1 | 0 | 3 | 6 | 0 | 0 | 6 | 19 | 10 | 0 | 0 | 16 | 8 | 0 | 96 | 1205 |
| 5:05 PM | 9 | 15 | 2 | 0 | 6 | 8 | 1 | 0 | 1 | 27 | 8 | 0 | 1 | 31 | 14 | 0 | 123 | 1246 |
| 5:10 PM | 9 | 16 | 2 | 1 | 5 | 17 | 4 | 0 | 5 | 20 | 10 | 0 | 1 | 19 | 10 | 0 | 119 | 1252 |
| 5:15 PM | 9 | 25 | 3 | 0 | 5 | 20 | 1 | 0 | 5 | 29 | 11 | 0 | 1 | 16 | 6 | 0 | 131 | 1278 |
| 5:20 PM | 8 | 12 | 4 | 0 | 2 | 9 | 2 | 0 | 3 | 40 | 9 | 0 | 0 | 27 | 15 | 1 | 132 | 1308 |
| 5:25 PM | 10 | 32 | 2 | 1 | 8 | 13 | 2 | 0 | 2 | 21 | 9 | 1 | 1 | 17 | 5 | 0 | 124 | 1312 |
| 5:30 PM | 5 | 14 | 0 | 0 | 6 | 13 | 1 | 1 | 3 | 27 | 9 | 1 | 1 | 12 | 8 | 0 | 101 | 1321 |
| 5:35 PM | 13 | 28 | 0 | 0 | 3 | 28 | 1 | 0 | 2 | 21 | 9 | 1 | 0 | 22 | 7 | 0 | 135 | 1360 |
| 5:40 PM | 8 | 13 | 1 | 0 | 4 | 11 | 2 | 0 | 6 | 30 | 5 | 0 | 2 | 23 | 11 | 0 | 116 | 1376 |
| 5:45 PM | 11 | 21 | 3 | 0 | 5 | 19 | 1 | 0 | 1 | 30 | 6 | 0 | 0 | 20 | 7 | 0 | 124 | 1407 |
| 5:50 PM | 7 | 13 | 2 | 0 | 3 | 14 | 1 | 0 | 1 | 25 | 14 | 0 | 2 | 19 | 6 | 0 | 107 | 1399 |
| 5:55 PM | 15 | 6 | 1 | 0 | 5 | 18 | 2 | 0 | 2 | 28 | 9 | 0 | 0 | 17 | 6 | 0 | 109 | 1417 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 108 | 276 | 36 | 4 | 60 | 168 | 20 | 0 | 40 | 360 | 116 | 4 | 8 | 240 | 104 | 4 | 1548 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

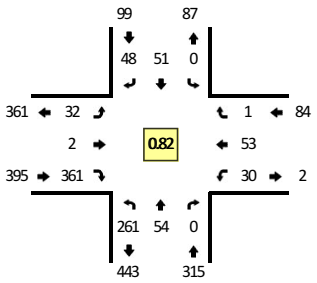
Type of peak hour being reported: Intersection Peak

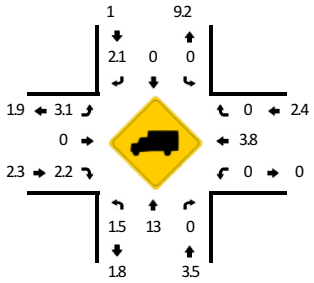
Method for determining peak hour: Total Entering Volume

**LOCATION:** 9. Clovis Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

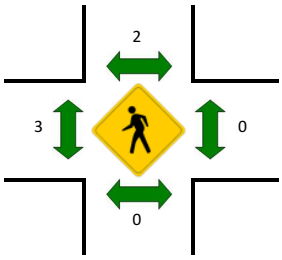
**QC JOB #:** 16475513
**DATE:** Tue, Feb 6 2024

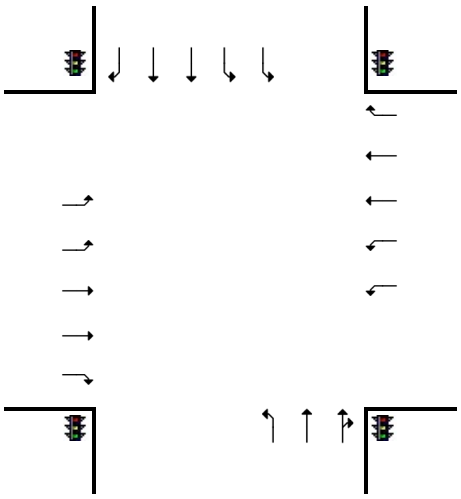
**Peak-Hour: 7:25 AM -- 8:25 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

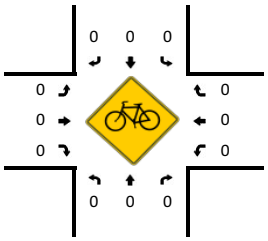


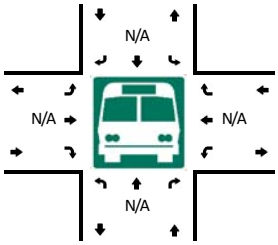



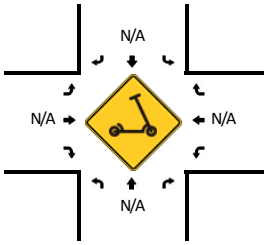

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 9. Clovis Ave (Northbound) | | | | 9. Clovis Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 8 | 10 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 9 | 0 | 3 | 1 | 0 | 0 | 37 | |
| 7:05 AM | 11 | 6 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 43 | |
| 7:10 AM | 8 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 16 | 0 | 2 | 3 | 0 | 0 | 35 | |
| 7:15 AM | 9 | 3 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 27 | 0 | 2 | 0 | 0 | 0 | 51 | |
| 7:20 AM | 15 | 3 | 0 | 0 | 0 | 5 | 4 | 0 | 2 | 0 | 31 | 0 | 0 | 4 | 0 | 0 | 64 | |
| 7:25 AM | 11 | 4 | 0 | 0 | 0 | 4 | 5 | 0 | 1 | 0 | 30 | 0 | 2 | 3 | 0 | 0 | 60 | |
| 7:30 AM | 10 | 3 | 0 | 0 | 0 | 9 | 5 | 0 | 2 | 0 | 19 | 0 | 4 | 6 | 0 | 0 | 58 | |
| 7:35 AM | 18 | 7 | 0 | 0 | 0 | 4 | 7 | 0 | 1 | 0 | 19 | 0 | 2 | 11 | 1 | 0 | 70 | |
| 7:40 AM | 20 | 5 | 0 | 0 | 0 | 4 | 8 | 0 | 5 | 0 | 49 | 0 | 4 | 6 | 0 | 0 | 101 | |
| 7:45 AM | 22 | 6 | 0 | 0 | 0 | 4 | 6 | 0 | 3 | 0 | 43 | 0 | 2 | 3 | 0 | 0 | 89 | |
| 7:50 AM | 26 | 4 | 0 | 0 | 0 | 6 | 1 | 0 | 5 | 0 | 36 | 0 | 1 | 4 | 0 | 0 | 83 | |
| 7:55 AM | 28 | 4 | 0 | 0 | 0 | 7 | 1 | 0 | 5 | 1 | 29 | 0 | 5 | 2 | 0 | 0 | 82 | 773 |
| 8:00 AM | 25 | 2 | 0 | 0 | 0 | 6 | 4 | 0 | 3 | 0 | 39 | 0 | 3 | 4 | 0 | 0 | 86 | 822 |
| 8:05 AM | 20 | 4 | 0 | 0 | 0 | 4 | 4 | 0 | 2 | 0 | 24 | 0 | 1 | 5 | 0 | 0 | 64 | 843 |
| 8:10 AM | 17 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 33 | 0 | 4 | 3 | 0 | 0 | 63 | 871 |
| 8:15 AM | 30 | 11 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 16 | 0 | 1 | 4 | 0 | 0 | 69 | 889 |
| 8:20 AM | 33 | 3 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 24 | 0 | 1 | 2 | 0 | 0 | 68 | 893 |
| 8:25 AM | 9 | 5 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 1 | 28 | 0 | 3 | 4 | 0 | 0 | 54 | 887 |
| 8:30 AM | 12 | 3 | 0 | 0 | 0 | 4 | 1 | 0 | 3 | 0 | 19 | 0 | 2 | 2 | 0 | 0 | 46 | 875 |
| 8:35 AM | 11 | 3 | 0 | 0 | 0 | 5 | 3 | 0 | 1 | 0 | 35 | 0 | 4 | 1 | 0 | 0 | 63 | 868 |
| 8:40 AM | 12 | 5 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 28 | 0 | 1 | 0 | 0 | 0 | 50 | 817 |
| 8:45 AM | 14 | 4 | 0 | 0 | 0 | 5 | 4 | 0 | 3 | 0 | 27 | 0 | 0 | 3 | 0 | 0 | 60 | 788 |
| 8:50 AM | 12 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 0 | 14 | 0 | 2 | 0 | 0 | 0 | 40 | 745 |
| 8:55 AM | 10 | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 12 | 0 | 1 | 1 | 0 | 0 | 30 | 693 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 272 | 60 | 0 | 0 | 0 | 56 | 60 | 0 | 52 | 0 | 512 | 0 | 28 | 52 | 0 | 0 | 1092 |
| Heavy Trucks | 0 | 12 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 16 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

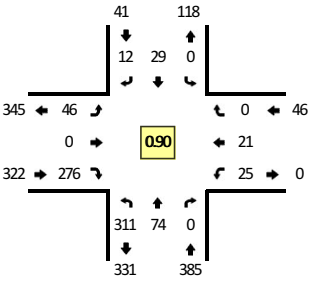
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 9. Clovis Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

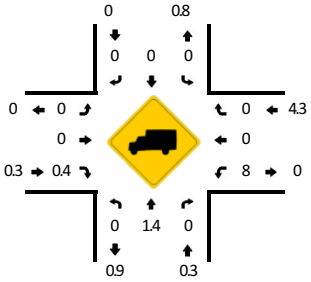
**QC JOB #:** 16475514
**DATE:** Tue, Feb 6 2024

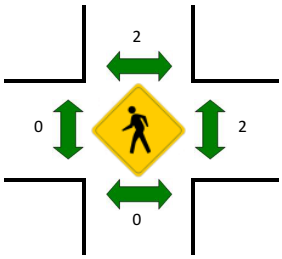
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

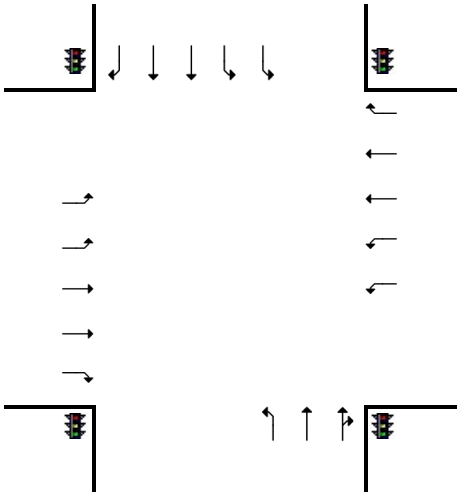


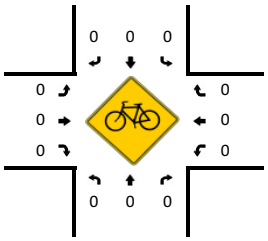


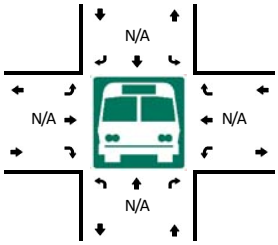


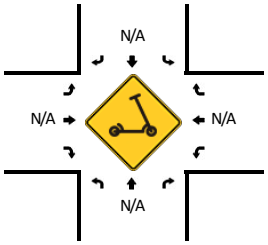





| 5-Min Count Period Beginning At | 9. Clovis Ave (Northbound) | | | | 9. Clovis Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 14 | 7 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 8 | 0 | 1 | 1 | 0 | 0 | 36 | |
| 4:05 PM | 15 | 9 | 1 | 0 | 0 | 3 | 8 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 42 | |
| 4:10 PM | 27 | 5 | 0 | 0 | 0 | 1 | 3 | 0 | 2 | 0 | 6 | 3 | 3 | 0 | 0 | 0 | 50 | |
| 4:15 PM | 26 | 2 | 0 | 1 | 0 | 1 | 2 | 0 | 2 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 41 | |
| 4:20 PM | 14 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 10 | 0 | 1 | 1 | 0 | 0 | 34 | |
| 4:25 PM | 22 | 7 | 0 | 0 | 0 | 3 | 5 | 0 | 4 | 0 | 11 | 0 | 1 | 2 | 0 | 0 | 55 | |
| 4:30 PM | 24 | 4 | 1 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 7 | 0 | 2 | 2 | 0 | 0 | 45 | |
| 4:35 PM | 12 | 10 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 35 | |
| 4:40 PM | 12 | 6 | 0 | 1 | 0 | 1 | 3 | 0 | 4 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 35 | |
| 4:45 PM | 14 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 21 | 0 | 1 | 2 | 0 | 0 | 47 | |
| 4:50 PM | 29 | 6 | 0 | 1 | 0 | 0 | 2 | 0 | 5 | 0 | 23 | 0 | 2 | 1 | 0 | 0 | 69 | |
| 4:55 PM | 13 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 | 0 | 3 | 0 | 0 | 0 | 29 | 518 |
| 5:00 PM | 32 | 6 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 24 | 0 | 2 | 4 | 0 | 0 | 72 | 554 |
| 5:05 PM | 31 | 5 | 0 | 0 | 0 | 5 | 1 | 0 | 6 | 0 | 18 | 0 | 2 | 3 | 0 | 0 | 71 | 583 |
| 5:10 PM | 31 | 5 | 0 | 0 | 0 | 1 | 3 | 0 | 5 | 0 | 22 | 0 | 1 | 1 | 0 | 0 | 69 | 602 |
| 5:15 PM | 30 | 4 | 0 | 1 | 0 | 3 | 0 | 0 | 5 | 0 | 20 | 1 | 2 | 0 | 0 | 0 | 66 | 627 |
| 5:20 PM | 32 | 8 | 0 | 0 | 0 | 3 | 1 | 0 | 6 | 0 | 32 | 0 | 3 | 1 | 0 | 0 | 86 | 679 |
| 5:25 PM | 17 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 16 | 0 | 2 | 2 | 0 | 0 | 50 | 674 |
| 5:30 PM | 30 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 19 | 0 | 3 | 1 | 0 | 0 | 69 | 698 |
| 5:35 PM | 22 | 2 | 0 | 0 | 0 | 2 | 2 | 0 | 4 | 0 | 27 | 0 | 3 | 0 | 0 | 0 | 62 | 725 |
| 5:40 PM | 33 | 5 | 0 | 0 | 0 | 3 | 1 | 0 | 2 | 0 | 17 | 0 | 0 | 1 | 0 | 0 | 62 | 752 |
| 5:45 PM | 20 | 7 | 0 | 0 | 0 | 3 | 1 | 0 | 4 | 0 | 30 | 0 | 2 | 1 | 0 | 0 | 68 | 773 |
| 5:50 PM | 12 | 6 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 31 | 0 | 2 | 6 | 0 | 0 | 61 | 765 |
| 5:55 PM | 20 | 7 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 20 | 1 | 3 | 1 | 0 | 0 | 58 | 794 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 372 | 68 | 0 | 4 | 0 | 28 | 16 | 0 | 64 | 0 | 296 | 4 | 24 | 8 | 0 | 0 | 884 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 8 | | | 12 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

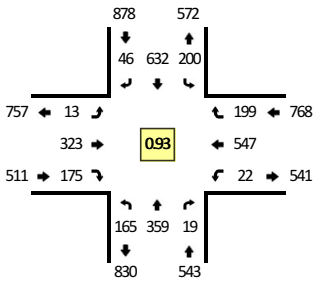
Report generated on 2/23/2024 2:42 PM

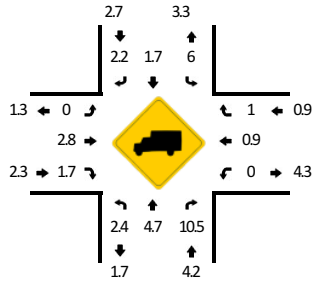
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

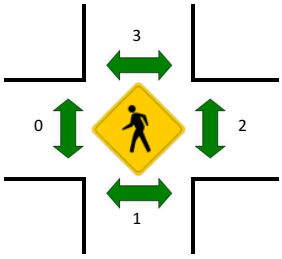
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

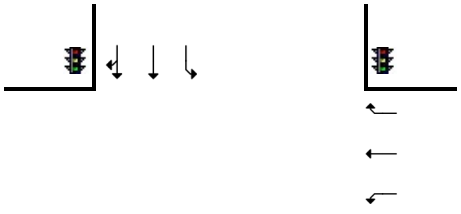
**LOCATION:** 10. Clovis Ave -- Nees Ave | **QC JOB #:** 16475515
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

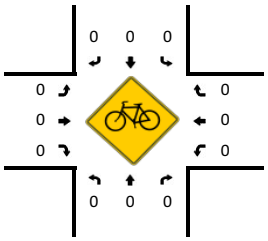
**Peak-Hour: 7:35 AM -- 8:35 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

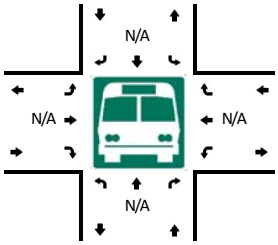


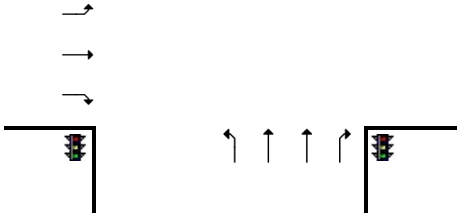



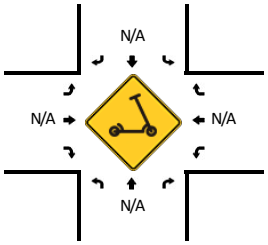








| 5-Min Count Period Beginning At | 10. Clovis Ave (Northbound) | | | | 10. Clovis Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 2 | 21 | 1 | 0 | 2 | 33 | 0 | 0 | 0 | 12 | 9 | 0 | 0 | 29 | 4 | 0 | 113 | |
| 7:05 AM | 4 | 8 | 0 | 0 | 9 | 33 | 2 | 0 | 0 | 10 | 6 | 0 | 2 | 23 | 14 | 0 | 111 | |
| 7:10 AM | 6 | 9 | 1 | 0 | 12 | 44 | 0 | 0 | 1 | 22 | 5 | 0 | 1 | 25 | 11 | 0 | 137 | |
| 7:15 AM | 3 | 17 | 0 | 0 | 12 | 49 | 0 | 0 | 2 | 17 | 11 | 0 | 1 | 30 | 9 | 0 | 151 | |
| 7:20 AM | 7 | 13 | 0 | 0 | 10 | 42 | 1 | 0 | 0 | 22 | 12 | 0 | 1 | 52 | 10 | 0 | 170 | |
| 7:25 AM | 12 | 16 | 3 | 0 | 9 | 68 | 1 | 0 | 0 | 19 | 10 | 0 | 1 | 45 | 9 | 0 | 193 | |
| 7:30 AM | 15 | 19 | 2 | 0 | 11 | 48 | 5 | 0 | 1 | 18 | 11 | 0 | 1 | 51 | 10 | 0 | 192 | |
| 7:35 AM | 8 | 33 | 2 | 0 | 10 | 61 | 3 | 0 | 1 | 18 | 12 | 0 | 1 | 34 | 17 | 0 | 200 | |
| 7:40 AM | 6 | 21 | 0 | 0 | 17 | 59 | 5 | 0 | 3 | 31 | 24 | 0 | 2 | 54 | 15 | 0 | 237 | |
| 7:45 AM | 28 | 28 | 2 | 0 | 20 | 60 | 7 | 0 | 0 | 22 | 17 | 0 | 0 | 47 | 15 | 0 | 246 | |
| 7:50 AM | 10 | 30 | 2 | 0 | 17 | 78 | 3 | 1 | 2 | 24 | 10 | 0 | 3 | 46 | 20 | 0 | 246 | |
| 7:55 AM | 10 | 37 | 2 | 0 | 10 | 76 | 8 | 0 | 0 | 17 | 16 | 0 | 4 | 43 | 11 | 0 | 234 | 2230 |
| 8:00 AM | 17 | 33 | 1 | 0 | 9 | 53 | 5 | 0 | 0 | 12 | 14 | 0 | 0 | 61 | 13 | 0 | 218 | 2335 |
| 8:05 AM | 11 | 35 | 1 | 0 | 25 | 56 | 1 | 0 | 0 | 29 | 13 | 0 | 2 | 46 | 16 | 0 | 235 | 2459 |
| 8:10 AM | 13 | 47 | 0 | 1 | 20 | 32 | 4 | 0 | 1 | 25 | 13 | 0 | 1 | 47 | 15 | 0 | 219 | 2541 |
| 8:15 AM | 18 | 24 | 0 | 0 | 12 | 28 | 4 | 0 | 2 | 34 | 7 | 0 | 2 | 58 | 22 | 0 | 211 | 2601 |
| 8:20 AM | 14 | 35 | 5 | 0 | 20 | 41 | 3 | 0 | 2 | 30 | 16 | 0 | 1 | 53 | 19 | 0 | 239 | 2670 |
| 8:25 AM | 13 | 25 | 3 | 0 | 15 | 51 | 1 | 0 | 2 | 35 | 17 | 0 | 1 | 30 | 14 | 0 | 207 | 2684 |
| 8:30 AM | 16 | 11 | 1 | 0 | 24 | 37 | 2 | 0 | 0 | 46 | 16 | 0 | 5 | 28 | 22 | 0 | 208 | 2700 |
| 8:35 AM | 4 | 22 | 0 | 0 | 13 | 51 | 4 | 0 | 0 | 31 | 15 | 0 | 2 | 38 | 6 | 0 | 186 | 2686 |
| 8:40 AM | 8 | 13 | 5 | 0 | 17 | 51 | 5 | 0 | 1 | 25 | 14 | 0 | 3 | 23 | 9 | 1 | 175 | 2624 |
| 8:45 AM | 7 | 20 | 1 | 0 | 7 | 34 | 0 | 0 | 2 | 23 | 8 | 0 | 2 | 26 | 5 | 0 | 135 | 2513 |
| 8:50 AM | 7 | 13 | 2 | 0 | 3 | 36 | 2 | 0 | 3 | 15 | 13 | 0 | 1 | 26 | 6 | 0 | 127 | 2394 |
| 8:55 AM | 7 | 19 | 1 | 0 | 7 | 17 | 5 | 0 | 0 | 25 | 12 | 0 | 2 | 27 | 5 | 0 | 127 | 2287 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 176 | 316 | 16 | 0 | 216 | 788 | 60 | 4 | 20 | 308 | 204 | 0 | 20 | 588 | 200 | 0 | 2916 |
| Heavy Trucks | 4 | 16 | 4 | | 0 | 8 | 0 | | 0 | 12 | 4 | | 0 | 4 | 0 | | 52 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 4 | | | | 0 | | | | 0 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

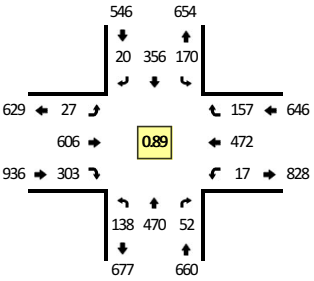
*Comments:*

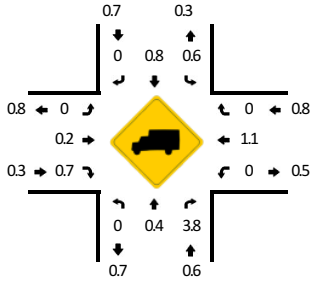
Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

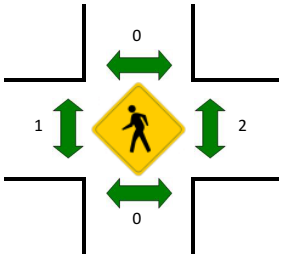
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

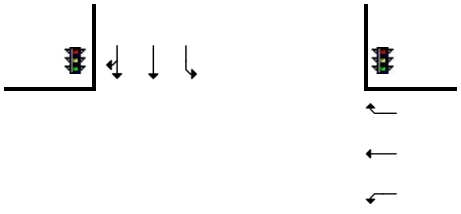
**LOCATION:** 10. Clovis Ave -- Nees Ave | **QC JOB #:** 16475516
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

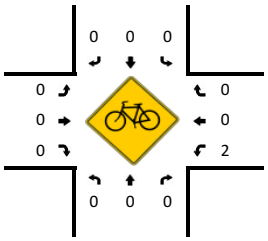
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

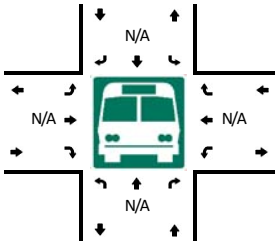


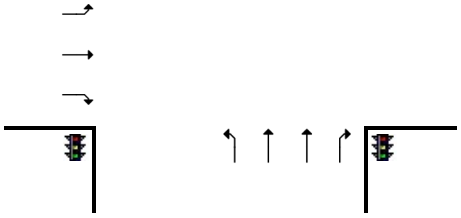



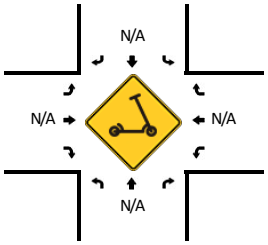








| 5-Min Count Period Beginning At | 10. Clovis Ave (Northbound) | | | | 10. Clovis Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 14 | 25 | 9 | 0 | 19 | 25 | 4 | 0 | 0 | 34 | 18 | 0 | 0 | 35 | 10 | 0 | 193 | |
| 4:05 PM | 7 | 38 | 1 | 0 | 11 | 43 | 2 | 0 | 2 | 33 | 23 | 0 | 4 | 36 | 9 | 0 | 209 | |
| 4:10 PM | 15 | 47 | 3 | 0 | 13 | 27 | 2 | 0 | 3 | 44 | 18 | 0 | 3 | 30 | 13 | 0 | 218 | |
| 4:15 PM | 7 | 28 | 6 | 0 | 14 | 28 | 4 | 0 | 4 | 49 | 19 | 0 | 2 | 33 | 16 | 0 | 210 | |
| 4:20 PM | 8 | 26 | 1 | 0 | 15 | 33 | 1 | 0 | 1 | 37 | 16 | 0 | 0 | 25 | 13 | 0 | 176 | |
| 4:25 PM | 14 | 56 | 5 | 0 | 14 | 26 | 1 | 0 | 3 | 31 | 26 | 0 | 1 | 23 | 4 | 0 | 204 | |
| 4:30 PM | 6 | 41 | 0 | 0 | 16 | 35 | 2 | 0 | 2 | 44 | 14 | 0 | 1 | 32 | 12 | 0 | 205 | |
| 4:35 PM | 8 | 28 | 1 | 0 | 11 | 36 | 4 | 0 | 0 | 31 | 20 | 0 | 2 | 25 | 7 | 0 | 173 | |
| 4:40 PM | 11 | 34 | 3 | 0 | 10 | 36 | 4 | 0 | 1 | 37 | 25 | 0 | 0 | 30 | 10 | 0 | 201 | |
| 4:45 PM | 11 | 43 | 2 | 0 | 19 | 23 | 1 | 0 | 2 | 23 | 14 | 0 | 2 | 43 | 10 | 0 | 193 | |
| 4:50 PM | 17 | 21 | 3 | 0 | 11 | 23 | 3 | 0 | 3 | 38 | 27 | 0 | 2 | 50 | 16 | 0 | 214 | |
| 4:55 PM | 12 | 42 | 1 | 0 | 11 | 34 | 5 | 0 | 2 | 26 | 18 | 0 | 5 | 37 | 8 | 0 | 201 | 2397 |
| 5:00 PM | 8 | 37 | 4 | 0 | 7 | 19 | 1 | 0 | 1 | 52 | 15 | 0 | 0 | 42 | 16 | 0 | 202 | 2406 |
| 5:05 PM | 19 | 52 | 3 | 0 | 23 | 37 | 1 | 0 | 2 | 33 | 20 | 0 | 0 | 30 | 10 | 0 | 230 | 2427 |
| 5:10 PM | 19 | 39 | 4 | 0 | 10 | 27 | 2 | 0 | 4 | 40 | 27 | 0 | 1 | 47 | 16 | 0 | 236 | 2445 |
| 5:15 PM | 12 | 47 | 4 | 0 | 13 | 27 | 2 | 0 | 4 | 66 | 49 | 0 | 2 | 60 | 12 | 0 | 298 | 2533 |
| 5:20 PM | 10 | 51 | 4 | 0 | 19 | 27 | 0 | 0 | 4 | 43 | 15 | 0 | 2 | 55 | 9 | 0 | 239 | 2596 |
| 5:25 PM | 13 | 35 | 2 | 0 | 15 | 21 | 1 | 0 | 3 | 66 | 34 | 0 | 1 | 40 | 13 | 0 | 244 | 2636 |
| 5:30 PM | 14 | 44 | 4 | 0 | 16 | 30 | 2 | 0 | 5 | 53 | 24 | 0 | 3 | 32 | 13 | 0 | 240 | 2671 |
| 5:35 PM | 11 | 38 | 5 | 0 | 13 | 38 | 2 | 0 | 1 | 50 | 22 | 0 | 2 | 41 | 16 | 0 | 239 | 2737 |
| 5:40 PM | 8 | 31 | 4 | 0 | 13 | 22 | 3 | 0 | 0 | 67 | 29 | 0 | 0 | 31 | 11 | 0 | 219 | 2755 |
| 5:45 PM | 7 | 30 | 7 | 0 | 21 | 33 | 3 | 0 | 1 | 44 | 23 | 0 | 3 | 26 | 11 | 0 | 209 | 2771 |
| 5:50 PM | 6 | 26 | 3 | 1 | 12 | 36 | 2 | 0 | 0 | 54 | 23 | 0 | 2 | 40 | 17 | 0 | 222 | 2779 |
| 5:55 PM | 10 | 40 | 8 | 0 | 8 | 39 | 1 | 0 | 2 | 38 | 22 | 0 | 1 | 28 | 13 | 0 | 210 | 2788 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 140 | 532 | 40 | 0 | 188 | 300 | 12 | 0 | 44 | 700 | 392 | 0 | 20 | 620 | 136 | 0 | 3124 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 0 | | 12 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 | 0 | 0 | | 8 |
| Scooters | | | | | | | | | | | | | | | | | |

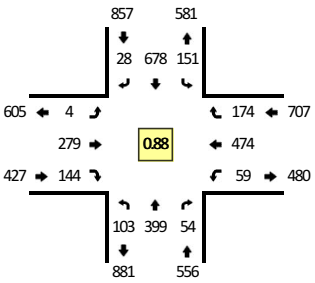
*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

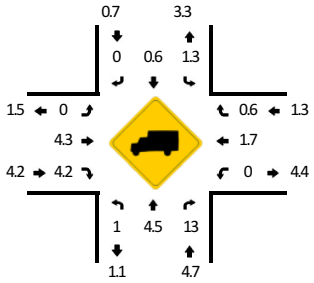
**LOCATION:** 11. Clovis Ave -- Alluvial Ave | **QC JOB #:** 16475517
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

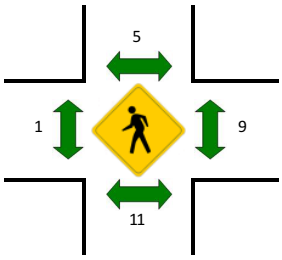
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

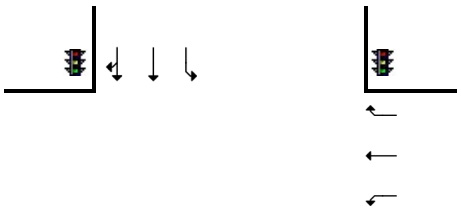


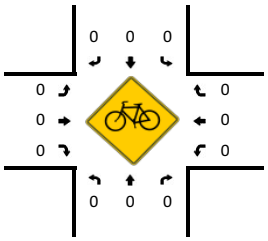


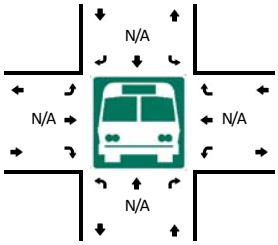


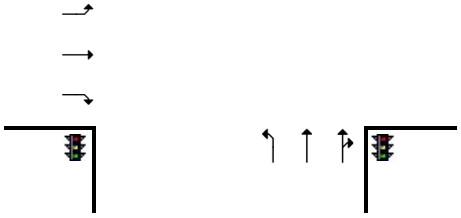


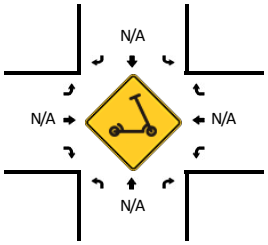








| 5-Min Count Period Beginning At | 11. Clovis Ave (Northbound) | | | | 11. Clovis Ave (Southbound) | | | | Alluvial Ave (Eastbound) | | | | Alluvial Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 3 | 20 | 1 | 0 | 3 | 43 | 1 | 2 | 1 | 13 | 10 | 0 | 5 | 18 | 4 | 0 | 124 | |
| 7:05 AM | 5 | 13 | 1 | 0 | 3 | 40 | 3 | 0 | 1 | 12 | 9 | 0 | 3 | 12 | 4 | 0 | 106 | |
| 7:10 AM | 3 | 17 | 4 | 0 | 12 | 34 | 1 | 0 | 0 | 11 | 7 | 0 | 2 | 19 | 2 | 0 | 112 | |
| 7:15 AM | 9 | 13 | 2 | 0 | 3 | 36 | 2 | 0 | 0 | 11 | 11 | 0 | 4 | 18 | 4 | 0 | 113 | |
| 7:20 AM | 5 | 15 | 5 | 0 | 9 | 61 | 3 | 1 | 1 | 18 | 9 | 0 | 2 | 19 | 4 | 0 | 152 | |
| 7:25 AM | 9 | 33 | 6 | 0 | 10 | 61 | 0 | 1 | 0 | 17 | 7 | 0 | 1 | 29 | 9 | 0 | 183 | |
| 7:30 AM | 5 | 30 | 5 | 0 | 15 | 43 | 3 | 1 | 0 | 27 | 15 | 0 | 4 | 39 | 8 | 0 | 195 | |
| 7:35 AM | 5 | 27 | 3 | 0 | 5 | 61 | 1 | 0 | 1 | 23 | 16 | 0 | 6 | 36 | 10 | 0 | 194 | |
| 7:40 AM | 10 | 41 | 9 | 0 | 18 | 84 | 3 | 2 | 0 | 18 | 13 | 0 | 4 | 49 | 10 | 0 | 261 | |
| 7:45 AM | 12 | 44 | 10 | 0 | 12 | 62 | 4 | 0 | 1 | 26 | 8 | 0 | 13 | 25 | 12 | 0 | 229 | |
| 7:50 AM | 10 | 24 | 6 | 0 | 21 | 55 | 2 | 0 | 0 | 27 | 16 | 0 | 5 | 57 | 7 | 0 | 230 | |
| 7:55 AM | 3 | 39 | 6 | 0 | 10 | 68 | 5 | 1 | 0 | 23 | 11 | 0 | 8 | 50 | 20 | 0 | 244 | 2143 |
| 8:00 AM | 11 | 34 | 5 | 0 | 14 | 82 | 1 | 0 | 0 | 24 | 12 | 0 | 2 | 33 | 19 | 0 | 237 | 2256 |
| 8:05 AM | 8 | 20 | 1 | 0 | 10 | 43 | 2 | 0 | 1 | 24 | 7 | 0 | 6 | 53 | 17 | 0 | 192 | 2342 |
| 8:10 AM | 10 | 43 | 4 | 0 | 12 | 48 | 2 | 0 | 0 | 14 | 8 | 0 | 1 | 39 | 23 | 0 | 204 | 2434 |
| 8:15 AM | 12 | 34 | 2 | 0 | 6 | 27 | 2 | 0 | 1 | 20 | 12 | 0 | 4 | 36 | 23 | 0 | 179 | 2500 |
| 8:20 AM | 8 | 33 | 1 | 0 | 10 | 53 | 1 | 0 | 0 | 27 | 15 | 0 | 3 | 30 | 15 | 0 | 196 | 2544 |
| 8:25 AM | 9 | 30 | 2 | 0 | 14 | 52 | 2 | 0 | 0 | 26 | 11 | 0 | 3 | 27 | 10 | 0 | 186 | 2547 |
| 8:30 AM | 8 | 19 | 1 | 0 | 7 | 46 | 5 | 1 | 1 | 27 | 13 | 0 | 1 | 34 | 7 | 0 | 170 | 2522 |
| 8:35 AM | 4 | 29 | 8 | 0 | 15 | 63 | 2 | 0 | 2 | 14 | 14 | 0 | 1 | 21 | 3 | 0 | 176 | 2504 |
| 8:40 AM | 4 | 18 | 5 | 0 | 10 | 52 | 2 | 0 | 1 | 22 | 15 | 0 | 2 | 24 | 2 | 0 | 157 | 2400 |
| 8:45 AM | 7 | 19 | 3 | 0 | 8 | 32 | 3 | 0 | 1 | 12 | 13 | 0 | 3 | 28 | 5 | 0 | 134 | 2305 |
| 8:50 AM | 4 | 29 | 7 | 0 | 9 | 42 | 1 | 0 | 1 | 13 | 9 | 0 | 5 | 9 | 5 | 0 | 134 | 2209 |
| 8:55 AM | 4 | 19 | 7 | 0 | 3 | 30 | 3 | 0 | 0 | 18 | 9 | 0 | 3 | 20 | 4 | 0 | 120 | 2085 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 128 | 436 | 100 | 0 | 204 | 804 | 36 | 8 | 4 | 284 | 148 | 0 | 88 | 524 | 116 | 0 | 2880 |
| Heavy Trucks | 4 | 16 | 8 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 8 | 0 | | 48 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 16 | | | | 4 | | | | 0 | | | | 16 | | | 36 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

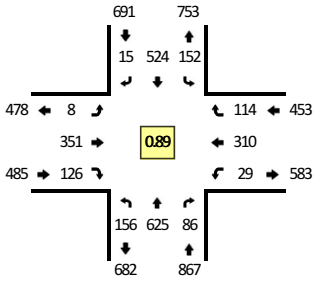
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

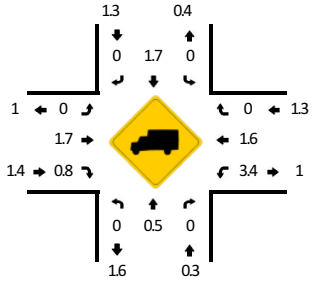
**LOCATION:** 11. Clovis Ave -- Alluvial Ave
**CITY/STATE:** Clovis, CA

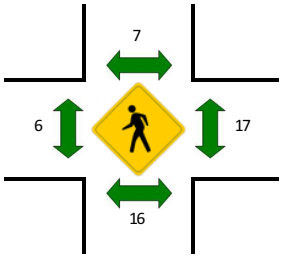
**QC JOB #:** 16475518
**DATE:** Tue, Feb 6 2024

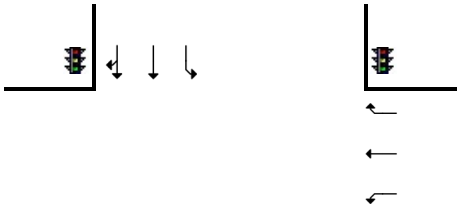
**Peak-Hour: 4:40 PM -- 5:40 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

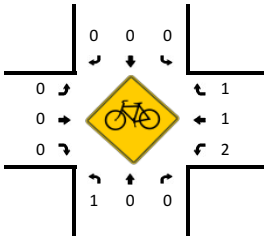
TRUE DATA TO IMPROVE MOBILITY

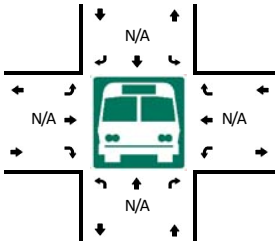


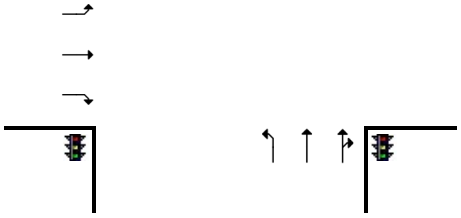



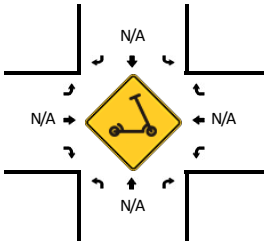








| 5-Min Count Period Beginning At | 11. Clovis Ave (Northbound) | | | | 11. Clovis Ave (Southbound) | | | | Alluvial Ave (Eastbound) | | | | Alluvial Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 8 | 41 | 4 | 0 | 7 | 41 | 0 | 0 | 0 | 34 | 10 | 0 | 4 | 21 | 8 | 0 | 178 | |
| 4:05 PM | 11 | 52 | 4 | 1 | 7 | 48 | 1 | 2 | 2 | 27 | 12 | 0 | 1 | 12 | 5 | 0 | 185 | |
| 4:10 PM | 12 | 57 | 8 | 0 | 11 | 49 | 2 | 0 | 0 | 27 | 5 | 0 | 3 | 21 | 7 | 0 | 202 | |
| 4:15 PM | 15 | 33 | 5 | 1 | 9 | 39 | 2 | 1 | 1 | 29 | 14 | 0 | 2 | 25 | 6 | 0 | 182 | |
| 4:20 PM | 11 | 60 | 4 | 0 | 15 | 44 | 0 | 1 | 0 | 23 | 10 | 0 | 2 | 19 | 3 | 0 | 192 | |
| 4:25 PM | 14 | 54 | 6 | 0 | 4 | 33 | 1 | 1 | 0 | 35 | 13 | 0 | 1 | 23 | 12 | 0 | 197 | |
| 4:30 PM | 6 | 48 | 10 | 0 | 9 | 54 | 0 | 0 | 1 | 24 | 11 | 0 | 0 | 13 | 8 | 0 | 184 | |
| 4:35 PM | 6 | 25 | 2 | 0 | 17 | 34 | 3 | 0 | 2 | 27 | 14 | 0 | 4 | 23 | 6 | 0 | 163 | |
| 4:40 PM | 5 | 58 | 8 | 0 | 10 | 50 | 0 | 1 | 1 | 24 | 8 | 0 | 5 | 30 | 11 | 0 | 211 | |
| 4:45 PM | 16 | 40 | 4 | 1 | 22 | 45 | 2 | 0 | 0 | 31 | 9 | 0 | 1 | 24 | 9 | 0 | 204 | |
| 4:50 PM | 19 | 33 | 10 | 0 | 7 | 26 | 1 | 1 | 2 | 28 | 10 | 0 | 2 | 25 | 7 | 0 | 171 | |
| 4:55 PM | 6 | 66 | 7 | 0 | 10 | 52 | 1 | 1 | 1 | 22 | 8 | 0 | 6 | 30 | 8 | 0 | 218 | 2287 |
| 5:00 PM | 11 | 48 | 7 | 0 | 9 | 36 | 2 | 1 | 0 | 35 | 8 | 0 | 2 | 25 | 13 | 0 | 197 | 2306 |
| 5:05 PM | 13 | 50 | 9 | 0 | 3 | 34 | 2 | 0 | 1 | 30 | 13 | 0 | 1 | 16 | 14 | 0 | 186 | 2307 |
| 5:10 PM | 12 | 66 | 10 | 0 | 17 | 47 | 1 | 0 | 1 | 22 | 18 | 0 | 0 | 23 | 7 | 0 | 224 | 2329 |
| 5:15 PM | 17 | 79 | 11 | 0 | 15 | 55 | 2 | 0 | 1 | 23 | 10 | 0 | 4 | 33 | 12 | 0 | 262 | 2409 |
| 5:20 PM | 18 | 46 | 8 | 1 | 13 | 43 | 0 | 2 | 0 | 37 | 9 | 0 | 3 | 27 | 6 | 0 | 213 | 2430 |
| 5:25 PM | 13 | 47 | 4 | 1 | 8 | 47 | 0 | 0 | 0 | 39 | 14 | 0 | 4 | 28 | 6 | 0 | 211 | 2444 |
| 5:30 PM | 12 | 48 | 4 | 0 | 15 | 42 | 1 | 0 | 0 | 32 | 15 | 0 | 0 | 23 | 10 | 0 | 202 | 2462 |
| 5:35 PM | 11 | 44 | 4 | 0 | 17 | 47 | 3 | 0 | 1 | 28 | 4 | 0 | 1 | 26 | 11 | 0 | 197 | 2496 |
| 5:40 PM | 8 | 28 | 8 | 0 | 15 | 36 | 2 | 0 | 1 | 44 | 14 | 0 | 2 | 22 | 5 | 0 | 185 | 2470 |
| 5:45 PM | 5 | 42 | 4 | 0 | 2 | 40 | 2 | 0 | 2 | 25 | 13 | 0 | 3 | 11 | 6 | 0 | 155 | 2421 |
| 5:50 PM | 5 | 56 | 5 | 0 | 13 | 62 | 1 | 0 | 1 | 23 | 16 | 0 | 4 | 14 | 5 | 0 | 205 | 2455 |
| 5:55 PM | 13 | 38 | 7 | 0 | 11 | 44 | 0 | 0 | 0 | 23 | 7 | 0 | 2 | 17 | 6 | 0 | 168 | 2405 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 188 | 764 | 116 | 4 | 180 | 580 | 12 | 8 | 8 | 328 | 148 | 0 | 28 | 332 | 100 | 0 | 2796 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 16 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 28 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 8 | | | | 8 | | | | 8 | | | | 12 | | | 36 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 | 0 | 0 | | 8 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

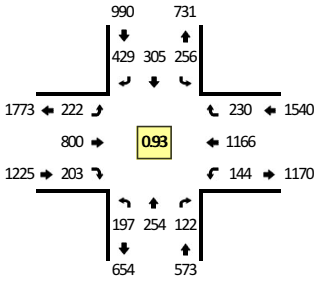
Type of peak hour being reported: Intersection Peak

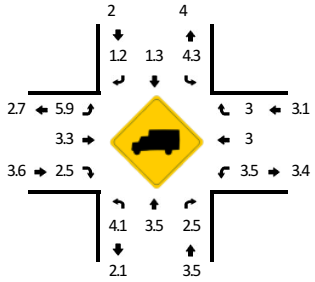
Method for determining peak hour: Total Entering Volume

**LOCATION:** 12. Clovis Ave -- E Herndon Ave
**CITY/STATE:** Clovis, CA

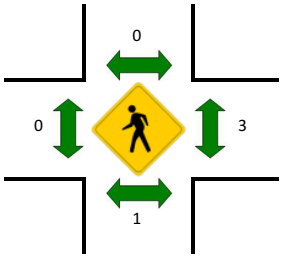
**QC JOB #:** 16475519
**DATE:** Thu, Feb 8 2024

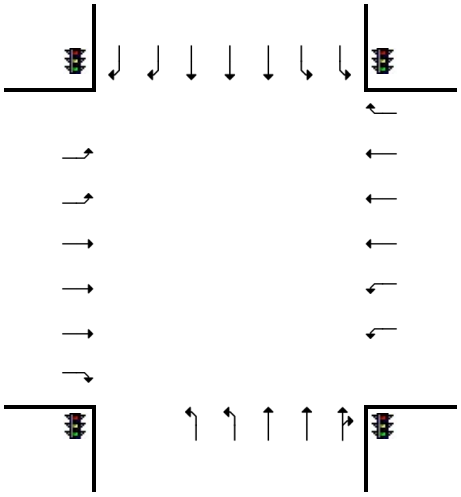
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

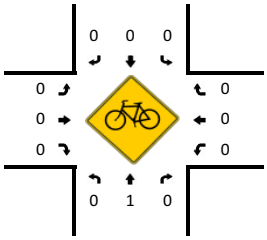


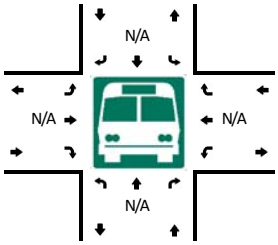



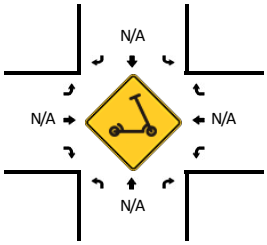

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 12. Clovis Ave (Northbound) | | | | 12. Clovis Ave (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 13 | 11 | 6 | 1 | 16 | 14 | 20 | 2 | 18 | 38 | 10 | 1 | 4 | 34 | 6 | 0 | 194 | |
| 7:05 AM | 14 | 19 | 4 | 0 | 10 | 10 | 30 | 1 | 14 | 19 | 9 | 0 | 9 | 55 | 6 | 0 | 200 | |
| 7:10 AM | 13 | 11 | 4 | 1 | 13 | 11 | 33 | 5 | 13 | 42 | 7 | 1 | 3 | 82 | 6 | 2 | 247 | |
| 7:15 AM | 11 | 11 | 3 | 2 | 12 | 13 | 36 | 2 | 15 | 52 | 8 | 2 | 6 | 79 | 11 | 1 | 264 | |
| 7:20 AM | 28 | 17 | 6 | 1 | 18 | 30 | 27 | 2 | 17 | 39 | 15 | 0 | 2 | 66 | 10 | 0 | 278 | |
| 7:25 AM | 11 | 17 | 7 | 1 | 10 | 23 | 48 | 2 | 10 | 44 | 20 | 2 | 11 | 84 | 7 | 3 | 300 | |
| 7:30 AM | 15 | 25 | 8 | 1 | 8 | 20 | 42 | 1 | 20 | 77 | 13 | 0 | 2 | 107 | 13 | 2 | 354 | |
| 7:35 AM | 18 | 18 | 11 | 1 | 18 | 22 | 45 | 1 | 21 | 48 | 9 | 0 | 8 | 81 | 12 | 3 | 316 | |
| 7:40 AM | 12 | 23 | 9 | 0 | 17 | 32 | 49 | 2 | 17 | 72 | 19 | 0 | 14 | 132 | 21 | 2 | 421 | |
| 7:45 AM | 8 | 20 | 6 | 3 | 13 | 15 | 29 | 4 | 19 | 79 | 16 | 0 | 14 | 113 | 21 | 1 | 361 | |
| 7:50 AM | 13 | 13 | 9 | 1 | 33 | 34 | 53 | 3 | 25 | 69 | 18 | 2 | 6 | 81 | 19 | 1 | 380 | |
| 7:55 AM | 8 | 38 | 11 | 3 | 14 | 37 | 41 | 4 | 14 | 46 | 24 | 0 | 8 | 97 | 27 | 0 | 372 | 3687 |
| 8:00 AM | 16 | 19 | 8 | 4 | 30 | 22 | 44 | 0 | 17 | 87 | 15 | 0 | 15 | 94 | 21 | 2 | 394 | 3887 |
| 8:05 AM | 10 | 24 | 11 | 3 | 22 | 27 | 20 | 3 | 22 | 58 | 13 | 0 | 14 | 102 | 22 | 2 | 353 | 4040 |
| 8:10 AM | 18 | 18 | 16 | 1 | 18 | 30 | 30 | 5 | 15 | 77 | 23 | 0 | 6 | 69 | 18 | 0 | 344 | 4137 |
| 8:15 AM | 18 | 14 | 12 | 1 | 20 | 26 | 12 | 2 | 11 | 67 | 17 | 1 | 14 | 117 | 17 | 3 | 352 | 4225 |
| 8:20 AM | 11 | 13 | 7 | 0 | 14 | 12 | 36 | 3 | 25 | 66 | 21 | 2 | 11 | 91 | 24 | 4 | 340 | 4287 |
| 8:25 AM | 26 | 29 | 14 | 6 | 19 | 28 | 28 | 2 | 11 | 54 | 15 | 0 | 10 | 82 | 15 | 2 | 341 | 4328 |
| 8:30 AM | 7 | 19 | 11 | 2 | 14 | 18 | 23 | 3 | 19 | 66 | 17 | 0 | 20 | 106 | 19 | 3 | 347 | 4321 |
| 8:35 AM | 16 | 12 | 8 | 1 | 14 | 18 | 21 | 2 | 20 | 59 | 23 | 1 | 7 | 68 | 8 | 2 | 280 | 4285 |
| 8:40 AM | 24 | 17 | 7 | 5 | 24 | 29 | 33 | 1 | 20 | 47 | 13 | 1 | 9 | 60 | 18 | 2 | 310 | 4174 |
| 8:45 AM | 19 | 13 | 8 | 3 | 23 | 26 | 36 | 1 | 20 | 72 | 20 | 0 | 11 | 73 | 8 | 5 | 338 | 4151 |
| 8:50 AM | 15 | 17 | 11 | 4 | 20 | 20 | 22 | 2 | 11 | 81 | 22 | 1 | 8 | 103 | 13 | 2 | 352 | 4123 |
| 8:55 AM | 21 | 20 | 8 | 1 | 25 | 20 | 27 | 3 | 28 | 56 | 30 | 0 | 12 | 74 | 8 | 6 | 339 | 4090 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 132 | 224 | 96 | 16 | 252 | 324 | 524 | 36 | 244 | 880 | 212 | 8 | 136 | 1304 | 244 | 16 | 4648 |
| Heavy Trucks | 4 | 12 | 0 | | 8 | 4 | 12 | | 16 | 28 | 12 | | 4 | 48 | 8 | | 156 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

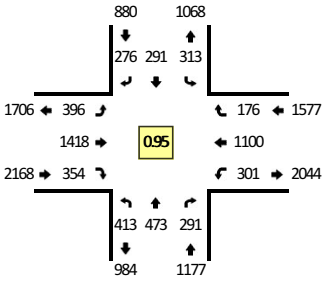
Type of peak hour being reported: Intersection Peak

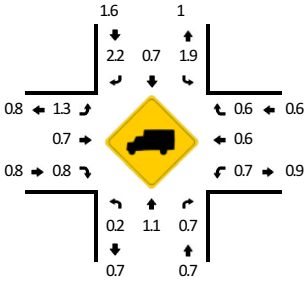
Method for determining peak hour: Total Entering Volume

**LOCATION:** 12. Clovis Ave -- E Herndon Ave
**CITY/STATE:** Clovis, CA

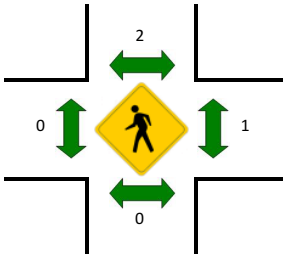
**QC JOB #:** 16475520
**DATE:** Thu, Feb 8 2024

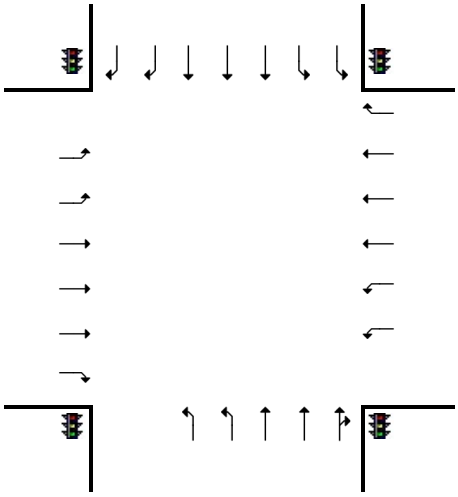
**Peak-Hour: 4:40 PM -- 5:40 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

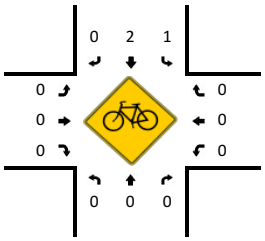


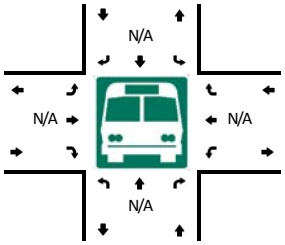



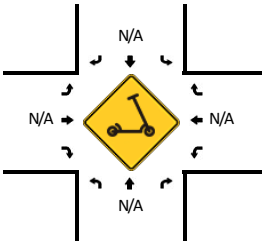

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 12. Clovis Ave (Northbound) | | | | 12. Clovis Ave (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 23 | 30 | 15 | 2 | 18 | 15 | 31 | 0 | 34 | 120 | 32 | 1 | 14 | 99 | 17 | 1 | 452 | |
| 4:05 PM | 25 | 52 | 22 | 1 | 14 | 22 | 28 | 2 | 24 | 62 | 20 | 0 | 17 | 59 | 11 | 1 | 360 | |
| 4:10 PM | 38 | 38 | 21 | 0 | 19 | 24 | 26 | 0 | 27 | 111 | 28 | 0 | 17 | 86 | 24 | 2 | 461 | |
| 4:15 PM | 28 | 42 | 23 | 2 | 17 | 25 | 37 | 0 | 38 | 127 | 41 | 0 | 27 | 125 | 21 | 4 | 557 | |
| 4:20 PM | 25 | 29 | 12 | 10 | 17 | 14 | 30 | 1 | 51 | 147 | 22 | 2 | 27 | 96 | 13 | 3 | 499 | |
| 4:25 PM | 36 | 45 | 25 | 5 | 22 | 28 | 29 | 5 | 31 | 106 | 23 | 1 | 13 | 88 | 12 | 3 | 472 | |
| 4:30 PM | 30 | 43 | 19 | 7 | 20 | 21 | 24 | 0 | 29 | 89 | 19 | 0 | 16 | 82 | 10 | 10 | 419 | |
| 4:35 PM | 25 | 21 | 10 | 11 | 16 | 22 | 32 | 2 | 30 | 115 | 36 | 2 | 23 | 124 | 5 | 5 | 479 | |
| 4:40 PM | 25 | 23 | 20 | 12 | 32 | 17 | 23 | 1 | 44 | 125 | 22 | 1 | 21 | 82 | 11 | 4 | 463 | |
| 4:45 PM | 30 | 43 | 18 | 2 | 16 | 31 | 18 | 1 | 30 | 105 | 26 | 0 | 23 | 83 | 16 | 3 | 445 | |
| 4:50 PM | 22 | 36 | 21 | 7 | 18 | 25 | 23 | 1 | 36 | 113 | 35 | 0 | 17 | 105 | 13 | 8 | 480 | |
| 4:55 PM | 19 | 37 | 27 | 4 | 22 | 15 | 30 | 2 | 41 | 145 | 40 | 0 | 25 | 95 | 8 | 2 | 512 | 5599 |
| 5:00 PM | 40 | 26 | 28 | 7 | 28 | 29 | 17 | 3 | 35 | 100 | 31 | 1 | 19 | 75 | 20 | 4 | 463 | 5610 |
| 5:05 PM | 30 | 66 | 29 | 7 | 23 | 24 | 16 | 1 | 28 | 99 | 24 | 0 | 17 | 90 | 13 | 3 | 470 | 5720 |
| 5:10 PM | 22 | 50 | 17 | 6 | 23 | 15 | 17 | 2 | 21 | 118 | 35 | 0 | 31 | 138 | 11 | 4 | 510 | 5769 |
| 5:15 PM | 30 | 33 | 26 | 3 | 23 | 16 | 35 | 3 | 46 | 135 | 20 | 0 | 21 | 81 | 16 | 3 | 491 | 5703 |
| 5:20 PM | 40 | 49 | 36 | 12 | 32 | 44 | 26 | 4 | 31 | 116 | 19 | 0 | 14 | 89 | 14 | 2 | 528 | 5732 |
| 5:25 PM | 28 | 42 | 28 | 6 | 22 | 30 | 28 | 4 | 20 | 108 | 33 | 0 | 26 | 89 | 17 | 4 | 485 | 5745 |
| 5:30 PM | 19 | 34 | 18 | 4 | 17 | 20 | 19 | 2 | 20 | 138 | 31 | 1 | 19 | 106 | 21 | 4 | 473 | 5799 |
| 5:35 PM | 22 | 34 | 23 | 16 | 31 | 25 | 24 | 2 | 41 | 116 | 38 | 0 | 20 | 67 | 16 | 7 | 482 | 5802 |
| 5:40 PM | 31 | 41 | 24 | 11 | 23 | 35 | 19 | 2 | 26 | 99 | 30 | 0 | 17 | 73 | 12 | 2 | 445 | 5784 |
| 5:45 PM | 25 | 18 | 17 | 7 | 22 | 33 | 10 | 1 | 32 | 113 | 23 | 0 | 18 | 104 | 12 | 6 | 441 | 5780 |
| 5:50 PM | 12 | 34 | 19 | 6 | 16 | 25 | 26 | 4 | 48 | 109 | 32 | 0 | 22 | 76 | 11 | 6 | 446 | 5746 |
| 5:55 PM | 34 | 33 | 12 | 9 | 31 | 15 | 35 | 2 | 40 | 90 | 25 | 1 | 19 | 59 | 11 | 2 | 418 | 5652 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 368 | 528 | 316 | 84 | 312 | 300 | 312 | 36 | 392 | 1476 | 296 | 0 | 264 | 1232 | 164 | 36 | 6116 |
| Heavy Trucks | 4 | 8 | 4 | | 8 | 4 | 4 | | 0 | 4 | 0 | | 4 | 16 | 0 | | 56 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

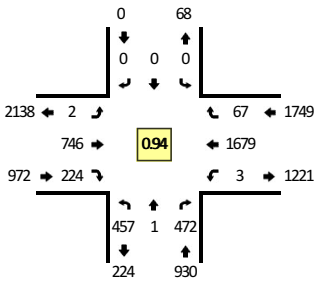
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 13. SR 168 EB Ramps -- E Herndon Ave
**CITY/STATE:** Clovis, CA

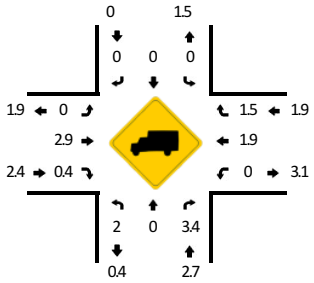
**QC JOB #:** 16475521
**DATE:** Thu, Feb 8 2024

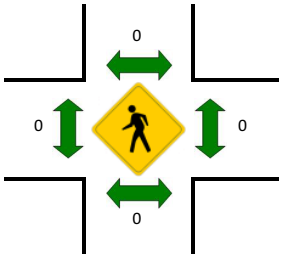
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

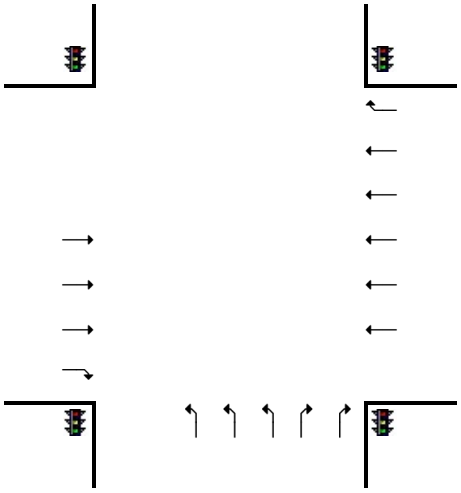


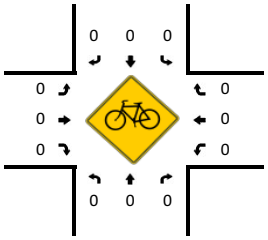


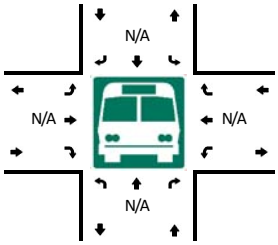


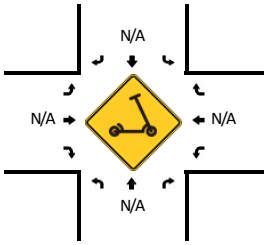





| 5-Min Count Period Beginning At | 13. SR 168 EB Ramps (Northbound) | | | | 13. SR 168 EB Ramps (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 20 | 1 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 11 | 0 | 0 | 64 | 3 | 0 | 161 | |
| 7:05 AM | 24 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 9 | 0 | 0 | 89 | 3 | 0 | 177 | |
| 7:10 AM | 21 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 9 | 0 | 0 | 105 | 6 | 0 | 199 | |
| 7:15 AM | 22 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 17 | 0 | 0 | 144 | 8 | 1 | 265 | |
| 7:20 AM | 32 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 23 | 0 | 0 | 113 | 4 | 0 | 255 | |
| 7:25 AM | 34 | 1 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 12 | 0 | 0 | 107 | 11 | 0 | 264 | |
| 7:30 AM | 26 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 16 | 0 | 0 | 179 | 3 | 0 | 301 | |
| 7:35 AM | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 17 | 0 | 0 | 141 | 3 | 0 | 288 | |
| 7:40 AM | 38 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 16 | 0 | 0 | 162 | 3 | 0 | 320 | |
| 7:45 AM | 34 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 20 | 0 | 0 | 165 | 1 | 2 | 331 | |
| 7:50 AM | 33 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 67 | 21 | 1 | 0 | 129 | 12 | 0 | 313 | |
| 7:55 AM | 61 | 1 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 14 | 0 | 0 | 141 | 4 | 0 | 322 | 3196 |
| 8:00 AM | 53 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 22 | 0 | 0 | 137 | 11 | 1 | 331 | 3366 |
| 8:05 AM | 40 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 20 | 0 | 0 | 117 | 4 | 0 | 275 | 3464 |
| 8:10 AM | 43 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 23 | 1 | 0 | 118 | 6 | 0 | 297 | 3562 |
| 8:15 AM | 54 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 11 | 0 | 0 | 122 | 5 | 0 | 296 | 3593 |
| 8:20 AM | 26 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 23 | 0 | 0 | 146 | 5 | 0 | 297 | 3635 |
| 8:25 AM | 24 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 21 | 0 | 0 | 122 | 10 | 0 | 280 | 3651 |
| 8:30 AM | 38 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 20 | 0 | 0 | 104 | 5 | 0 | 258 | 3608 |
| 8:35 AM | 24 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 11 | 0 | 0 | 131 | 6 | 0 | 268 | 3588 |
| 8:40 AM | 24 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 24 | 0 | 0 | 107 | 9 | 0 | 268 | 3536 |
| 8:45 AM | 41 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 21 | 0 | 0 | 118 | 7 | 0 | 302 | 3507 |
| 8:50 AM | 34 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 8 | 0 | 0 | 134 | 5 | 0 | 279 | 3473 |
| 8:55 AM | 28 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 67 | 19 | 0 | 0 | 117 | 7 | 0 | 279 | 3430 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 512 | 4 | 552 | 0 | 0 | 0 | 0 | 0 | 0 | 756 | 220 | 4 | 0 | 1740 | 68 | 8 | 3864 |
| Heavy Trucks | 12 | 0 | 20 | | 0 | 0 | 0 | | 0 | 32 | 0 | | 0 | 44 | 4 | | 112 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

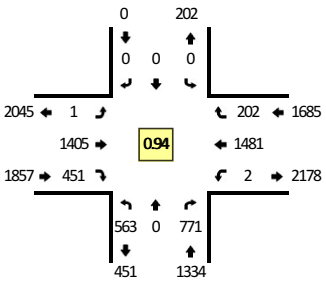
Type of peak hour being reported: Intersection Peak

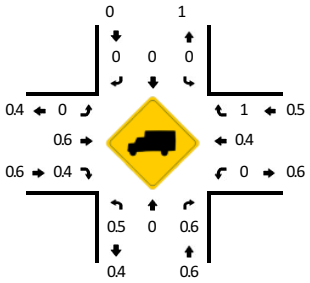
Method for determining peak hour: Total Entering Volume

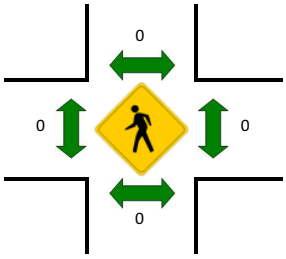
**LOCATION:** 13. SR 168 EB Ramps -- E Herndon Ave
**CITY/STATE:** Clovis, CA

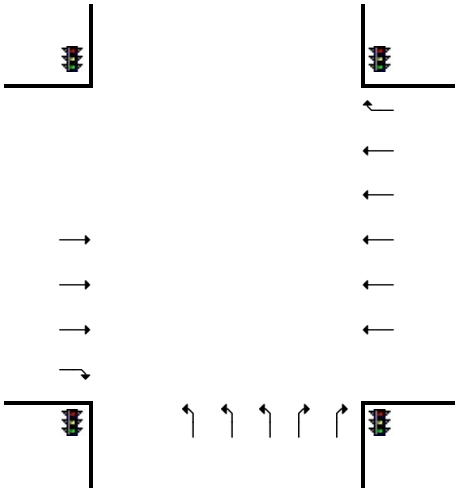
**QC JOB #:** 16475522
**DATE:** Thu, Feb 8 2024

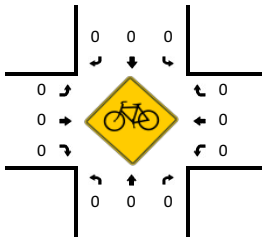
**Peak-Hour: 4:40 PM -- 5:40 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

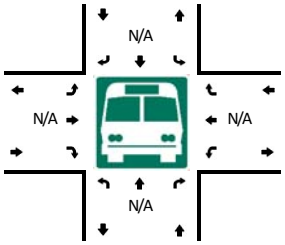


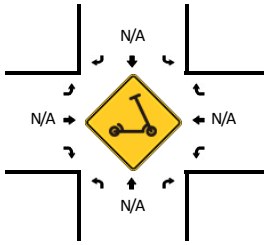






| 5-Min Count Period Beginning At | 13. SR 168 EB Ramps (Northbound) | | | | 13. SR 168 EB Ramps (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 36 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 30 | 0 | 0 | 148 | 18 | 0 | 402 | |
| 4:05 PM | 28 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 23 | 0 | 0 | 103 | 11 | 0 | 295 | |
| 4:10 PM | 43 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 120 | 33 | 1 | 0 | 115 | 20 | 0 | 394 | |
| 4:15 PM | 51 | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 131 | 30 | 1 | 0 | 166 | 13 | 0 | 466 | |
| 4:20 PM | 38 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 39 | 0 | 0 | 144 | 17 | 0 | 418 | |
| 4:25 PM | 57 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 28 | 0 | 0 | 122 | 16 | 1 | 393 | |
| 4:30 PM | 36 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 19 | 0 | 0 | 112 | 19 | 0 | 348 | |
| 4:35 PM | 29 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 33 | 0 | 0 | 163 | 19 | 0 | 409 | |
| 4:40 PM | 59 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 107 | 28 | 0 | 0 | 114 | 18 | 0 | 411 | |
| 4:45 PM | 48 | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 120 | 32 | 0 | 0 | 117 | 18 | 0 | 398 | |
| 4:50 PM | 43 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 126 | 40 | 0 | 0 | 108 | 16 | 0 | 409 | |
| 4:55 PM | 54 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 45 | 0 | 0 | 137 | 19 | 0 | 429 | 4772 |
| 5:00 PM | 45 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 36 | 0 | 0 | 104 | 20 | 0 | 375 | 4745 |
| 5:05 PM | 31 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 121 | 36 | 0 | 0 | 129 | 13 | 0 | 396 | 4846 |
| 5:10 PM | 43 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 32 | 0 | 0 | 131 | 14 | 0 | 402 | 4854 |
| 5:15 PM | 77 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 51 | 0 | 0 | 122 | 12 | 1 | 416 | 4804 |
| 5:20 PM | 49 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 33 | 0 | 0 | 164 | 22 | 0 | 475 | 4861 |
| 5:25 PM | 34 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 34 | 1 | 0 | 118 | 22 | 0 | 379 | 4847 |
| 5:30 PM | 45 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 52 | 0 | 0 | 108 | 10 | 1 | 373 | 4872 |
| 5:35 PM | 35 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 139 | 32 | 0 | 0 | 129 | 18 | 0 | 413 | 4876 |
| 5:40 PM | 39 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 33 | 0 | 0 | 111 | 15 | 2 | 370 | 4835 |
| 5:45 PM | 42 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 41 | 0 | 0 | 103 | 11 | 0 | 375 | 4812 |
| 5:50 PM | 35 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 35 | 0 | 0 | 127 | 8 | 0 | 366 | 4769 |
| 5:55 PM | 35 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 102 | 30 | 1 | 0 | 101 | 17 | 0 | 329 | 4669 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 676 | 0 | 796 | 0 | 0 | 0 | 0 | 0 | 0 | 1372 | 464 | 0 | 0 | 1668 | 192 | 4 | 5172 |
| Heavy Trucks | 4 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 16 | 4 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

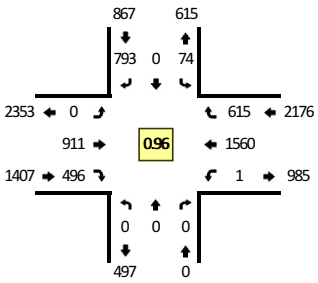
Type of peak hour being reported: Intersection Peak

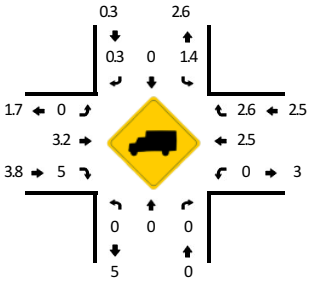
Method for determining peak hour: Total Entering Volume

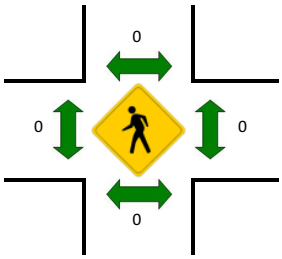
**LOCATION:** 14. SR 168 WB Ramps -- E Herndon Ave
**CITY/STATE:** Clovis, CA

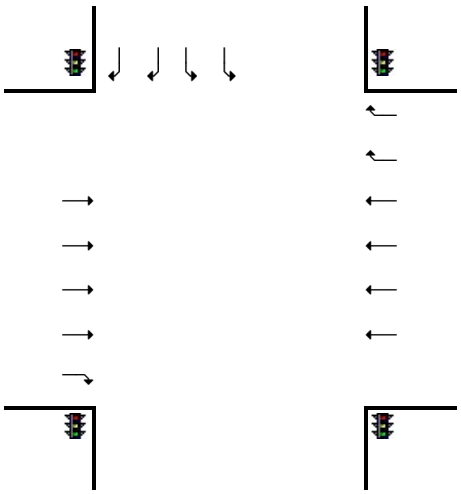
**QC JOB #:** 16475523
**DATE:** Thu, Feb 8 2024

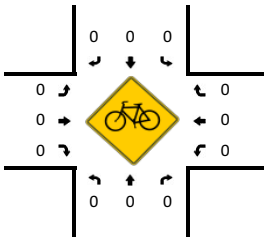
**Peak-Hour: 7:25 AM -- 8:25 AM**
**Peak 15-Min: 7:35 AM -- 7:50 AM**

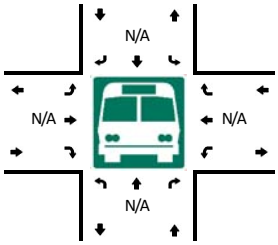


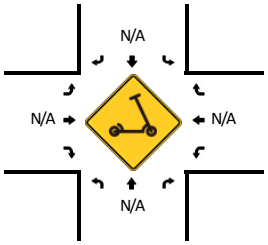






| 5-Min Count Period Beginning At | 14. SR 168 WB Ramps (Northbound) | | | | 14. SR 168 WB Ramps (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 2 | 0 | 26 | 0 | 0 | 43 | 18 | 0 | 1 | 83 | 32 | 0 | 205 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 3 | 0 | 36 | 0 | 0 | 30 | 30 | 0 | 0 | 70 | 37 | 0 | 206 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 0 | 45 | 32 | 0 | 0 | 89 | 43 | 0 | 241 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 2 | 0 | 54 | 0 | 0 | 54 | 48 | 0 | 0 | 119 | 54 | 0 | 331 | |
| 7:20 AM | 0 | 0 | 0 | 0 | 5 | 0 | 50 | 0 | 0 | 62 | 50 | 0 | 0 | 95 | 41 | 0 | 303 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 8 | 0 | 66 | 0 | 0 | 74 | 47 | 0 | 0 | 96 | 44 | 0 | 335 | |
| 7:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 64 | 0 | 0 | 54 | 51 | 0 | 0 | 102 | 74 | 0 | 348 | |
| 7:35 AM | 0 | 0 | 0 | 0 | 3 | 0 | 79 | 0 | 0 | 79 | 46 | 0 | 0 | 148 | 56 | 0 | 411 | |
| 7:40 AM | 0 | 0 | 0 | 0 | 4 | 0 | 65 | 0 | 0 | 83 | 39 | 0 | 0 | 135 | 64 | 0 | 390 | |
| 7:45 AM | 0 | 0 | 0 | 0 | 8 | 0 | 83 | 0 | 0 | 67 | 39 | 0 | 0 | 120 | 46 | 0 | 363 | |
| 7:50 AM | 0 | 0 | 0 | 0 | 3 | 0 | 49 | 0 | 0 | 85 | 33 | 0 | 0 | 157 | 59 | 0 | 386 | |
| 7:55 AM | 0 | 0 | 0 | 0 | 11 | 0 | 67 | 0 | 0 | 68 | 37 | 0 | 0 | 140 | 51 | 0 | 374 | 3893 |
| 8:00 AM | 0 | 0 | 0 | 0 | 6 | 0 | 74 | 0 | 0 | 85 | 35 | 0 | 0 | 141 | 46 | 0 | 387 | 4075 |
| 8:05 AM | 0 | 0 | 0 | 0 | 5 | 0 | 54 | 0 | 0 | 68 | 45 | 0 | 1 | 141 | 44 | 0 | 358 | 4227 |
| 8:10 AM | 0 | 0 | 0 | 0 | 6 | 0 | 65 | 0 | 0 | 78 | 33 | 0 | 0 | 108 | 44 | 0 | 334 | 4320 |
| 8:15 AM | 0 | 0 | 0 | 0 | 6 | 0 | 73 | 0 | 0 | 74 | 46 | 0 | 0 | 139 | 37 | 0 | 375 | 4364 |
| 8:20 AM | 0 | 0 | 0 | 0 | 11 | 0 | 54 | 0 | 0 | 96 | 45 | 0 | 0 | 133 | 50 | 0 | 389 | 4450 |
| 8:25 AM | 0 | 0 | 0 | 0 | 2 | 0 | 48 | 0 | 0 | 59 | 38 | 0 | 0 | 114 | 43 | 0 | 304 | 4419 |
| 8:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 53 | 0 | 0 | 89 | 41 | 0 | 0 | 105 | 37 | 0 | 328 | 4399 |
| 8:35 AM | 0 | 0 | 0 | 0 | 8 | 0 | 42 | 0 | 0 | 77 | 46 | 0 | 0 | 100 | 49 | 0 | 322 | 4310 |
| 8:40 AM | 0 | 0 | 0 | 0 | 2 | 0 | 58 | 0 | 0 | 78 | 28 | 0 | 0 | 92 | 42 | 0 | 300 | 4220 |
| 8:45 AM | 0 | 0 | 0 | 0 | 4 | 0 | 40 | 0 | 0 | 100 | 33 | 0 | 0 | 116 | 44 | 0 | 337 | 4194 |
| 8:50 AM | 0 | 0 | 0 | 0 | 11 | 0 | 53 | 0 | 0 | 57 | 27 | 0 | 0 | 106 | 34 | 0 | 288 | 4096 |
| 8:55 AM | 0 | 0 | 0 | 0 | 5 | 0 | 33 | 0 | 0 | 76 | 25 | 0 | 0 | 141 | 34 | 0 | 314 | 4036 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 60 | 0 | 908 | 0 | 0 | 916 | 496 | 0 | 0 | 1612 | 664 | 0 | 4656 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 4 | | 0 | 28 | 28 | | 0 | 36 | 16 | | 116 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

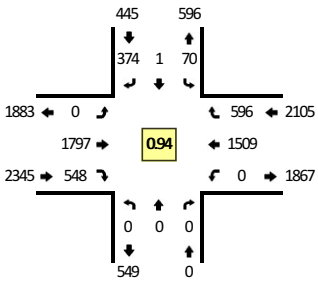
Type of peak hour being reported: Intersection Peak

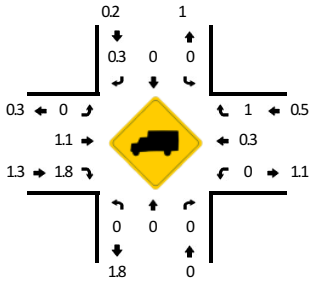
Method for determining peak hour: Total Entering Volume

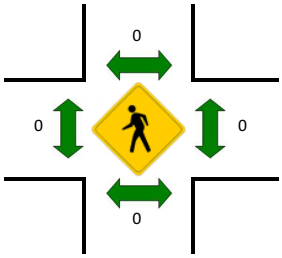
**LOCATION:** 14. SR 168 WB Ramps -- E Herndon Ave
**CITY/STATE:** Clovis, CA

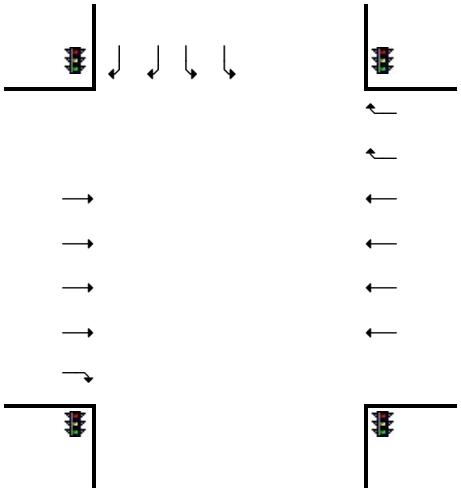
**QC JOB #:** 16475524
**DATE:** Thu, Feb 8 2024

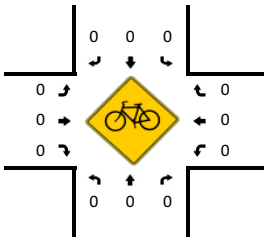
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

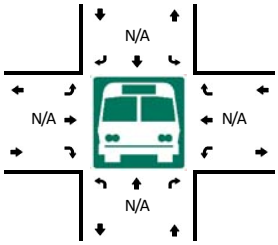


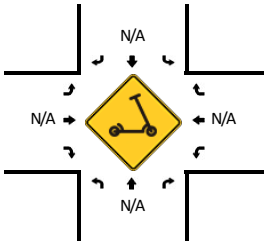






| 5-Min Count Period Beginning At | 14. SR 168 WB Ramps (Northbound) | | | | 14. SR 168 WB Ramps (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 7 | 0 | 28 | 0 | 0 | 119 | 31 | 0 | 0 | 127 | 59 | 0 | 371 | |
| 4:05 PM | 0 | 0 | 0 | 0 | 5 | 0 | 29 | 0 | 0 | 82 | 36 | 0 | 0 | 79 | 59 | 0 | 290 | |
| 4:10 PM | 0 | 0 | 0 | 0 | 5 | 0 | 26 | 0 | 0 | 156 | 50 | 0 | 0 | 131 | 41 | 0 | 409 | |
| 4:15 PM | 0 | 0 | 0 | 0 | 3 | 0 | 31 | 0 | 0 | 170 | 55 | 0 | 0 | 156 | 51 | 0 | 466 | |
| 4:20 PM | 0 | 0 | 0 | 0 | 3 | 0 | 31 | 0 | 0 | 132 | 59 | 0 | 0 | 146 | 51 | 0 | 422 | |
| 4:25 PM | 0 | 0 | 0 | 0 | 13 | 0 | 43 | 0 | 0 | 134 | 24 | 0 | 0 | 111 | 58 | 0 | 383 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 5 | 0 | 21 | 0 | 0 | 128 | 37 | 0 | 0 | 120 | 46 | 0 | 357 | |
| 4:35 PM | 0 | 0 | 0 | 0 | 10 | 0 | 34 | 0 | 0 | 148 | 40 | 0 | 0 | 122 | 63 | 0 | 417 | |
| 4:40 PM | 0 | 0 | 0 | 0 | 10 | 0 | 31 | 0 | 0 | 125 | 43 | 0 | 0 | 120 | 49 | 0 | 378 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 6 | 0 | 29 | 0 | 0 | 135 | 40 | 0 | 0 | 130 | 39 | 0 | 379 | |
| 4:50 PM | 0 | 0 | 0 | 0 | 9 | 0 | 23 | 0 | 0 | 165 | 43 | 0 | 0 | 113 | 50 | 0 | 403 | |
| 4:55 PM | 0 | 0 | 0 | 0 | 3 | 0 | 30 | 0 | 0 | 165 | 42 | 0 | 0 | 132 | 64 | 0 | 436 | 4711 |
| 5:00 PM | 0 | 0 | 0 | 0 | 3 | 0 | 36 | 0 | 0 | 142 | 46 | 0 | 0 | 121 | 31 | 0 | 379 | 4719 |
| 5:05 PM | 0 | 0 | 0 | 0 | 9 | 0 | 34 | 0 | 0 | 127 | 57 | 0 | 0 | 85 | 59 | 0 | 371 | 4800 |
| 5:10 PM | 0 | 0 | 0 | 0 | 3 | 0 | 34 | 0 | 0 | 175 | 69 | 0 | 0 | 157 | 43 | 0 | 481 | 4872 |
| 5:15 PM | 0 | 0 | 0 | 0 | 2 | 1 | 27 | 0 | 0 | 147 | 51 | 0 | 0 | 160 | 46 | 0 | 434 | 4840 |
| 5:20 PM | 0 | 0 | 0 | 0 | 5 | 0 | 34 | 0 | 0 | 131 | 34 | 0 | 0 | 132 | 55 | 0 | 391 | 4809 |
| 5:25 PM | 0 | 0 | 0 | 0 | 6 | 0 | 32 | 0 | 0 | 158 | 43 | 0 | 0 | 125 | 56 | 0 | 420 | 4846 |
| 5:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 30 | 0 | 0 | 179 | 40 | 0 | 0 | 112 | 41 | 0 | 406 | 4895 |
| 5:35 PM | 0 | 0 | 0 | 0 | 5 | 0 | 27 | 0 | 0 | 131 | 46 | 0 | 0 | 111 | 47 | 0 | 367 | 4845 |
| 5:40 PM | 0 | 0 | 0 | 0 | 7 | 0 | 25 | 0 | 0 | 136 | 48 | 0 | 0 | 102 | 44 | 0 | 362 | 4829 |
| 5:45 PM | 0 | 0 | 0 | 0 | 11 | 0 | 22 | 0 | 0 | 161 | 21 | 0 | 0 | 111 | 38 | 0 | 364 | 4814 |
| 5:50 PM | 0 | 0 | 0 | 0 | 2 | 0 | 27 | 0 | 0 | 124 | 32 | 0 | 0 | 110 | 37 | 0 | 332 | 4743 |
| 5:55 PM | 0 | 0 | 0 | 0 | 5 | 0 | 27 | 0 | 0 | 110 | 28 | 0 | 0 | 119 | 43 | 0 | 332 | 4639 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 40 | 4 | 380 | 0 | 0 | 1812 | 616 | 0 | 0 | 1796 | 576 | 0 | 5224 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 4 | | 0 | 12 | 4 | | 28 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

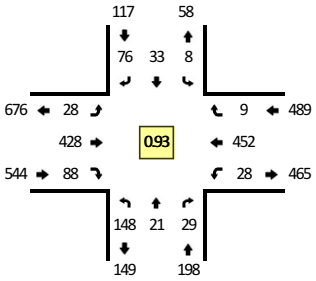
Type of peak hour being reported: Intersection Peak

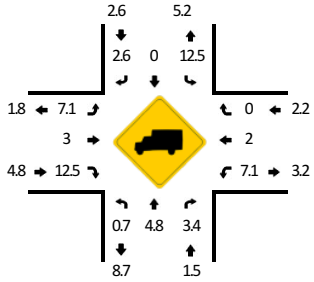
Method for determining peak hour: Total Entering Volume

**LOCATION:** 17. N Sunnyside Ave -- Nees Ave
**CITY/STATE:** Clovis, CA

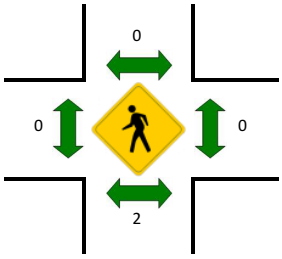
**QC JOB #:** 16475527
**DATE:** Thu, Feb 8 2024

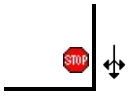
**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

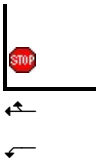


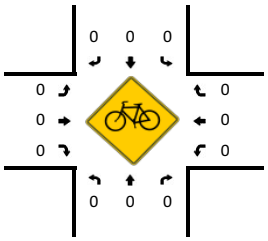



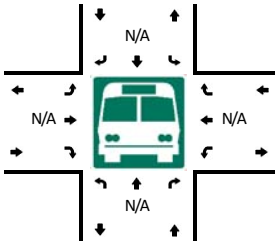

TRUE DATA TO IMPROVE MOBILITY

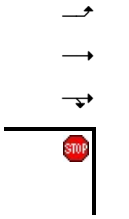


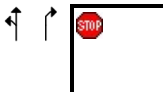



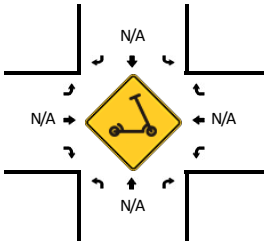




| 5-Min Count Period Beginning At | 17. N Sunnyside Ave (Northbound) | | | | 17. N Sunnyside Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 5 | 1 | 3 | 0 | 0 | 2 | 3 | 0 | 1 | 16 | 1 | 0 | 2 | 30 | 0 | 0 | 64 | |
| 7:05 AM | 6 | 1 | 1 | 0 | 1 | 2 | 3 | 0 | 1 | 11 | 6 | 0 | 0 | 30 | 0 | 0 | 62 | |
| 7:10 AM | 7 | 1 | 3 | 0 | 1 | 0 | 3 | 0 | 0 | 20 | 6 | 0 | 1 | 29 | 1 | 0 | 72 | |
| 7:15 AM | 7 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 26 | 6 | 0 | 3 | 36 | 0 | 0 | 83 | |
| 7:20 AM | 9 | 2 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 20 | 11 | 0 | 3 | 40 | 1 | 0 | 91 | |
| 7:25 AM | 13 | 0 | 1 | 0 | 1 | 2 | 5 | 0 | 1 | 23 | 7 | 0 | 2 | 36 | 1 | 0 | 92 | |
| 7:30 AM | 13 | 0 | 0 | 0 | 1 | 4 | 7 | 0 | 0 | 18 | 12 | 0 | 5 | 35 | 0 | 0 | 95 | |
| 7:35 AM | 13 | 0 | 2 | 0 | 0 | 10 | 6 | 0 | 0 | 23 | 11 | 0 | 1 | 36 | 0 | 0 | 102 | |
| 7:40 AM | 18 | 1 | 5 | 0 | 0 | 7 | 6 | 0 | 1 | 31 | 10 | 0 | 3 | 35 | 2 | 0 | 119 | |
| 7:45 AM | 20 | 4 | 3 | 0 | 0 | 4 | 6 | 0 | 2 | 31 | 10 | 0 | 3 | 37 | 0 | 0 | 120 | |
| 7:50 AM | 24 | 4 | 6 | 0 | 2 | 4 | 4 | 0 | 1 | 26 | 9 | 0 | 4 | 39 | 0 | 0 | 123 | |
| 7:55 AM | 20 | 1 | 2 | 0 | 0 | 2 | 6 | 0 | 2 | 25 | 11 | 0 | 6 | 44 | 1 | 0 | 120 | 1143 |
| 8:00 AM | 8 | 2 | 1 | 0 | 1 | 0 | 5 | 0 | 2 | 21 | 0 | 0 | 0 | 41 | 1 | 0 | 82 | 1161 |
| 8:05 AM | 5 | 2 | 1 | 0 | 0 | 2 | 12 | 0 | 2 | 32 | 7 | 0 | 1 | 47 | 1 | 0 | 112 | 1211 |
| 8:10 AM | 14 | 1 | 3 | 0 | 0 | 0 | 8 | 0 | 5 | 40 | 10 | 0 | 3 | 43 | 0 | 0 | 127 | 1266 |
| 8:15 AM | 15 | 0 | 0 | 0 | 2 | 2 | 10 | 0 | 2 | 39 | 5 | 0 | 2 | 44 | 0 | 0 | 121 | 1304 |
| 8:20 AM | 6 | 1 | 2 | 0 | 0 | 5 | 10 | 0 | 2 | 38 | 8 | 0 | 2 | 30 | 0 | 0 | 104 | 1317 |
| 8:25 AM | 6 | 4 | 3 | 0 | 1 | 2 | 4 | 0 | 1 | 39 | 4 | 0 | 1 | 28 | 1 | 0 | 94 | 1319 |
| 8:30 AM | 9 | 0 | 3 | 0 | 1 | 2 | 3 | 0 | 3 | 51 | 9 | 0 | 3 | 32 | 2 | 0 | 118 | 1342 |
| 8:35 AM | 3 | 1 | 0 | 0 | 1 | 3 | 2 | 0 | 5 | 55 | 5 | 0 | 0 | 32 | 1 | 0 | 108 | 1348 |
| 8:40 AM | 3 | 2 | 1 | 0 | 1 | 2 | 2 | 0 | 2 | 28 | 9 | 0 | 0 | 28 | 0 | 0 | 78 | 1307 |
| 8:45 AM | 6 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 2 | 25 | 11 | 0 | 1 | 17 | 2 | 0 | 71 | 1258 |
| 8:50 AM | 5 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 16 | 3 | 0 | 2 | 26 | 0 | 0 | 56 | 1191 |
| 8:55 AM | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 20 | 6 | 0 | 0 | 31 | 0 | 0 | 65 | 1136 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 256 | 36 | 44 | 0 | 8 | 40 | 64 | 0 | 20 | 328 | 120 | 0 | 52 | 480 | 4 | 0 | 1452 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 4 | | 0 | 16 | 0 | | 8 | 16 | 0 | | 48 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

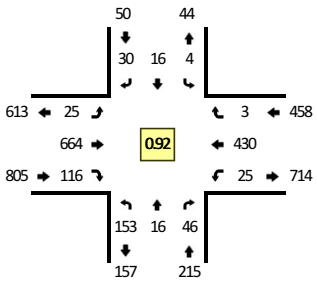
Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

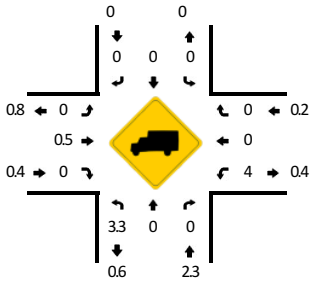
**LOCATION:** 17. N Sunnyside Ave -- Nees Ave | **QC JOB #:** 16475528
**CITY/STATE:** Clovis, CA | **DATE:** Thu, Feb 8 2024

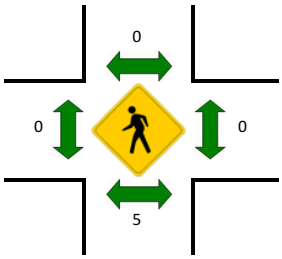
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:25 PM -- 5:40 PM**

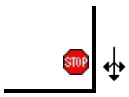


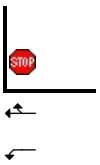


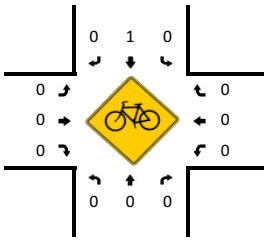


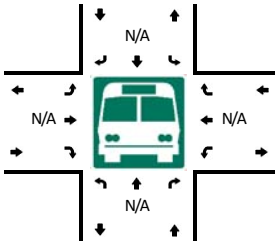


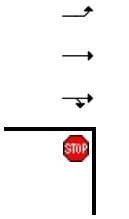



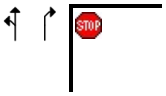



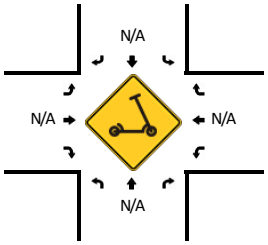









| 5-Min Count Period Beginning At | 17. N Sunnyside Ave (Northbound) | | | | 17. N Sunnyside Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 12 | 2 | 7 | 0 | 3 | 1 | 3 | 0 | 2 | 38 | 7 | 0 | 2 | 25 | 3 | 0 | 105 | |
| 4:05 PM | 14 | 2 | 4 | 0 | 1 | 1 | 1 | 0 | 3 | 42 | 9 | 0 | 3 | 27 | 1 | 0 | 108 | |
| 4:10 PM | 18 | 1 | 8 | 0 | 1 | 3 | 3 | 0 | 3 | 43 | 6 | 0 | 1 | 26 | 1 | 0 | 114 | |
| 4:15 PM | 12 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 4 | 42 | 7 | 0 | 0 | 32 | 1 | 0 | 102 | |
| 4:20 PM | 16 | 1 | 2 | 0 | 1 | 5 | 0 | 0 | 4 | 46 | 5 | 0 | 1 | 23 | 0 | 0 | 104 | |
| 4:25 PM | 6 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 45 | 8 | 0 | 1 | 24 | 1 | 0 | 90 | |
| 4:30 PM | 14 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 41 | 13 | 0 | 2 | 26 | 0 | 0 | 104 | |
| 4:35 PM | 17 | 2 | 7 | 0 | 0 | 2 | 2 | 0 | 0 | 44 | 10 | 0 | 3 | 14 | 0 | 0 | 101 | |
| 4:40 PM | 13 | 3 | 1 | 0 | 0 | 2 | 1 | 0 | 3 | 39 | 10 | 0 | 2 | 38 | 0 | 0 | 112 | |
| 4:45 PM | 14 | 0 | 3 | 0 | 0 | 4 | 3 | 0 | 0 | 30 | 7 | 0 | 2 | 43 | 1 | 0 | 107 | |
| 4:50 PM | 19 | 2 | 4 | 0 | 2 | 1 | 4 | 0 | 1 | 40 | 8 | 0 | 3 | 36 | 1 | 0 | 121 | |
| 4:55 PM | 12 | 1 | 4 | 0 | 0 | 2 | 1 | 0 | 1 | 33 | 7 | 0 | 4 | 32 | 0 | 0 | 97 | 1265 |
| 5:00 PM | 8 | 1 | 3 | 0 | 1 | 1 | 2 | 0 | 3 | 40 | 8 | 0 | 3 | 40 | 0 | 0 | 110 | 1270 |
| 5:05 PM | 20 | 0 | 4 | 0 | 1 | 2 | 0 | 0 | 2 | 52 | 13 | 0 | 2 | 31 | 0 | 0 | 127 | 1289 |
| 5:10 PM | 19 | 1 | 6 | 0 | 0 | 2 | 2 | 0 | 1 | 50 | 8 | 0 | 2 | 47 | 0 | 0 | 138 | 1313 |
| 5:15 PM | 20 | 2 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 64 | 10 | 0 | 2 | 39 | 0 | 0 | 142 | 1353 |
| 5:20 PM | 14 | 2 | 4 | 0 | 0 | 1 | 3 | 0 | 2 | 46 | 14 | 0 | 1 | 41 | 1 | 0 | 129 | 1378 |
| 5:25 PM | 8 | 0 | 5 | 0 | 0 | 1 | 5 | 0 | 2 | 59 | 17 | 0 | 0 | 45 | 0 | 0 | 142 | 1430 |
| 5:30 PM | 15 | 4 | 4 | 0 | 0 | 2 | 1 | 0 | 0 | 61 | 11 | 0 | 3 | 33 | 1 | 0 | 135 | 1461 |
| 5:35 PM | 9 | 0 | 4 | 0 | 0 | 1 | 7 | 0 | 0 | 68 | 10 | 0 | 2 | 39 | 0 | 0 | 140 | 1500 |
| 5:40 PM | 6 | 1 | 2 | 0 | 1 | 3 | 1 | 0 | 5 | 66 | 2 | 0 | 2 | 26 | 1 | 0 | 116 | 1504 |
| 5:45 PM | 9 | 1 | 3 | 0 | 1 | 0 | 4 | 0 | 4 | 57 | 9 | 0 | 4 | 26 | 0 | 0 | 118 | 1515 |
| 5:50 PM | 14 | 3 | 5 | 0 | 0 | 2 | 3 | 0 | 3 | 53 | 9 | 0 | 2 | 36 | 0 | 0 | 130 | 1524 |
| 5:55 PM | 11 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 3 | 48 | 5 | 0 | 2 | 27 | 0 | 0 | 101 | 1528 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 128 | 16 | 52 | 0 | 0 | 16 | 52 | 0 | 8 | 752 | 152 | 0 | 20 | 468 | 4 | 0 | 1668 |
| Heavy Trucks | 8 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

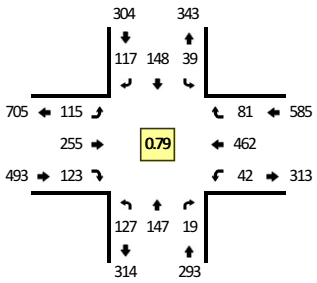
Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

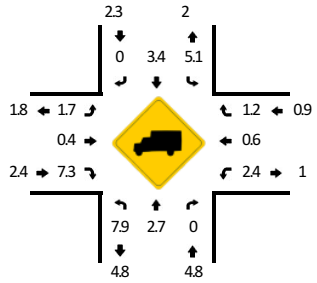
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

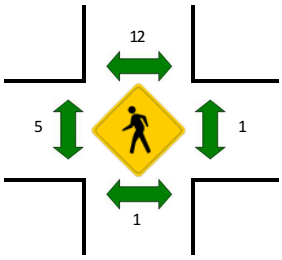
**LOCATION:** 18. N Sunnyside Ave -- Alluvial Ave
**CITY/STATE:** Clovis, CA

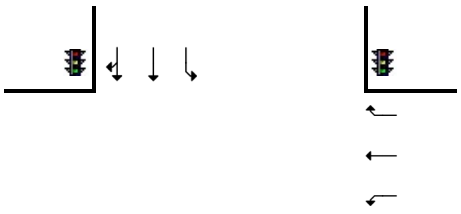
**QC JOB #:** 16475529
**DATE:** Tue, Feb 6 2024

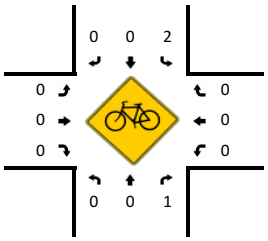
**Peak-Hour: 7:25 AM -- 8:25 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

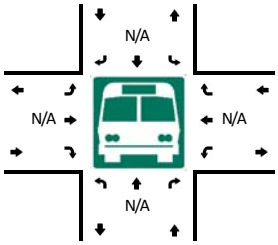


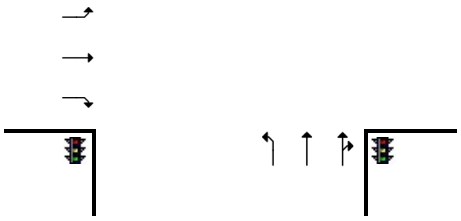



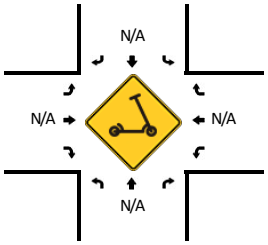








| 5-Min Count Period Beginning At | 18. N Sunnyside Ave (Northbound) | | | | 18. N Sunnyside Ave (Southbound) | | | | Alluvial Ave (Eastbound) | | | | Alluvial Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 5 | 5 | 0 | 0 | 2 | 4 | 8 | 0 | 3 | 6 | 5 | 0 | 0 | 17 | 2 | 0 | 57 | |
| 7:05 AM | 2 | 5 | 0 | 0 | 6 | 3 | 1 | 0 | 3 | 15 | 4 | 0 | 0 | 12 | 2 | 0 | 53 | |
| 7:10 AM | 8 | 8 | 1 | 0 | 3 | 9 | 2 | 0 | 4 | 14 | 7 | 0 | 3 | 11 | 2 | 0 | 72 | |
| 7:15 AM | 8 | 7 | 0 | 0 | 0 | 4 | 3 | 0 | 1 | 8 | 3 | 0 | 0 | 23 | 2 | 0 | 59 | |
| 7:20 AM | 5 | 9 | 1 | 0 | 0 | 5 | 1 | 0 | 8 | 19 | 6 | 0 | 4 | 12 | 2 | 0 | 72 | |
| 7:25 AM | 12 | 23 | 2 | 0 | 4 | 7 | 8 | 0 | 10 | 16 | 7 | 0 | 1 | 28 | 6 | 0 | 124 | |
| 7:30 AM | 14 | 13 | 1 | 0 | 4 | 21 | 12 | 0 | 23 | 17 | 9 | 0 | 5 | 18 | 4 | 0 | 141 | |
| 7:35 AM | 13 | 9 | 3 | 0 | 9 | 16 | 15 | 0 | 14 | 18 | 8 | 0 | 5 | 41 | 15 | 0 | 166 | |
| 7:40 AM | 7 | 16 | 2 | 0 | 5 | 16 | 16 | 0 | 21 | 18 | 7 | 0 | 3 | 27 | 17 | 0 | 155 | |
| 7:45 AM | 11 | 21 | 0 | 0 | 5 | 21 | 16 | 0 | 25 | 22 | 13 | 0 | 5 | 39 | 15 | 0 | 193 | |
| 7:50 AM | 8 | 18 | 2 | 1 | 2 | 11 | 13 | 0 | 11 | 29 | 11 | 0 | 4 | 53 | 12 | 0 | 175 | |
| 7:55 AM | 13 | 10 | 3 | 0 | 6 | 20 | 15 | 0 | 1 | 24 | 19 | 0 | 5 | 44 | 5 | 0 | 165 | 1432 |
| 8:00 AM | 12 | 4 | 0 | 0 | 1 | 5 | 4 | 0 | 4 | 17 | 12 | 0 | 4 | 39 | 2 | 0 | 104 | 1479 |
| 8:05 AM | 12 | 8 | 0 | 0 | 1 | 9 | 6 | 0 | 2 | 24 | 14 | 0 | 4 | 49 | 1 | 0 | 130 | 1556 |
| 8:10 AM | 10 | 5 | 3 | 0 | 0 | 8 | 3 | 0 | 1 | 19 | 11 | 0 | 4 | 55 | 2 | 0 | 121 | 1605 |
| 8:15 AM | 8 | 14 | 3 | 0 | 0 | 8 | 5 | 0 | 0 | 22 | 5 | 0 | 0 | 40 | 1 | 0 | 106 | 1652 |
| 8:20 AM | 6 | 6 | 0 | 0 | 2 | 6 | 4 | 0 | 3 | 29 | 7 | 0 | 2 | 29 | 1 | 0 | 95 | 1675 |
| 8:25 AM | 7 | 8 | 0 | 0 | 2 | 7 | 2 | 0 | 1 | 31 | 9 | 0 | 7 | 35 | 3 | 0 | 112 | 1663 |
| 8:30 AM | 10 | 11 | 2 | 0 | 1 | 14 | 4 | 0 | 0 | 15 | 15 | 0 | 1 | 18 | 0 | 0 | 91 | 1613 |
| 8:35 AM | 5 | 7 | 3 | 0 | 1 | 6 | 6 | 0 | 1 | 25 | 11 | 0 | 1 | 22 | 2 | 0 | 90 | 1537 |
| 8:40 AM | 5 | 5 | 2 | 0 | 2 | 8 | 1 | 0 | 1 | 29 | 8 | 1 | 5 | 26 | 1 | 0 | 94 | 1476 |
| 8:45 AM | 3 | 6 | 3 | 0 | 1 | 17 | 3 | 0 | 2 | 13 | 9 | 0 | 3 | 18 | 0 | 0 | 78 | 1361 |
| 8:50 AM | 3 | 3 | 4 | 0 | 3 | 3 | 3 | 0 | 6 | 15 | 7 | 0 | 1 | 20 | 0 | 0 | 68 | 1254 |
| 8:55 AM | 6 | 7 | 2 | 0 | 0 | 2 | 3 | 0 | 2 | 15 | 9 | 0 | 1 | 9 | 1 | 0 | 57 | 1146 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 128 | 196 | 20 | 4 | 52 | 208 | 176 | 0 | 148 | 300 | 172 | 0 | 56 | 544 | 128 | 0 | 2132 |
| Heavy Trucks | 8 | 4 | 0 | | 0 | 4 | 0 | | 0 | 0 | 16 | | 0 | 4 | 0 | | 36 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

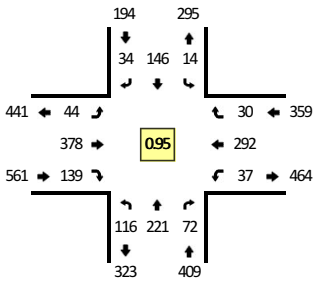
Report generated on 2/23/2024 2:42 PM

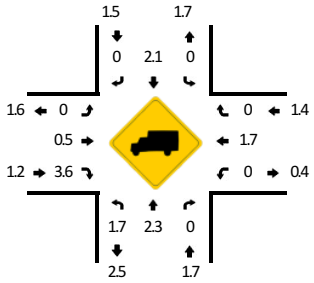
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

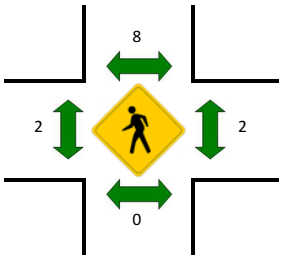
**LOCATION:** 18. N Sunnyside Ave -- Alluvial Ave | **QC JOB #:** 16475530
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

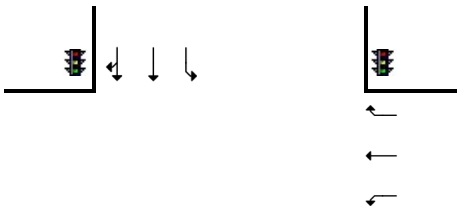
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

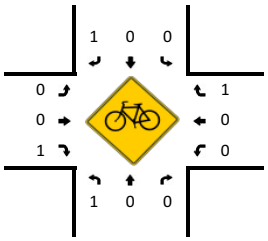


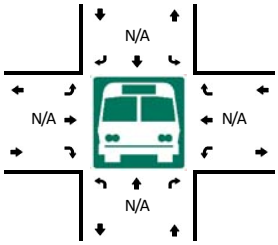



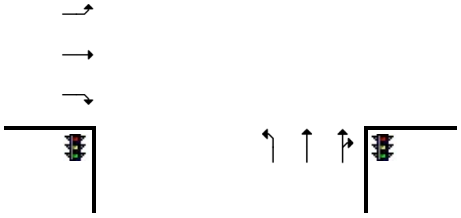

TRUE DATA TO IMPROVE MOBILITY

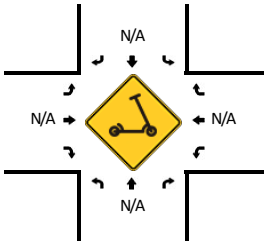







| 5-Min Count Period Beginning At | 18. N Sunnyside Ave (Northbound) | | | | 18. N Sunnyside Ave (Southbound) | | | | Alluvial Ave (Eastbound) | | | | Alluvial Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 5 | 19 | 5 | 0 | 0 | 14 | 4 | 0 | 1 | 36 | 13 | 0 | 2 | 18 | 0 | 0 | 117 | |
| 4:05 PM | 5 | 23 | 9 | 0 | 3 | 11 | 1 | 0 | 2 | 23 | 18 | 0 | 5 | 15 | 0 | 0 | 115 | |
| 4:10 PM | 7 | 14 | 6 | 0 | 2 | 9 | 4 | 0 | 6 | 30 | 16 | 0 | 6 | 24 | 2 | 0 | 126 | |
| 4:15 PM | 9 | 16 | 4 | 0 | 1 | 6 | 1 | 0 | 6 | 24 | 5 | 0 | 4 | 15 | 1 | 0 | 92 | |
| 4:20 PM | 10 | 14 | 7 | 0 | 2 | 4 | 3 | 0 | 2 | 33 | 13 | 0 | 2 | 18 | 0 | 0 | 108 | |
| 4:25 PM | 3 | 10 | 6 | 1 | 3 | 12 | 4 | 0 | 5 | 23 | 6 | 0 | 3 | 24 | 2 | 0 | 102 | |
| 4:30 PM | 11 | 18 | 10 | 1 | 1 | 12 | 2 | 0 | 0 | 41 | 10 | 0 | 4 | 14 | 1 | 0 | 125 | |
| 4:35 PM | 7 | 23 | 5 | 0 | 0 | 12 | 5 | 0 | 6 | 25 | 10 | 0 | 3 | 11 | 4 | 0 | 111 | |
| 4:40 PM | 16 | 14 | 3 | 0 | 1 | 11 | 1 | 0 | 5 | 29 | 10 | 0 | 4 | 34 | 1 | 0 | 129 | |
| 4:45 PM | 9 | 22 | 4 | 0 | 1 | 15 | 0 | 0 | 3 | 29 | 9 | 0 | 2 | 23 | 4 | 0 | 121 | |
| 4:50 PM | 8 | 15 | 9 | 0 | 0 | 14 | 3 | 0 | 5 | 27 | 17 | 0 | 2 | 28 | 5 | 0 | 133 | |
| 4:55 PM | 7 | 23 | 5 | 1 | 0 | 9 | 2 | 0 | 4 | 32 | 13 | 0 | 5 | 29 | 3 | 0 | 133 | 1412 |
| 5:00 PM | 6 | 16 | 7 | 0 | 1 | 10 | 1 | 0 | 2 | 32 | 4 | 0 | 3 | 24 | 0 | 0 | 106 | 1401 |
| 5:05 PM | 11 | 25 | 7 | 0 | 1 | 15 | 4 | 0 | 6 | 39 | 6 | 0 | 4 | 18 | 0 | 0 | 136 | 1422 |
| 5:10 PM | 9 | 15 | 7 | 0 | 2 | 11 | 2 | 0 | 1 | 27 | 10 | 0 | 3 | 35 | 2 | 0 | 124 | 1420 |
| 5:15 PM | 11 | 19 | 9 | 0 | 3 | 10 | 3 | 0 | 2 | 39 | 19 | 0 | 3 | 22 | 2 | 0 | 142 | 1470 |
| 5:20 PM | 9 | 15 | 7 | 0 | 1 | 14 | 5 | 0 | 4 | 40 | 7 | 0 | 2 | 24 | 3 | 0 | 131 | 1493 |
| 5:25 PM | 13 | 19 | 4 | 0 | 2 | 15 | 4 | 0 | 3 | 26 | 18 | 0 | 3 | 17 | 1 | 0 | 125 | 1516 |
| 5:30 PM | 9 | 15 | 5 | 0 | 2 | 10 | 4 | 0 | 3 | 33 | 16 | 0 | 3 | 27 | 5 | 0 | 132 | 1523 |
| 5:35 PM | 8 | 10 | 6 | 0 | 1 | 6 | 2 | 0 | 3 | 37 | 12 | 0 | 2 | 23 | 0 | 0 | 110 | 1522 |
| 5:40 PM | 8 | 11 | 5 | 0 | 0 | 8 | 1 | 0 | 2 | 42 | 13 | 0 | 3 | 16 | 1 | 0 | 110 | 1503 |
| 5:45 PM | 2 | 21 | 3 | 0 | 1 | 9 | 0 | 0 | 0 | 21 | 9 | 0 | 2 | 18 | 2 | 0 | 88 | 1470 |
| 5:50 PM | 6 | 19 | 4 | 1 | 0 | 6 | 1 | 0 | 5 | 40 | 12 | 0 | 1 | 16 | 1 | 0 | 112 | 1449 |
| 5:55 PM | 4 | 12 | 2 | 0 | 1 | 9 | 1 | 0 | 2 | 21 | 6 | 0 | 5 | 21 | 2 | 0 | 86 | 1402 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 124 | 236 | 92 | 0 | 24 | 144 | 36 | 0 | 36 | 420 | 140 | 0 | 40 | 300 | 16 | 0 | 1608 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 4 | 0 | | 12 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 4 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

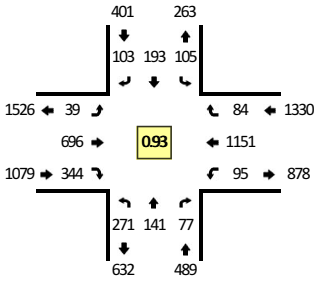
Type of peak hour being reported: Intersection Peak

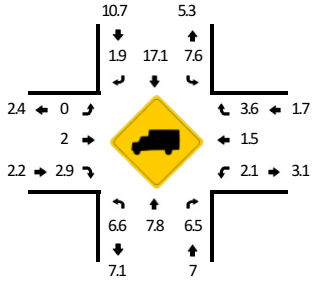
Method for determining peak hour: Total Entering Volume

**LOCATION:** 19. N Sunnyside Ave -- E Herndon Ave
**CITY/STATE:** Clovis, CA

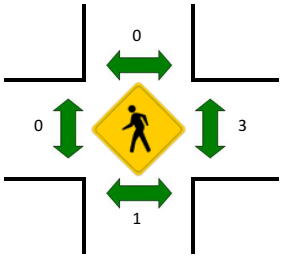
**QC JOB #:** 16475531
**DATE:** Thu, Feb 8 2024

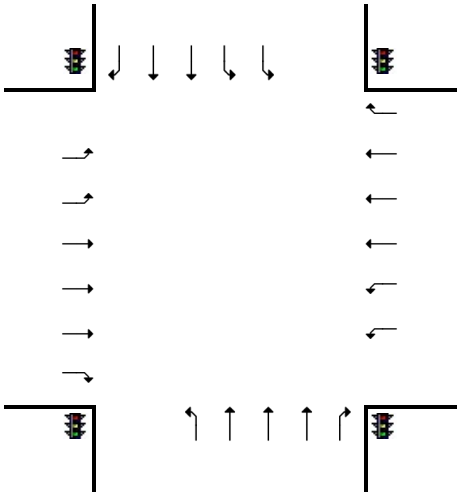
**Peak-Hour: 7:35 AM -- 8:35 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

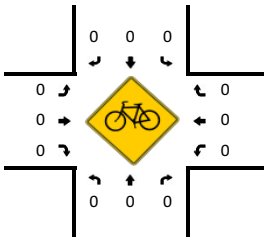


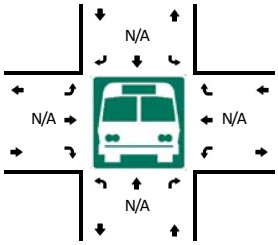



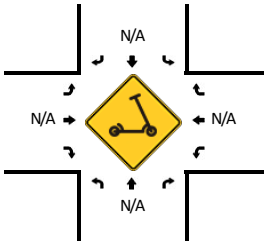

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 19. N Sunnyside Ave (Northbound) | | | | 19. N Sunnyside Ave (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 14 | 7 | 2 | 0 | 3 | 2 | 2 | 0 | 0 | 40 | 24 | 0 | 2 | 32 | 4 | 0 | 132 | |
| 7:05 AM | 5 | 3 | 7 | 0 | 3 | 5 | 4 | 0 | 0 | 24 | 6 | 0 | 2 | 68 | 2 | 0 | 129 | |
| 7:10 AM | 21 | 10 | 7 | 0 | 9 | 11 | 4 | 0 | 1 | 40 | 13 | 0 | 6 | 54 | 2 | 0 | 178 | |
| 7:15 AM | 14 | 9 | 9 | 0 | 3 | 12 | 6 | 0 | 1 | 39 | 11 | 0 | 6 | 74 | 5 | 0 | 189 | |
| 7:20 AM | 19 | 13 | 6 | 0 | 5 | 14 | 2 | 0 | 1 | 35 | 25 | 0 | 2 | 62 | 6 | 0 | 190 | |
| 7:25 AM | 19 | 15 | 7 | 0 | 4 | 14 | 3 | 0 | 4 | 55 | 21 | 0 | 6 | 81 | 2 | 0 | 231 | |
| 7:30 AM | 30 | 24 | 5 | 0 | 5 | 14 | 8 | 0 | 4 | 49 | 14 | 0 | 1 | 62 | 6 | 0 | 222 | |
| 7:35 AM | 14 | 17 | 7 | 0 | 7 | 9 | 12 | 0 | 3 | 60 | 29 | 0 | 3 | 101 | 6 | 0 | 268 | |
| 7:40 AM | 29 | 13 | 6 | 0 | 7 | 16 | 15 | 0 | 0 | 60 | 24 | 0 | 11 | 111 | 2 | 0 | 294 | |
| 7:45 AM | 25 | 14 | 5 | 0 | 2 | 15 | 8 | 0 | 5 | 54 | 22 | 1 | 6 | 119 | 15 | 0 | 291 | |
| 7:50 AM | 22 | 9 | 2 | 0 | 8 | 25 | 14 | 0 | 4 | 66 | 33 | 0 | 9 | 99 | 7 | 0 | 298 | |
| 7:55 AM | 13 | 10 | 9 | 0 | 4 | 17 | 4 | 0 | 1 | 64 | 30 | 0 | 9 | 113 | 9 | 0 | 283 | 2705 |
| 8:00 AM | 19 | 5 | 6 | 0 | 13 | 12 | 8 | 0 | 3 | 62 | 36 | 0 | 14 | 84 | 5 | 0 | 267 | 2840 |
| 8:05 AM | 36 | 9 | 7 | 0 | 13 | 16 | 9 | 0 | 4 | 49 | 35 | 0 | 8 | 82 | 2 | 0 | 270 | 2981 |
| 8:10 AM | 24 | 17 | 5 | 0 | 12 | 25 | 5 | 1 | 5 | 48 | 30 | 0 | 14 | 100 | 11 | 0 | 297 | 3100 |
| 8:15 AM | 17 | 8 | 6 | 1 | 7 | 9 | 6 | 0 | 5 | 70 | 31 | 0 | 3 | 91 | 7 | 0 | 261 | 3172 |
| 8:20 AM | 24 | 16 | 9 | 0 | 16 | 17 | 8 | 0 | 2 | 54 | 22 | 0 | 6 | 76 | 7 | 0 | 257 | 3239 |
| 8:25 AM | 21 | 6 | 7 | 0 | 8 | 7 | 7 | 0 | 2 | 63 | 26 | 0 | 5 | 100 | 8 | 1 | 261 | 3269 |
| 8:30 AM | 26 | 17 | 8 | 0 | 7 | 25 | 7 | 0 | 3 | 46 | 26 | 1 | 6 | 75 | 5 | 0 | 252 | 3299 |
| 8:35 AM | 16 | 13 | 9 | 0 | 5 | 16 | 2 | 0 | 0 | 56 | 19 | 1 | 2 | 83 | 11 | 0 | 233 | 3264 |
| 8:40 AM | 19 | 10 | 16 | 0 | 13 | 16 | 4 | 0 | 0 | 38 | 29 | 0 | 8 | 73 | 10 | 1 | 237 | 3207 |
| 8:45 AM | 21 | 14 | 14 | 1 | 10 | 15 | 7 | 0 | 2 | 74 | 28 | 0 | 6 | 77 | 11 | 0 | 280 | 3196 |
| 8:50 AM | 17 | 20 | 15 | 0 | 20 | 22 | 4 | 0 | 4 | 49 | 23 | 0 | 4 | 81 | 7 | 0 | 266 | 3164 |
| 8:55 AM | 14 | 8 | 8 | 1 | 10 | 11 | 4 | 0 | 6 | 64 | 24 | 0 | 3 | 98 | 9 | 0 | 260 | 3141 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 304 | 144 | 52 | 0 | 68 | 224 | 148 | 0 | 36 | 720 | 316 | 4 | 104 | 1316 | 96 | 0 | 3532 |
| Heavy Trucks | 28 | 8 | 8 | | 4 | 16 | 4 | | 0 | 8 | 12 | | 4 | 20 | 0 | | 112 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 0 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

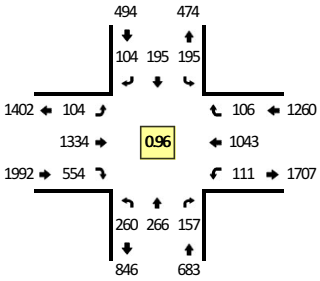
Type of peak hour being reported: Intersection Peak

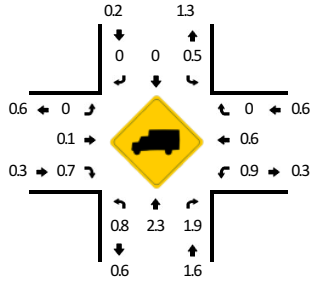
Method for determining peak hour: Total Entering Volume

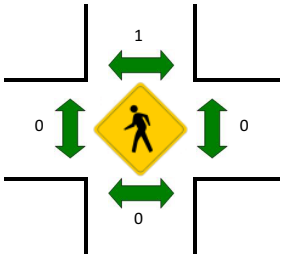
**LOCATION:** 19. N Sunnyside Ave -- E Herndon Ave
**CITY/STATE:** Clovis, CA

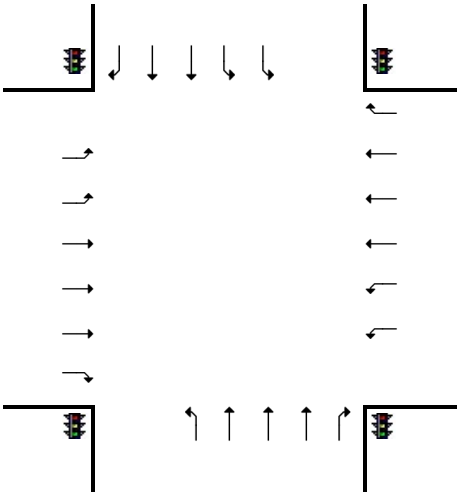
**QC JOB #:** 16475532
**DATE:** Thu, Feb 8 2024

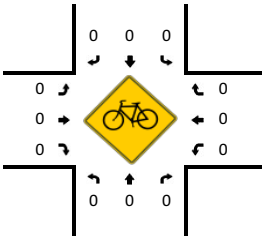
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

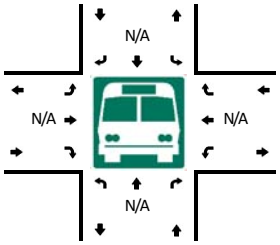


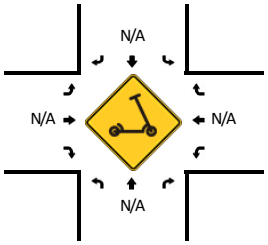






| 5-Min Count Period Beginning At | 19. N Sunnyside Ave (Northbound) | | | | 19. N Sunnyside Ave (Southbound) | | | | E Herndon Ave (Eastbound) | | | | E Herndon Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 26 | 28 | 20 | 0 | 9 | 14 | 7 | 0 | 6 | 98 | 37 | 0 | 6 | 82 | 11 | 1 | 345 | |
| 4:05 PM | 34 | 26 | 12 | 0 | 22 | 26 | 6 | 0 | 6 | 71 | 26 | 0 | 6 | 89 | 11 | 1 | 336 | |
| 4:10 PM | 27 | 28 | 14 | 0 | 18 | 10 | 7 | 0 | 1 | 117 | 24 | 0 | 6 | 109 | 7 | 0 | 368 | |
| 4:15 PM | 35 | 22 | 13 | 1 | 28 | 23 | 8 | 0 | 4 | 98 | 27 | 0 | 9 | 86 | 8 | 1 | 363 | |
| 4:20 PM | 26 | 26 | 7 | 0 | 21 | 25 | 13 | 0 | 7 | 98 | 24 | 0 | 9 | 96 | 5 | 0 | 357 | |
| 4:25 PM | 18 | 10 | 12 | 0 | 22 | 24 | 13 | 0 | 10 | 153 | 33 | 0 | 8 | 99 | 10 | 0 | 412 | |
| 4:30 PM | 14 | 18 | 12 | 0 | 10 | 12 | 5 | 0 | 4 | 94 | 36 | 0 | 9 | 91 | 10 | 1 | 316 | |
| 4:35 PM | 38 | 20 | 12 | 0 | 25 | 20 | 9 | 0 | 6 | 90 | 26 | 0 | 6 | 91 | 10 | 2 | 355 | |
| 4:40 PM | 22 | 21 | 10 | 0 | 18 | 21 | 8 | 0 | 5 | 96 | 19 | 0 | 8 | 71 | 10 | 2 | 311 | |
| 4:45 PM | 23 | 9 | 6 | 0 | 13 | 5 | 13 | 0 | 4 | 130 | 31 | 0 | 7 | 130 | 6 | 1 | 378 | |
| 4:50 PM | 22 | 11 | 8 | 2 | 25 | 18 | 8 | 0 | 6 | 111 | 27 | 0 | 14 | 93 | 5 | 1 | 351 | |
| 4:55 PM | 30 | 21 | 7 | 1 | 21 | 22 | 9 | 0 | 8 | 97 | 30 | 0 | 8 | 73 | 9 | 0 | 336 | 4228 |
| 5:00 PM | 23 | 26 | 14 | 1 | 19 | 15 | 10 | 1 | 8 | 128 | 22 | 2 | 10 | 73 | 5 | 1 | 358 | 4241 |
| 5:05 PM | 20 | 29 | 18 | 2 | 21 | 14 | 6 | 1 | 6 | 131 | 41 | 1 | 11 | 119 | 15 | 3 | 438 | 4343 |
| 5:10 PM | 15 | 29 | 20 | 1 | 20 | 14 | 7 | 1 | 2 | 108 | 30 | 1 | 5 | 83 | 13 | 6 | 355 | 4330 |
| 5:15 PM | 20 | 34 | 10 | 0 | 13 | 17 | 5 | 0 | 8 | 81 | 40 | 0 | 6 | 84 | 11 | 1 | 330 | 4297 |
| 5:20 PM | 8 | 21 | 12 | 5 | 13 | 18 | 13 | 0 | 14 | 146 | 42 | 0 | 6 | 100 | 12 | 3 | 413 | 4353 |
| 5:25 PM | 29 | 24 | 21 | 0 | 14 | 16 | 12 | 0 | 10 | 127 | 30 | 1 | 10 | 100 | 6 | 2 | 402 | 4343 |
| 5:30 PM | 40 | 13 | 13 | 1 | 24 | 20 | 6 | 0 | 8 | 82 | 34 | 0 | 6 | 79 | 7 | 2 | 335 | 4362 |
| 5:35 PM | 17 | 21 | 9 | 1 | 14 | 19 | 12 | 1 | 11 | 106 | 31 | 1 | 7 | 75 | 11 | 2 | 338 | 4345 |
| 5:40 PM | 19 | 17 | 4 | 0 | 13 | 12 | 6 | 0 | 8 | 121 | 56 | 0 | 7 | 98 | 4 | 1 | 366 | 4400 |
| 5:45 PM | 22 | 15 | 9 | 0 | 16 | 12 | 7 | 0 | 8 | 106 | 63 | 0 | 6 | 75 | 1 | 1 | 341 | 4363 |
| 5:50 PM | 23 | 25 | 12 | 0 | 15 | 21 | 10 | 0 | 8 | 90 | 93 | 0 | 4 | 73 | 7 | 0 | 381 | 4393 |
| 5:55 PM | 13 | 12 | 15 | 0 | 9 | 17 | 10 | 0 | 7 | 108 | 72 | 0 | 8 | 84 | 14 | 3 | 372 | 4429 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 232 | 336 | 208 | 16 | 240 | 172 | 92 | 12 | 64 | 1468 | 372 | 16 | 104 | 1100 | 132 | 40 | 4604 |
| Heavy Trucks | 0 | 0 | 8 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 | 8 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

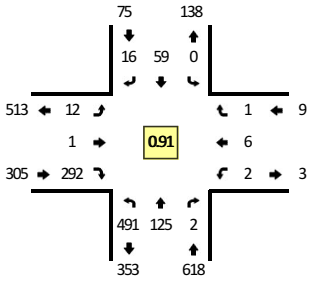
Type of peak hour being reported: Intersection Peak

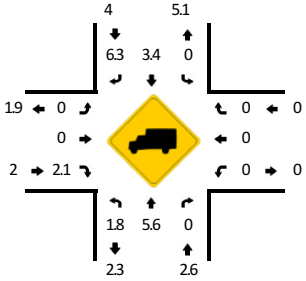
Method for determining peak hour: Total Entering Volume

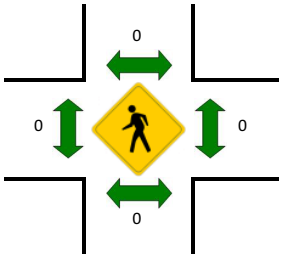
**LOCATION:** 20. N Fowler Ave -- E Behymer Ave
**CITY/STATE:** Fresno, CA

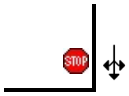
**QC JOB #:** 16475533
**DATE:** Tue, Feb 6 2024

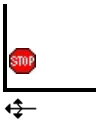
**Peak-Hour: 7:25 AM -- 8:25 AM**
**Peak 15-Min: 8:10 AM -- 8:25 AM**

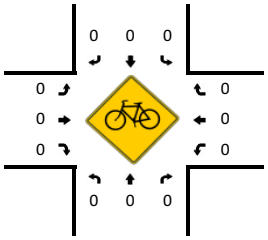


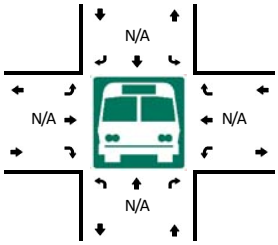



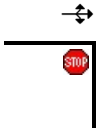



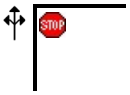



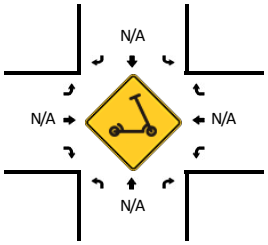




| 5-Min Count Period Beginning At | 20. N Fowler Ave (Northbound) | | | | 20. N Fowler Ave (Southbound) | | | | E Behymer Ave (Eastbound) | | | | E Behymer Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 16 | 4 | 0 | 0 | 0 | 6 | 1 | 0 | 1 | 1 | 14 | 0 | 0 | 1 | 0 | 0 | 44 | |
| 7:05 AM | 33 | 1 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 56 | |
| 7:10 AM | 42 | 3 | 0 | 0 | 0 | 8 | 4 | 0 | 0 | 0 | 23 | 0 | 0 | 1 | 0 | 0 | 81 | |
| 7:15 AM | 32 | 4 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 17 | 0 | 0 | 1 | 0 | 0 | 62 | |
| 7:20 AM | 38 | 7 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 16 | 0 | 1 | 0 | 0 | 0 | 70 | |
| 7:25 AM | 22 | 3 | 1 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 60 | |
| 7:30 AM | 40 | 1 | 0 | 0 | 0 | 13 | 1 | 0 | 1 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 80 | |
| 7:35 AM | 36 | 6 | 0 | 0 | 0 | 7 | 2 | 0 | 1 | 0 | 21 | 0 | 2 | 2 | 0 | 0 | 77 | |
| 7:40 AM | 51 | 4 | 0 | 0 | 0 | 3 | 4 | 0 | 2 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 90 | |
| 7:45 AM | 49 | 10 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 18 | 0 | 0 | 1 | 0 | 0 | 82 | |
| 7:50 AM | 41 | 2 | 1 | 0 | 0 | 5 | 0 | 0 | 2 | 1 | 29 | 0 | 0 | 0 | 0 | 0 | 81 | |
| 7:55 AM | 39 | 11 | 0 | 0 | 0 | 6 | 2 | 0 | 1 | 0 | 23 | 0 | 0 | 1 | 0 | 0 | 83 | 866 |
| 8:00 AM | 48 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 27 | 0 | 0 | 0 | 1 | 0 | 92 | 914 |
| 8:05 AM | 44 | 17 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 19 | 0 | 0 | 1 | 0 | 0 | 84 | 942 |
| 8:10 AM | 35 | 29 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 88 | 949 |
| 8:15 AM | 48 | 19 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 1 | 0 | 0 | 96 | 983 |
| 8:20 AM | 38 | 16 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 94 | 1007 |
| 8:25 AM | 11 | 4 | 0 | 0 | 0 | 6 | 1 | 0 | 1 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 48 | 995 |
| 8:30 AM | 15 | 5 | 0 | 0 | 0 | 5 | 2 | 0 | 1 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 58 | 973 |
| 8:35 AM | 15 | 3 | 0 | 0 | 0 | 7 | 5 | 0 | 1 | 1 | 39 | 0 | 0 | 2 | 0 | 0 | 73 | 969 |
| 8:40 AM | 21 | 3 | 0 | 0 | 0 | 9 | 0 | 0 | 3 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 65 | 944 |
| 8:45 AM | 17 | 8 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 57 | 919 |
| 8:50 AM | 25 | 3 | 0 | 0 | 0 | 10 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 47 | 885 |
| 8:55 AM | 20 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 24 | 1 | 0 | 0 | 0 | 0 | 50 | 852 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 484 | 256 | 0 | 0 | 0 | 40 | 8 | 0 | 4 | 0 | 316 | 0 | 0 | 4 | 0 | 0 | 1112 |
| Heavy Trucks | 16 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 28 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

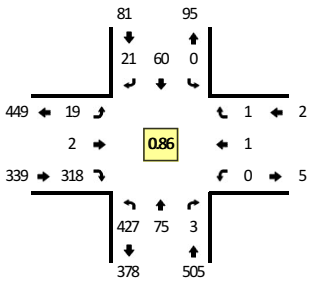
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 20. N Fowler Ave -- E Behymer Ave
**CITY/STATE:** Fresno, CA

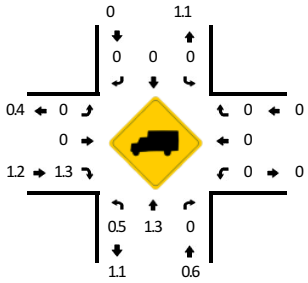
**QC JOB #:** 16475534
**DATE:** Tue, Feb 6 2024

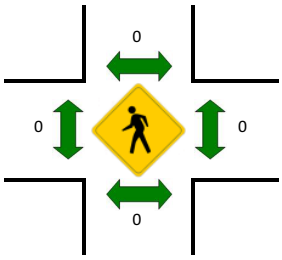
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**





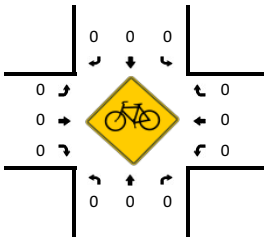


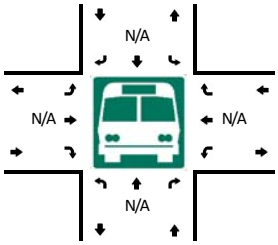




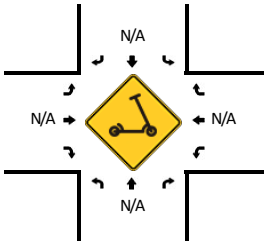











| 5-Min Count Period Beginning At | 20. N Fowler Ave (Northbound) | | | | 20. N Fowler Ave (Southbound) | | | | E Behymer Ave (Eastbound) | | | | E Behymer Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 25 | 7 | 1 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 18 | 0 | 1 | 1 | 0 | 0 | 60 | |
| 4:05 PM | 19 | 6 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 23 | 0 | 0 | 0 | 1 | 0 | 55 | |
| 4:10 PM | 21 | 7 | 0 | 0 | 0 | 4 | 2 | 0 | 2 | 0 | 16 | 0 | 1 | 0 | 0 | 0 | 53 | |
| 4:15 PM | 24 | 5 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 1 | 23 | 0 | 0 | 0 | 0 | 0 | 59 | |
| 4:20 PM | 15 | 5 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 41 | |
| 4:25 PM | 27 | 6 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 66 | |
| 4:30 PM | 25 | 6 | 0 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 18 | 0 | 0 | 1 | 0 | 0 | 57 | |
| 4:35 PM | 31 | 14 | 1 | 0 | 0 | 4 | 4 | 0 | 1 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 77 | |
| 4:40 PM | 34 | 4 | 0 | 0 | 0 | 11 | 1 | 0 | 1 | 0 | 22 | 0 | 0 | 0 | 1 | 0 | 74 | |
| 4:45 PM | 28 | 9 | 0 | 0 | 0 | 4 | 1 | 0 | 4 | 1 | 28 | 0 | 0 | 0 | 0 | 0 | 75 | |
| 4:50 PM | 51 | 3 | 0 | 0 | 0 | 4 | 2 | 0 | 1 | 1 | 17 | 0 | 0 | 0 | 0 | 0 | 79 | |
| 4:55 PM | 33 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 57 | 753 |
| 5:00 PM | 25 | 4 | 1 | 0 | 0 | 7 | 2 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 68 | 761 |
| 5:05 PM | 30 | 9 | 0 | 0 | 0 | 3 | 3 | 0 | 3 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 72 | 778 |
| 5:10 PM | 33 | 6 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 77 | 802 |
| 5:15 PM | 43 | 7 | 0 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 101 | 844 |
| 5:20 PM | 41 | 6 | 0 | 0 | 0 | 5 | 3 | 0 | 3 | 0 | 29 | 0 | 0 | 1 | 0 | 0 | 88 | 891 |
| 5:25 PM | 39 | 12 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 79 | 904 |
| 5:30 PM | 39 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 80 | 927 |
| 5:35 PM | 20 | 9 | 0 | 0 | 0 | 8 | 1 | 0 | 1 | 0 | 23 | 0 | 1 | 0 | 0 | 0 | 63 | 913 |
| 5:40 PM | 33 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 66 | 905 |
| 5:45 PM | 36 | 10 | 0 | 0 | 0 | 4 | 1 | 0 | 4 | 1 | 33 | 0 | 0 | 1 | 0 | 0 | 90 | 920 |
| 5:50 PM | 27 | 10 | 1 | 0 | 0 | 2 | 1 | 0 | 2 | 0 | 26 | 0 | 0 | 1 | 0 | 0 | 70 | 911 |
| 5:55 PM | 25 | 4 | 0 | 0 | 0 | 5 | 2 | 0 | 1 | 0 | 22 | 0 | 1 | 0 | 0 | 0 | 60 | 914 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 492 | 100 | 0 | 0 | 0 | 56 | 20 | 0 | 24 | 0 | 376 | 0 | 0 | 4 | 0 | 0 | 1072 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

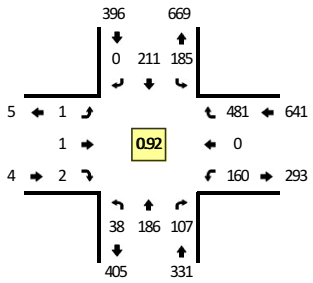
Report generated on 2/23/2024 2:42 PM

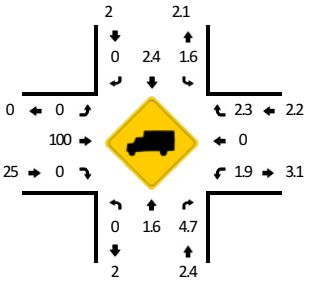
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

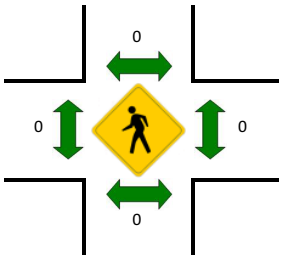
**LOCATION:** 22. N Fowler Ave -- E Shepherd Ave | **QC JOB #:** 16475535
**CITY/STATE:** Fresno, CA | **DATE:** Thu, Feb 8 2024

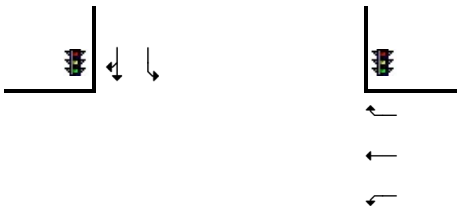
**Peak-Hour: 7:20 AM -- 8:20 AM**
**Peak 15-Min: 8:05 AM -- 8:20 AM**

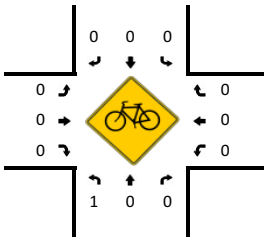


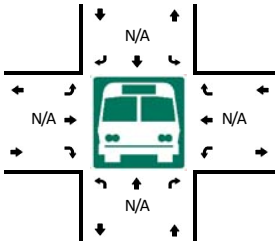



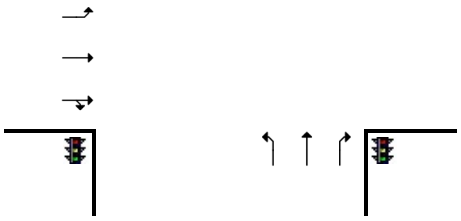

TRUE DATA TO IMPROVE MOBILITY

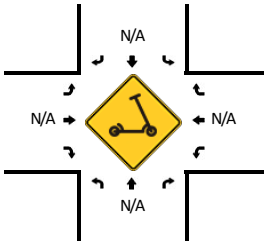







| 5-Min Count Period Beginning At | 22. N Fowler Ave (Northbound) | | | | 22. N Fowler Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 12 | 2 | 2 | 13 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 14 | 0 | 61 | |
| 7:05 AM | 0 | 14 | 3 | 0 | 5 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 21 | 0 | 61 | |
| 7:10 AM | 1 | 11 | 2 | 2 | 12 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 20 | 0 | 66 | |
| 7:15 AM | 1 | 7 | 5 | 2 | 12 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 21 | 0 | 67 | |
| 7:20 AM | 1 | 17 | 6 | 4 | 12 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 27 | 0 | 106 | |
| 7:25 AM | 1 | 13 | 6 | 3 | 19 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 34 | 0 | 106 | |
| 7:30 AM | 1 | 9 | 5 | 4 | 17 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 39 | 0 | 101 | |
| 7:35 AM | 1 | 17 | 11 | 2 | 11 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 16 | 0 | 28 | 0 | 96 | |
| 7:40 AM | 0 | 15 | 14 | 2 | 11 | 23 | 0 | 0 | 0 | 1 | 0 | 0 | 18 | 0 | 41 | 0 | 125 | |
| 7:45 AM | 0 | 14 | 13 | 1 | 19 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 44 | 0 | 120 | |
| 7:50 AM | 0 | 15 | 16 | 1 | 10 | 24 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 42 | 0 | 120 | |
| 7:55 AM | 0 | 11 | 14 | 4 | 17 | 16 | 0 | 1 | 0 | 0 | 1 | 0 | 10 | 0 | 39 | 0 | 113 | 1142 |
| 8:00 AM | 0 | 23 | 5 | 6 | 15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 42 | 0 | 114 | 1195 |
| 8:05 AM | 0 | 16 | 4 | 2 | 19 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 57 | 0 | 129 | 1263 |
| 8:10 AM | 1 | 18 | 4 | 2 | 14 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 41 | 1 | 118 | 1315 |
| 8:15 AM | 0 | 18 | 9 | 2 | 20 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 47 | 0 | 124 | 1372 |
| 8:20 AM | 0 | 10 | 5 | 2 | 13 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 34 | 0 | 94 | 1360 |
| 8:25 AM | 0 | 20 | 10 | 5 | 21 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 23 | 0 | 106 | 1360 |
| 8:30 AM | 0 | 11 | 2 | 0 | 29 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 28 | 0 | 87 | 1346 |
| 8:35 AM | 1 | 9 | 9 | 3 | 20 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 22 | 0 | 85 | 1335 |
| 8:40 AM | 0 | 16 | 3 | 0 | 26 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 21 | 0 | 84 | 1294 |
| 8:45 AM | 0 | 15 | 4 | 0 | 23 | 16 | 0 | 1 | 0 | 0 | 0 | 0 | 10 | 0 | 21 | 0 | 90 | 1264 |
| 8:50 AM | 0 | 6 | 9 | 2 | 14 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 14 | 0 | 62 | 1206 |
| 8:55 AM | 0 | 16 | 4 | 1 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 54 | 1147 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 4 | 208 | 68 | 24 | 212 | 224 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 0 | 580 | 4 | 1484 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 4 | 0 | 8 | | 16 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

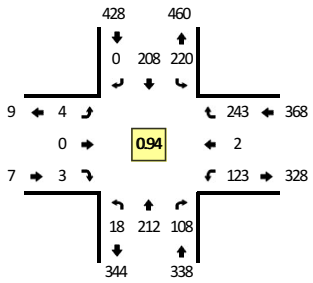
Type of peak hour being reported: Intersection Peak

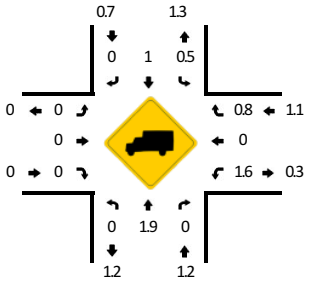
Method for determining peak hour: Total Entering Volume

**LOCATION:** 22. N Fowler Ave -- E Shepherd Ave
**CITY/STATE:** Fresno, CA

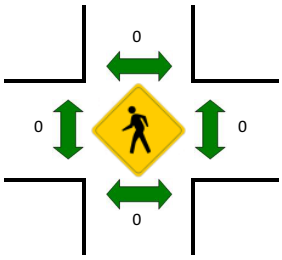
**QC JOB #:** 16475536
**DATE:** Thu, Feb 8 2024

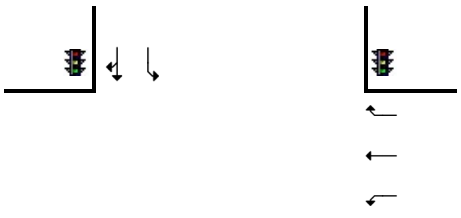
**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

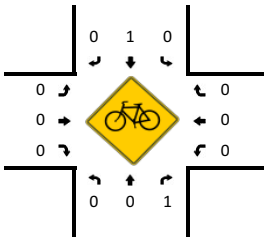


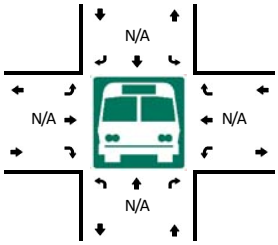



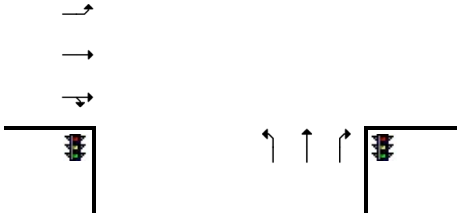

TRUE DATA TO IMPROVE MOBILITY

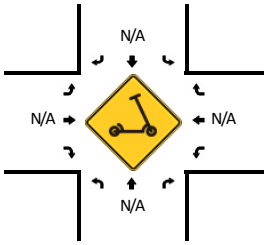







| 5-Min Count Period Beginning At | 22. N Fowler Ave (Northbound) | | | | 22. N Fowler Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 17 | 10 | 0 | 18 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 18 | 0 | 93 | |
| 4:05 PM | 0 | 14 | 11 | 0 | 23 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 18 | 0 | 84 | |
| 4:10 PM | 2 | 14 | 15 | 2 | 20 | 16 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 11 | 0 | 87 | |
| 4:15 PM | 0 | 27 | 15 | 0 | 17 | 22 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 9 | 0 | 100 | |
| 4:20 PM | 0 | 20 | 10 | 1 | 14 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 8 | 0 | 81 | |
| 4:25 PM | 0 | 14 | 9 | 1 | 11 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 72 | |
| 4:30 PM | 2 | 19 | 9 | 3 | 11 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 13 | 0 | 76 | |
| 4:35 PM | 1 | 13 | 6 | 1 | 14 | 16 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 19 | 0 | 82 | |
| 4:40 PM | 1 | 16 | 7 | 5 | 26 | 15 | 0 | 0 | 2 | 0 | 0 | 0 | 9 | 0 | 12 | 0 | 93 | |
| 4:45 PM | 2 | 18 | 11 | 1 | 16 | 18 | 0 | 0 | 1 | 0 | 1 | 0 | 14 | 0 | 15 | 0 | 97 | |
| 4:50 PM | 0 | 19 | 6 | 1 | 12 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 24 | 0 | 87 | |
| 4:55 PM | 1 | 22 | 9 | 0 | 7 | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 0 | 20 | 0 | 88 | 1040 |
| 5:00 PM | 0 | 21 | 12 | 3 | 15 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 26 | 0 | 100 | 1047 |
| 5:05 PM | 0 | 9 | 8 | 1 | 19 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 24 | 0 | 92 | 1055 |
| 5:10 PM | 2 | 17 | 9 | 1 | 23 | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 9 | 1 | 20 | 0 | 103 | 1071 |
| 5:15 PM | 0 | 21 | 5 | 0 | 21 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 22 | 0 | 96 | 1067 |
| 5:20 PM | 0 | 16 | 9 | 2 | 30 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 25 | 0 | 103 | 1089 |
| 5:25 PM | 0 | 18 | 7 | 1 | 17 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 18 | 0 | 97 | 1114 |
| 5:30 PM | 1 | 15 | 9 | 0 | 22 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 9 | 0 | 20 | 0 | 89 | 1127 |
| 5:35 PM | 0 | 18 | 10 | 0 | 19 | 20 | 0 | 1 | 0 | 0 | 0 | 0 | 10 | 1 | 10 | 0 | 89 | 1134 |
| 5:40 PM | 1 | 18 | 13 | 1 | 18 | 22 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 19 | 1 | 100 | 1141 |
| 5:45 PM | 0 | 11 | 9 | 6 | 30 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 11 | 0 | 91 | 1135 |
| 5:50 PM | 2 | 14 | 10 | 1 | 15 | 10 | 0 | 0 | 2 | 0 | 1 | 0 | 11 | 1 | 13 | 0 | 80 | 1128 |
| 5:55 PM | 1 | 7 | 10 | 0 | 6 | 12 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 22 | 0 | 67 | 1107 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 216 | 92 | 12 | 296 | 176 | 0 | 0 | 4 | 0 | 0 | 0 | 132 | 4 | 268 | 0 | 1208 |
| Heavy Trucks | 0 | 12 | 0 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 16 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

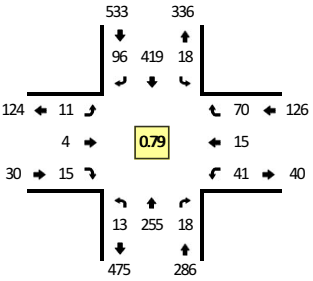
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 23. N Fowler Ave -- E Teague Ave
**CITY/STATE:** Clovis, CA

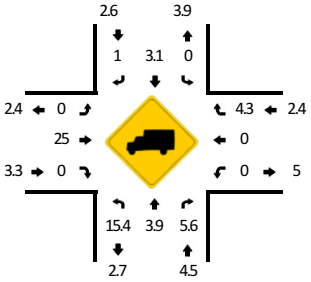
**QC JOB #:** 16475537
**DATE:** Tue, Feb 6 2024

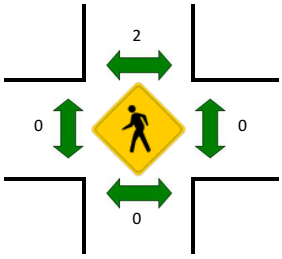
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:35 AM -- 7:50 AM**

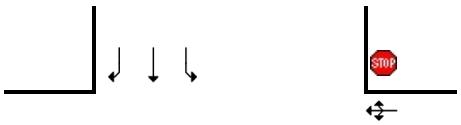


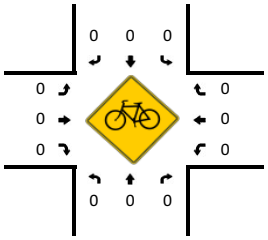


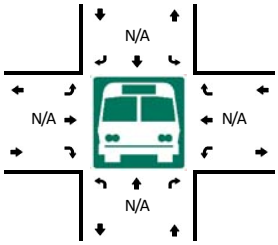




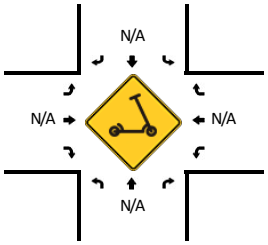










| 5-Min Count Period Beginning At | 23. N Fowler Ave (Northbound) | | | | 23. N Fowler Ave (Southbound) | | | | E Teague Ave (Eastbound) | | | | E Teague Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 12 | 1 | 0 | 1 | 32 | 2 | 0 | 2 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 55 | |
| 7:05 AM | 0 | 15 | 0 | 0 | 2 | 19 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 42 | |
| 7:10 AM | 2 | 12 | 1 | 0 | 1 | 30 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 50 | |
| 7:15 AM | 0 | 17 | 2 | 0 | 2 | 35 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 62 | |
| 7:20 AM | 0 | 20 | 0 | 0 | 2 | 43 | 4 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 71 | |
| 7:25 AM | 3 | 19 | 2 | 0 | 2 | 35 | 4 | 0 | 0 | 1 | 1 | 0 | 3 | 1 | 2 | 0 | 73 | |
| 7:30 AM | 0 | 16 | 0 | 0 | 3 | 35 | 7 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 4 | 0 | 69 | |
| 7:35 AM | 1 | 24 | 1 | 0 | 8 | 39 | 6 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 8 | 0 | 92 | |
| 7:40 AM | 0 | 28 | 1 | 0 | 2 | 51 | 7 | 0 | 0 | 0 | 1 | 0 | 8 | 1 | 12 | 0 | 111 | |
| 7:45 AM | 0 | 29 | 2 | 0 | 2 | 38 | 5 | 0 | 0 | 0 | 2 | 0 | 4 | 1 | 23 | 0 | 106 | |
| 7:50 AM | 0 | 17 | 1 | 0 | 0 | 34 | 2 | 0 | 1 | 1 | 5 | 0 | 10 | 5 | 14 | 0 | 90 | |
| 7:55 AM | 1 | 24 | 3 | 0 | 0 | 31 | 11 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 3 | 0 | 77 | 898 |
| 8:00 AM | 0 | 20 | 3 | 0 | 0 | 27 | 9 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 61 | 904 |
| 8:05 AM | 2 | 21 | 0 | 0 | 1 | 39 | 9 | 0 | 3 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 82 | 944 |
| 8:10 AM | 0 | 25 | 1 | 0 | 0 | 30 | 7 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 68 | 962 |
| 8:15 AM | 2 | 19 | 4 | 0 | 1 | 27 | 14 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 72 | 972 |
| 8:20 AM | 3 | 11 | 0 | 0 | 0 | 33 | 10 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 2 | 0 | 65 | 966 |
| 8:25 AM | 4 | 21 | 2 | 0 | 1 | 35 | 9 | 0 | 4 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 82 | 975 |
| 8:30 AM | 0 | 21 | 0 | 0 | 0 | 14 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 38 | 944 |
| 8:35 AM | 2 | 34 | 3 | 0 | 0 | 32 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 80 | 932 |
| 8:40 AM | 2 | 20 | 0 | 0 | 3 | 27 | 2 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 60 | 881 |
| 8:45 AM | 0 | 20 | 0 | 0 | 0 | 26 | 2 | 1 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 55 | 830 |
| 8:50 AM | 1 | 7 | 2 | 0 | 0 | 24 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 39 | 779 |
| 8:55 AM | 3 | 11 | 0 | 0 | 0 | 25 | 1 | 0 | 1 | 0 | 3 | 0 | 2 | 0 | 1 | 0 | 47 | 749 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 4 | 324 | 16 | 0 | 48 | 512 | 72 | 0 | 0 | 0 | 16 | 0 | 60 | 12 | 172 | 0 | 1236 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 16 | 4 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 8 | | | | 0 | | | | 0 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

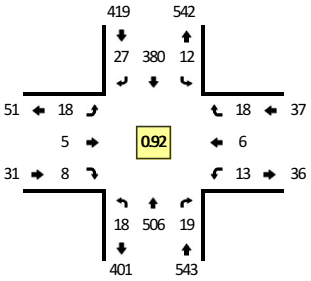
Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

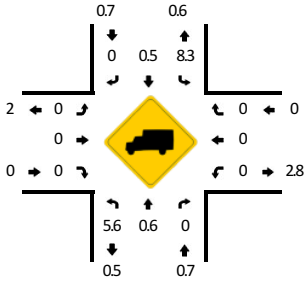
**LOCATION:** 23. N Fowler Ave -- E Teague Ave | **QC JOB #:** 16475538
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

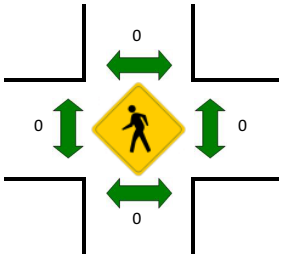
**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:40 PM -- 5:55 PM**

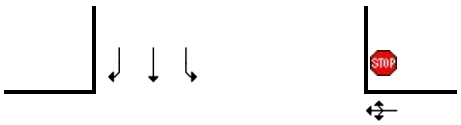


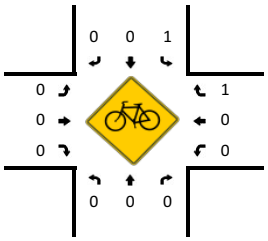


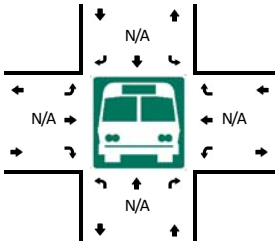




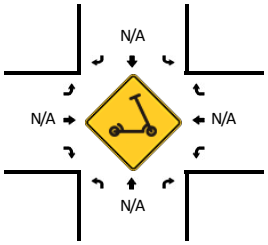










| 5-Min Count Period Beginning At | 23. N Fowler Ave (Northbound) | | | | 23. N Fowler Ave (Southbound) | | | | E Teague Ave (Eastbound) | | | | E Teague Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 1 | 38 | 0 | 0 | 0 | 44 | 3 | 0 | 3 | 0 | 1 | 0 | 4 | 0 | 4 | 0 | 98 | |
| 4:05 PM | 0 | 39 | 2 | 0 | 3 | 40 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 89 | |
| 4:10 PM | 2 | 34 | 3 | 0 | 1 | 30 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | 77 | |
| 4:15 PM | 0 | 27 | 0 | 0 | 1 | 23 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 59 | |
| 4:20 PM | 2 | 32 | 1 | 0 | 0 | 29 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 2 | 0 | 71 | |
| 4:25 PM | 1 | 35 | 2 | 0 | 0 | 19 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 64 | |
| 4:30 PM | 1 | 51 | 3 | 0 | 1 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 79 | |
| 4:35 PM | 0 | 42 | 1 | 0 | 0 | 24 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 70 | |
| 4:40 PM | 0 | 31 | 2 | 0 | 1 | 29 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | |
| 4:45 PM | 2 | 37 | 1 | 0 | 0 | 38 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 85 | |
| 4:50 PM | 2 | 35 | 2 | 0 | 1 | 28 | 5 | 1 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 78 | |
| 4:55 PM | 3 | 37 | 1 | 0 | 0 | 31 | 4 | 0 | 2 | 0 | 1 | 0 | 2 | 1 | 2 | 0 | 84 | 923 |
| 5:00 PM | 1 | 44 | 2 | 0 | 2 | 29 | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 85 | 910 |
| 5:05 PM | 3 | 44 | 4 | 0 | 1 | 28 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 85 | 906 |
| 5:10 PM | 2 | 41 | 1 | 0 | 2 | 34 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 88 | 917 |
| 5:15 PM | 4 | 36 | 0 | 0 | 0 | 41 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 87 | 945 |
| 5:20 PM | 2 | 42 | 2 | 0 | 1 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 0 | 80 | 954 |
| 5:25 PM | 0 | 36 | 2 | 0 | 0 | 40 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 83 | 973 |
| 5:30 PM | 0 | 37 | 0 | 0 | 2 | 34 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 970 |
| 5:35 PM | 0 | 42 | 2 | 0 | 0 | 30 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 82 | 982 |
| 5:40 PM | 0 | 60 | 1 | 0 | 1 | 31 | 2 | 0 | 1 | 0 | 3 | 0 | 0 | 1 | 3 | 0 | 103 | 1016 |
| 5:45 PM | 1 | 47 | 4 | 0 | 1 | 21 | 3 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 84 | 1015 |
| 5:50 PM | 2 | 40 | 0 | 0 | 2 | 37 | 3 | 0 | 3 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 93 | 1030 |
| 5:55 PM | 0 | 30 | 3 | 0 | 1 | 28 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 69 | 1015 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 12 | 588 | 20 | 0 | 16 | 356 | 32 | 0 | 24 | 8 | 16 | 0 | 16 | 8 | 24 | 0 | 1120 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

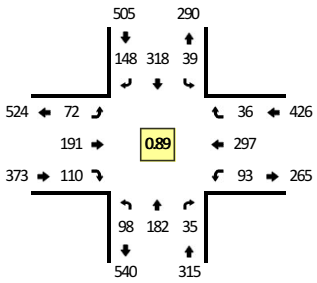
*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

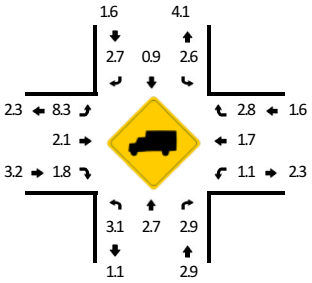
**LOCATION:** 24. N Fowler Ave -- Nees Ave | **QC JOB #:** 16475539
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

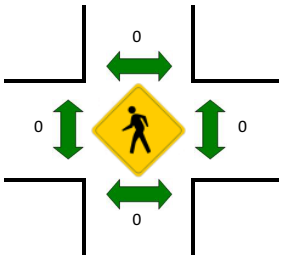
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

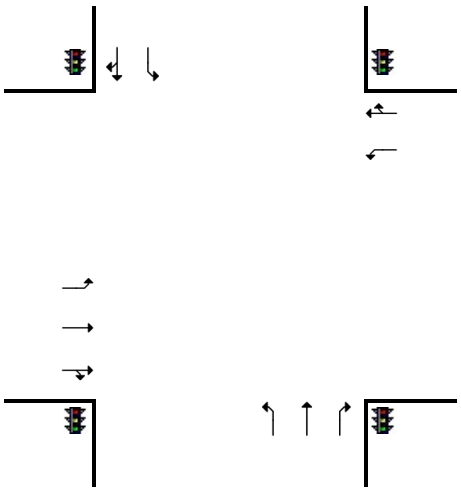


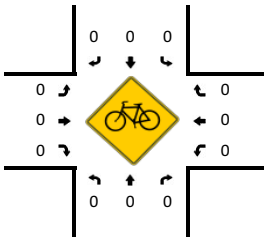


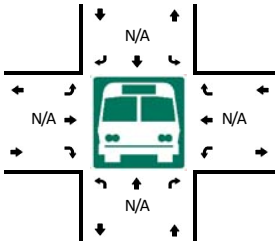

TRUE DATA TO IMPROVE MOBILITY



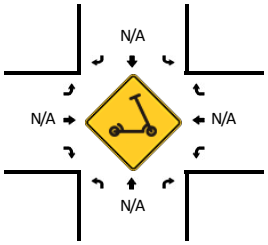








| 5-Min Count Period Beginning At | 24. N Fowler Ave (Northbound) | | | | 24. N Fowler Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 7 | 7 | 3 | 0 | 1 | 16 | 16 | 0 | 3 | 7 | 3 | 0 | 3 | 19 | 3 | 0 | 88 | |
| 7:05 AM | 9 | 12 | 2 | 0 | 4 | 17 | 5 | 0 | 1 | 10 | 6 | 0 | 8 | 9 | 2 | 0 | 85 | |
| 7:10 AM | 3 | 14 | 2 | 2 | 2 | 22 | 12 | 0 | 2 | 14 | 6 | 0 | 1 | 16 | 2 | 0 | 98 | |
| 7:15 AM | 5 | 19 | 2 | 2 | 0 | 21 | 11 | 0 | 5 | 14 | 8 | 0 | 3 | 28 | 4 | 0 | 122 | |
| 7:20 AM | 9 | 13 | 4 | 2 | 6 | 30 | 13 | 0 | 2 | 13 | 9 | 0 | 7 | 22 | 3 | 0 | 133 | |
| 7:25 AM | 3 | 6 | 4 | 1 | 2 | 31 | 10 | 0 | 6 | 16 | 7 | 0 | 10 | 20 | 5 | 0 | 121 | |
| 7:30 AM | 6 | 10 | 7 | 2 | 3 | 19 | 8 | 0 | 4 | 16 | 5 | 0 | 10 | 29 | 2 | 0 | 121 | |
| 7:35 AM | 11 | 19 | 5 | 1 | 4 | 38 | 9 | 0 | 9 | 12 | 4 | 0 | 7 | 15 | 6 | 0 | 140 | |
| 7:40 AM | 9 | 17 | 3 | 1 | 6 | 26 | 15 | 0 | 6 | 15 | 15 | 0 | 6 | 16 | 5 | 0 | 140 | |
| 7:45 AM | 3 | 20 | 3 | 0 | 3 | 32 | 23 | 0 | 8 | 21 | 11 | 0 | 18 | 19 | 2 | 0 | 163 | |
| 7:50 AM | 7 | 13 | 0 | 3 | 4 | 32 | 18 | 0 | 11 | 13 | 11 | 0 | 14 | 25 | 1 | 0 | 152 | |
| 7:55 AM | 7 | 19 | 3 | 0 | 4 | 12 | 12 | 0 | 6 | 14 | 5 | 0 | 6 | 31 | 2 | 0 | 121 | 1484 |
| 8:00 AM | 9 | 8 | 1 | 3 | 2 | 25 | 7 | 0 | 4 | 13 | 11 | 0 | 4 | 31 | 3 | 0 | 121 | 1517 |
| 8:05 AM | 6 | 19 | 1 | 2 | 3 | 33 | 11 | 0 | 3 | 21 | 9 | 0 | 6 | 25 | 2 | 0 | 141 | 1573 |
| 8:10 AM | 4 | 19 | 2 | 2 | 2 | 19 | 11 | 0 | 8 | 23 | 15 | 0 | 2 | 36 | 1 | 0 | 144 | 1619 |
| 8:15 AM | 9 | 17 | 1 | 2 | 1 | 13 | 15 | 0 | 5 | 22 | 9 | 0 | 1 | 19 | 1 | 0 | 115 | 1612 |
| 8:20 AM | 3 | 14 | 0 | 1 | 3 | 33 | 5 | 0 | 8 | 14 | 10 | 0 | 5 | 14 | 1 | 0 | 111 | 1590 |
| 8:25 AM | 6 | 12 | 1 | 1 | 2 | 30 | 8 | 0 | 7 | 27 | 8 | 0 | 2 | 20 | 0 | 0 | 124 | 1593 |
| 8:30 AM | 13 | 16 | 1 | 2 | 3 | 8 | 6 | 0 | 16 | 30 | 11 | 0 | 6 | 28 | 1 | 0 | 141 | 1613 |
| 8:35 AM | 8 | 16 | 1 | 1 | 1 | 25 | 4 | 0 | 18 | 32 | 4 | 0 | 2 | 12 | 0 | 0 | 124 | 1597 |
| 8:40 AM | 5 | 14 | 1 | 4 | 1 | 24 | 5 | 0 | 7 | 29 | 5 | 0 | 0 | 23 | 2 | 0 | 120 | 1577 |
| 8:45 AM | 3 | 11 | 1 | 0 | 3 | 26 | 4 | 0 | 5 | 15 | 4 | 0 | 2 | 11 | 3 | 0 | 88 | 1502 |
| 8:50 AM | 9 | 8 | 6 | 0 | 5 | 12 | 6 | 0 | 1 | 11 | 7 | 0 | 1 | 13 | 0 | 0 | 79 | 1429 |
| 8:55 AM | 10 | 17 | 1 | 1 | 3 | 22 | 13 | 0 | 3 | 16 | 1 | 0 | 5 | 11 | 1 | 0 | 104 | 1412 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 76 | 200 | 24 | 16 | 52 | 360 | 224 | 0 | 100 | 196 | 148 | 0 | 152 | 240 | 32 | 0 | 1820 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 4 | 12 | | 0 | 8 | 4 | | 0 | 8 | 0 | | 40 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

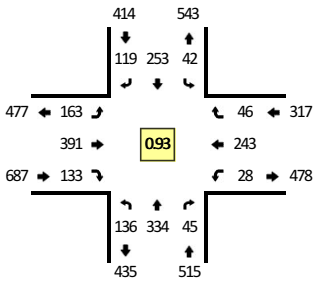
Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

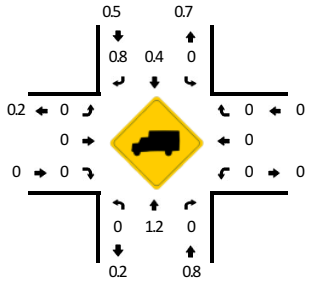
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** 24. N Fowler Ave -- Nees Ave
**CITY/STATE:** Clovis, CA

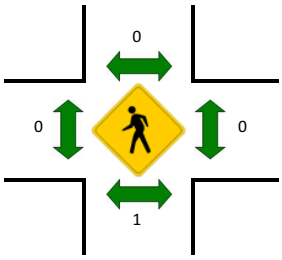
**QC JOB #:** 16475540
**DATE:** Tue, Feb 6 2024

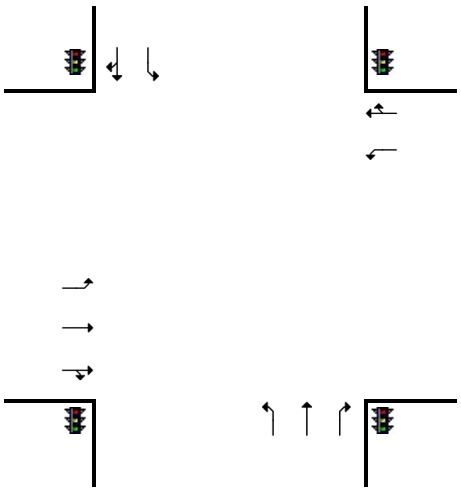
**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

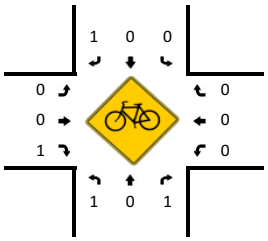


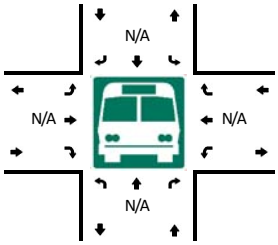




TRUE DATA TO IMPROVE MOBILITY

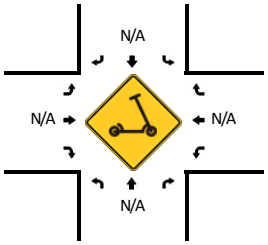







| 5-Min Count Period Beginning At | 24. N Fowler Ave (Northbound) | | | | 24. N Fowler Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 3 | 15 | 4 | 4 | 4 | 23 | 19 | 0 | 19 | 21 | 9 | 0 | 2 | 15 | 3 | 0 | 141 | |
| 4:05 PM | 7 | 25 | 1 | 0 | 9 | 29 | 11 | 0 | 15 | 23 | 10 | 0 | 2 | 10 | 1 | 0 | 143 | |
| 4:10 PM | 9 | 31 | 4 | 0 | 4 | 24 | 9 | 0 | 11 | 28 | 11 | 0 | 3 | 16 | 2 | 0 | 152 | |
| 4:15 PM | 7 | 23 | 1 | 1 | 4 | 25 | 3 | 0 | 9 | 21 | 7 | 0 | 0 | 16 | 3 | 0 | 120 | |
| 4:20 PM | 8 | 24 | 4 | 1 | 1 | 23 | 6 | 0 | 12 | 41 | 8 | 0 | 4 | 12 | 8 | 0 | 152 | |
| 4:25 PM | 6 | 29 | 3 | 2 | 5 | 17 | 9 | 0 | 11 | 27 | 7 | 0 | 3 | 15 | 0 | 0 | 134 | |
| 4:30 PM | 6 | 34 | 5 | 0 | 0 | 15 | 5 | 0 | 10 | 34 | 4 | 0 | 3 | 19 | 3 | 0 | 138 | |
| 4:35 PM | 1 | 34 | 5 | 2 | 1 | 13 | 5 | 0 | 7 | 28 | 8 | 0 | 3 | 11 | 1 | 0 | 119 | |
| 4:40 PM | 10 | 31 | 5 | 0 | 2 | 24 | 10 | 0 | 4 | 17 | 13 | 0 | 3 | 27 | 5 | 0 | 151 | |
| 4:45 PM | 13 | 34 | 2 | 0 | 1 | 15 | 18 | 0 | 11 | 20 | 4 | 0 | 2 | 17 | 2 | 0 | 139 | |
| 4:50 PM | 11 | 29 | 5 | 2 | 2 | 20 | 11 | 0 | 7 | 33 | 11 | 0 | 3 | 25 | 5 | 0 | 164 | |
| 4:55 PM | 12 | 27 | 2 | 2 | 2 | 25 | 9 | 0 | 10 | 18 | 5 | 0 | 0 | 23 | 3 | 0 | 138 | 1691 |
| 5:00 PM | 4 | 28 | 1 | 2 | 0 | 19 | 8 | 0 | 15 | 27 | 6 | 0 | 4 | 17 | 1 | 0 | 132 | 1682 |
| 5:05 PM | 14 | 32 | 3 | 2 | 2 | 20 | 15 | 0 | 15 | 32 | 9 | 0 | 1 | 18 | 7 | 0 | 170 | 1709 |
| 5:10 PM | 5 | 20 | 3 | 0 | 6 | 16 | 8 | 0 | 16 | 31 | 12 | 0 | 2 | 34 | 5 | 0 | 158 | 1715 |
| 5:15 PM | 7 | 32 | 5 | 1 | 6 | 30 | 9 | 0 | 16 | 33 | 13 | 0 | 1 | 16 | 0 | 0 | 169 | 1764 |
| 5:20 PM | 16 | 27 | 4 | 1 | 4 | 19 | 11 | 0 | 10 | 31 | 14 | 0 | 2 | 24 | 4 | 0 | 167 | 1779 |
| 5:25 PM | 8 | 26 | 5 | 3 | 4 | 26 | 12 | 0 | 12 | 28 | 14 | 0 | 4 | 16 | 3 | 0 | 161 | 1806 |
| 5:30 PM | 2 | 27 | 2 | 3 | 3 | 17 | 14 | 0 | 13 | 50 | 10 | 0 | 2 | 23 | 4 | 0 | 170 | 1838 |
| 5:35 PM | 14 | 24 | 6 | 0 | 4 | 20 | 10 | 0 | 18 | 37 | 12 | 0 | 1 | 15 | 5 | 0 | 166 | 1885 |
| 5:40 PM | 11 | 34 | 6 | 5 | 5 | 23 | 8 | 0 | 16 | 33 | 14 | 0 | 4 | 16 | 7 | 0 | 182 | 1916 |
| 5:45 PM | 11 | 28 | 3 | 0 | 4 | 18 | 4 | 0 | 15 | 38 | 13 | 0 | 4 | 16 | 2 | 0 | 156 | 1933 |
| 5:50 PM | 8 | 26 | 4 | 1 | 1 | 20 | 9 | 0 | 11 | 46 | 7 | 0 | 3 | 20 | 1 | 0 | 157 | 1926 |
| 5:55 PM | 5 | 21 | 2 | 0 | 5 | 20 | 12 | 0 | 14 | 21 | 10 | 0 | 2 | 13 | 1 | 0 | 126 | 1914 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 108 | 340 | 56 | 32 | 48 | 240 | 128 | 0 | 188 | 480 | 144 | 0 | 28 | 216 | 64 | 0 | 2072 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

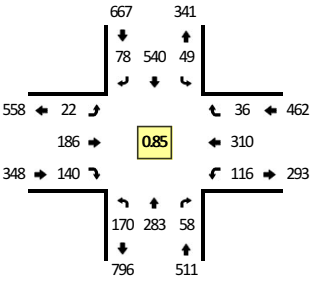
Type of peak hour being reported: Intersection Peak

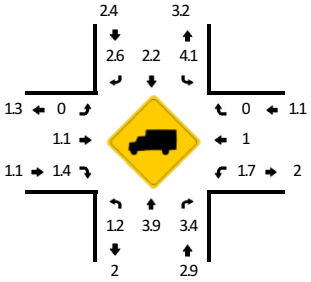
Method for determining peak hour: Total Entering Volume

**LOCATION:** 25. N Fowler Ave -- Alluvial Ave
**CITY/STATE:** Clovis, CA

**QC JOB #:** 16475541
**DATE:** Tue, Feb 6 2024

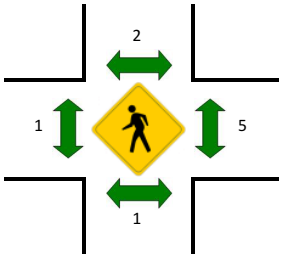
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

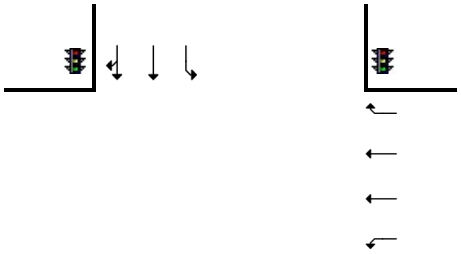


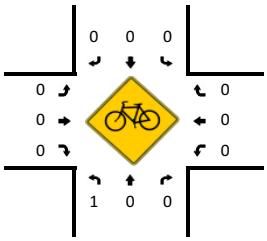



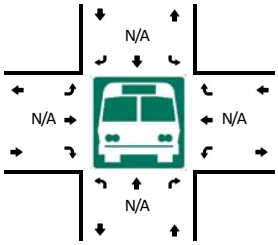


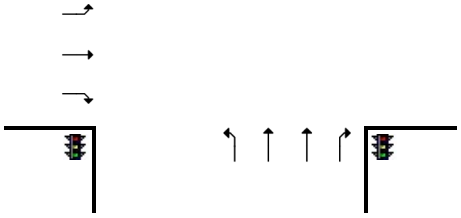


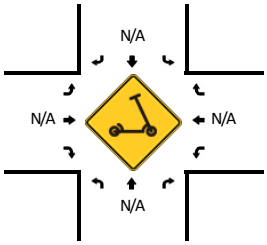







| 5-Min Count Period Beginning At | 25. N Fowler Ave (Northbound) | | | | 25. N Fowler Ave (Southbound) | | | | Alluvial Ave (Eastbound) | | | | Alluvial Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 3 | 15 | 3 | 0 | 2 | 28 | 2 | 0 | 0 | 6 | 6 | 0 | 6 | 9 | 1 | 0 | 81 | |
| 7:05 AM | 9 | 22 | 5 | 0 | 0 | 31 | 3 | 0 | 0 | 11 | 10 | 0 | 6 | 6 | 1 | 0 | 104 | |
| 7:10 AM | 7 | 24 | 5 | 0 | 0 | 41 | 3 | 0 | 0 | 10 | 10 | 0 | 10 | 4 | 2 | 0 | 116 | |
| 7:15 AM | 4 | 23 | 5 | 0 | 2 | 37 | 1 | 0 | 1 | 11 | 5 | 0 | 14 | 17 | 2 | 0 | 122 | |
| 7:20 AM | 8 | 26 | 6 | 0 | 0 | 52 | 2 | 0 | 0 | 9 | 8 | 0 | 13 | 7 | 3 | 0 | 134 | |
| 7:25 AM | 7 | 9 | 2 | 0 | 1 | 47 | 3 | 0 | 2 | 11 | 14 | 0 | 13 | 21 | 2 | 0 | 132 | |
| 7:30 AM | 13 | 22 | 6 | 0 | 2 | 56 | 3 | 0 | 0 | 10 | 10 | 0 | 13 | 13 | 4 | 0 | 152 | |
| 7:35 AM | 20 | 27 | 4 | 0 | 2 | 43 | 5 | 0 | 2 | 16 | 22 | 0 | 17 | 34 | 5 | 0 | 197 | |
| 7:40 AM | 23 | 29 | 7 | 0 | 11 | 53 | 6 | 0 | 2 | 13 | 12 | 0 | 7 | 21 | 6 | 0 | 190 | |
| 7:45 AM | 13 | 23 | 4 | 0 | 4 | 52 | 5 | 0 | 3 | 17 | 9 | 0 | 13 | 42 | 4 | 0 | 189 | |
| 7:50 AM | 14 | 30 | 8 | 0 | 9 | 63 | 8 | 0 | 2 | 24 | 13 | 0 | 13 | 21 | 4 | 0 | 209 | |
| 7:55 AM | 18 | 19 | 6 | 0 | 3 | 40 | 5 | 0 | 4 | 20 | 19 | 0 | 9 | 33 | 2 | 0 | 178 | 1804 |
| 8:00 AM | 12 | 24 | 6 | 0 | 5 | 43 | 11 | 0 | 1 | 14 | 3 | 0 | 9 | 20 | 5 | 0 | 153 | 1876 |
| 8:05 AM | 12 | 20 | 3 | 0 | 3 | 30 | 11 | 0 | 1 | 20 | 10 | 0 | 9 | 37 | 2 | 0 | 158 | 1930 |
| 8:10 AM | 14 | 23 | 2 | 0 | 8 | 45 | 8 | 0 | 1 | 11 | 9 | 0 | 11 | 29 | 1 | 0 | 162 | 1976 |
| 8:15 AM | 11 | 19 | 2 | 0 | 0 | 40 | 3 | 0 | 3 | 12 | 6 | 0 | 9 | 24 | 1 | 0 | 130 | 1984 |
| 8:20 AM | 11 | 21 | 5 | 0 | 0 | 33 | 5 | 0 | 1 | 13 | 16 | 0 | 4 | 15 | 2 | 0 | 126 | 1976 |
| 8:25 AM | 9 | 26 | 5 | 0 | 2 | 42 | 8 | 0 | 2 | 16 | 11 | 0 | 2 | 21 | 0 | 0 | 144 | 1988 |
| 8:30 AM | 8 | 34 | 5 | 0 | 2 | 35 | 5 | 0 | 5 | 13 | 8 | 0 | 11 | 8 | 1 | 0 | 135 | 1971 |
| 8:35 AM | 7 | 29 | 6 | 1 | 0 | 27 | 2 | 0 | 0 | 11 | 20 | 0 | 5 | 16 | 0 | 0 | 124 | 1898 |
| 8:40 AM | 6 | 25 | 7 | 0 | 0 | 42 | 3 | 1 | 5 | 14 | 7 | 0 | 2 | 19 | 0 | 0 | 131 | 1839 |
| 8:45 AM | 7 | 10 | 3 | 0 | 2 | 29 | 3 | 0 | 1 | 13 | 8 | 0 | 8 | 12 | 1 | 0 | 97 | 1747 |
| 8:50 AM | 7 | 23 | 4 | 0 | 1 | 22 | 1 | 0 | 2 | 14 | 11 | 0 | 6 | 9 | 1 | 0 | 101 | 1639 |
| 8:55 AM | 6 | 30 | 3 | 0 | 1 | 27 | 4 | 0 | 4 | 7 | 3 | 0 | 0 | 8 | 2 | 0 | 95 | 1556 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 200 | 328 | 76 | 0 | 96 | 672 | 76 | 0 | 28 | 216 | 136 | 0 | 132 | 336 | 56 | 0 | 2352 |
| Heavy Trucks | 0 | 8 | 4 | | 4 | 8 | 8 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 36 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 16 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

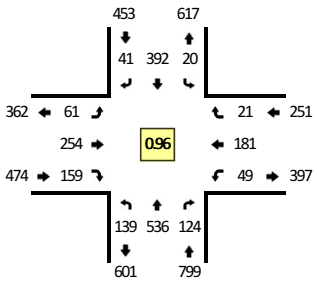
Type of peak hour being reported: Intersection Peak

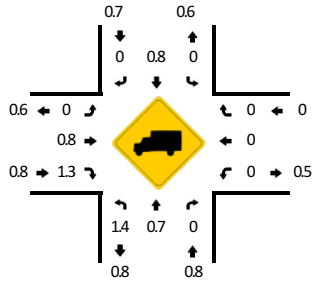
Method for determining peak hour: Total Entering Volume

**LOCATION:** 25. N Fowler Ave -- Alluvial Ave
**CITY/STATE:** Clovis, CA

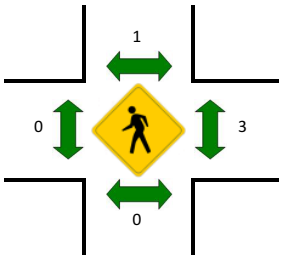
**QC JOB #:** 16475542
**DATE:** Tue, Feb 6 2024

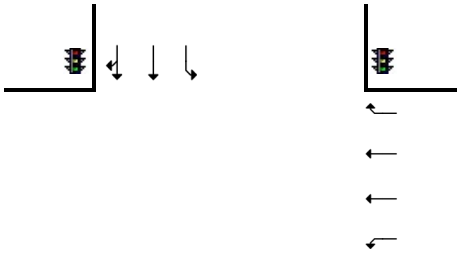
**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

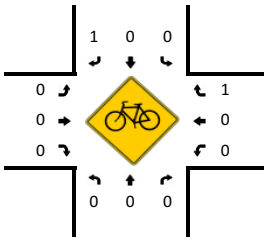


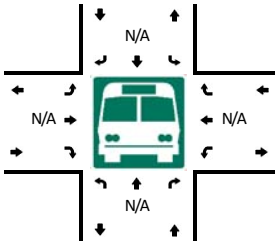



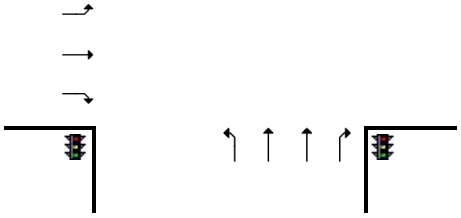

TRUE DATA TO IMPROVE MOBILITY

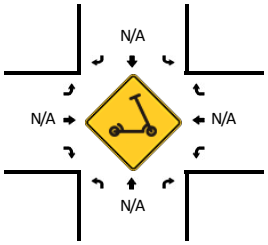







| 5-Min Count Period Beginning At | 25. N Fowler Ave (Northbound) | | | | 25. N Fowler Ave (Southbound) | | | | Alluvial Ave (Eastbound) | | | | Alluvial Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 11 | 34 | 7 | 2 | 2 | 42 | 0 | 0 | 8 | 19 | 12 | 0 | 4 | 6 | 0 | 0 | 147 | |
| 4:05 PM | 10 | 44 | 10 | 0 | 4 | 32 | 3 | 0 | 6 | 18 | 11 | 0 | 2 | 12 | 3 | 0 | 155 | |
| 4:10 PM | 8 | 43 | 3 | 1 | 3 | 41 | 8 | 0 | 7 | 13 | 18 | 0 | 3 | 11 | 5 | 0 | 164 | |
| 4:15 PM | 7 | 30 | 11 | 1 | 1 | 26 | 1 | 0 | 1 | 25 | 12 | 0 | 4 | 14 | 1 | 0 | 134 | |
| 4:20 PM | 14 | 52 | 4 | 0 | 1 | 38 | 1 | 0 | 3 | 17 | 9 | 0 | 3 | 9 | 3 | 0 | 154 | |
| 4:25 PM | 12 | 35 | 10 | 0 | 1 | 23 | 4 | 0 | 3 | 22 | 13 | 0 | 5 | 8 | 3 | 0 | 139 | |
| 4:30 PM | 9 | 74 | 11 | 0 | 1 | 35 | 3 | 0 | 4 | 20 | 15 | 0 | 5 | 11 | 2 | 0 | 190 | |
| 4:35 PM | 9 | 44 | 8 | 0 | 0 | 23 | 1 | 0 | 6 | 16 | 12 | 0 | 2 | 10 | 0 | 0 | 131 | |
| 4:40 PM | 11 | 47 | 9 | 0 | 0 | 37 | 3 | 0 | 7 | 12 | 18 | 0 | 2 | 23 | 4 | 0 | 173 | |
| 4:45 PM | 11 | 47 | 9 | 0 | 0 | 28 | 5 | 0 | 3 | 21 | 11 | 0 | 6 | 20 | 3 | 0 | 164 | |
| 4:50 PM | 10 | 36 | 14 | 0 | 1 | 28 | 4 | 0 | 4 | 15 | 13 | 1 | 5 | 20 | 4 | 0 | 155 | |
| 4:55 PM | 10 | 55 | 14 | 0 | 2 | 24 | 7 | 0 | 4 | 21 | 12 | 0 | 3 | 16 | 2 | 0 | 170 | 1876 |
| 5:00 PM | 6 | 43 | 8 | 0 | 0 | 38 | 3 | 0 | 2 | 18 | 11 | 0 | 3 | 15 | 1 | 0 | 148 | 1877 |
| 5:05 PM | 6 | 40 | 7 | 1 | 2 | 35 | 1 | 0 | 8 | 31 | 15 | 0 | 7 | 15 | 3 | 0 | 171 | 1893 |
| 5:10 PM | 21 | 43 | 10 | 0 | 1 | 26 | 4 | 0 | 2 | 16 | 11 | 0 | 3 | 19 | 1 | 0 | 157 | 1886 |
| 5:15 PM | 10 | 52 | 10 | 0 | 2 | 37 | 3 | 0 | 6 | 15 | 16 | 0 | 5 | 15 | 2 | 0 | 173 | 1925 |
| 5:20 PM | 15 | 45 | 9 | 0 | 6 | 30 | 1 | 0 | 4 | 29 | 15 | 1 | 3 | 16 | 1 | 0 | 175 | 1946 |
| 5:25 PM | 12 | 26 | 12 | 0 | 1 | 36 | 3 | 0 | 9 | 18 | 17 | 0 | 4 | 11 | 1 | 0 | 150 | 1957 |
| 5:30 PM | 18 | 39 | 12 | 0 | 2 | 37 | 3 | 0 | 8 | 16 | 8 | 0 | 2 | 13 | 0 | 0 | 158 | 1925 |
| 5:35 PM | 13 | 55 | 10 | 0 | 2 | 29 | 3 | 1 | 3 | 24 | 17 | 0 | 6 | 7 | 2 | 0 | 172 | 1966 |
| 5:40 PM | 6 | 55 | 9 | 0 | 0 | 44 | 4 | 0 | 6 | 30 | 13 | 0 | 2 | 14 | 1 | 0 | 184 | 1977 |
| 5:45 PM | 9 | 40 | 5 | 2 | 0 | 39 | 2 | 0 | 3 | 15 | 9 | 0 | 6 | 10 | 2 | 0 | 142 | 1955 |
| 5:50 PM | 13 | 40 | 14 | 1 | 2 | 29 | 4 | 0 | 7 | 18 | 14 | 0 | 1 | 7 | 3 | 0 | 153 | 1953 |
| 5:55 PM | 13 | 36 | 9 | 0 | 1 | 36 | 5 | 0 | 3 | 18 | 12 | 0 | 5 | 8 | 2 | 0 | 148 | 1931 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 148 | 596 | 124 | 0 | 16 | 440 | 40 | 4 | 68 | 280 | 152 | 0 | 40 | 136 | 12 | 0 | 2056 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 4 | | 0 | 0 | 0 | | 12 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 12 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

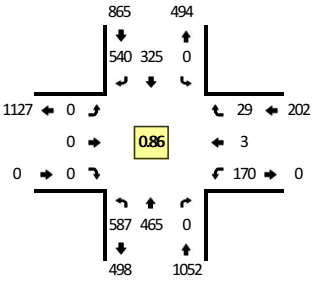
Report generated on 2/23/2024 2:42 PM

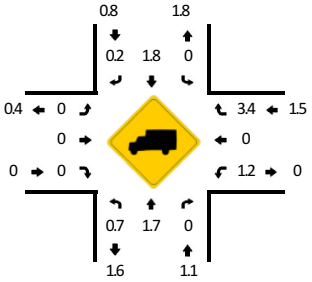
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

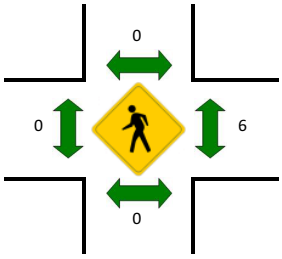
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

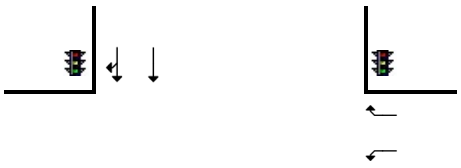
**LOCATION:** 26. N Fowler Ave -- SR 168 WB Ramps | **QC JOB #:** 16475543
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

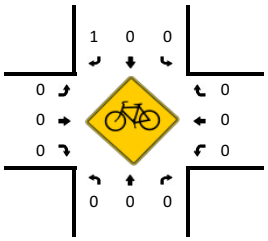
**Peak-Hour: 7:10 AM -- 8:10 AM**
**Peak 15-Min: 7:30 AM -- 7:45 AM**

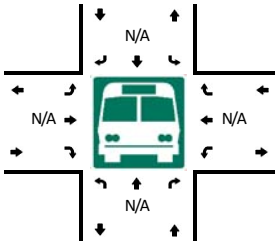


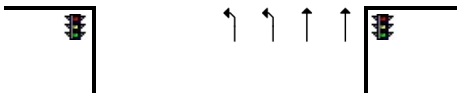



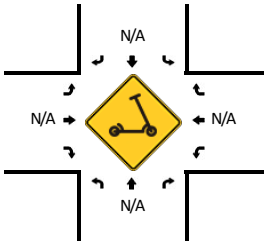








| 5-Min Count Period Beginning At | 26. N Fowler Ave (Northbound) | | | | 26. N Fowler Ave (Southbound) | | | | SR 168 WB Ramps (Eastbound) | | | | SR 168 WB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 27 | 21 | 0 | 0 | 0 | 18 | 26 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 1 | 0 | 102 | |
| 7:05 AM | 33 | 26 | 0 | 0 | 0 | 16 | 35 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 4 | 0 | 122 | |
| 7:10 AM | 48 | 30 | 0 | 0 | 0 | 20 | 36 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 1 | 0 | 147 | |
| 7:15 AM | 43 | 31 | 0 | 0 | 0 | 15 | 41 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 2 | 0 | 148 | |
| 7:20 AM | 39 | 40 | 0 | 1 | 0 | 27 | 51 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 3 | 0 | 168 | |
| 7:25 AM | 53 | 23 | 0 | 1 | 0 | 33 | 48 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 168 | |
| 7:30 AM | 62 | 39 | 0 | 0 | 0 | 25 | 56 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 2 | 0 | 198 | |
| 7:35 AM | 75 | 53 | 0 | 0 | 0 | 16 | 52 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 3 | 0 | 218 | |
| 7:40 AM | 55 | 52 | 0 | 1 | 0 | 23 | 55 | 0 | 0 | 0 | 0 | 0 | 14 | 1 | 2 | 0 | 203 | |
| 7:45 AM | 53 | 44 | 0 | 0 | 0 | 27 | 50 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 5 | 0 | 192 | |
| 7:50 AM | 34 | 32 | 0 | 0 | 0 | 43 | 54 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 3 | 0 | 188 | |
| 7:55 AM | 51 | 53 | 0 | 0 | 0 | 35 | 37 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 1 | 0 | 192 | 2046 |
| 8:00 AM | 41 | 26 | 0 | 0 | 0 | 39 | 33 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 6 | 0 | 167 | 2111 |
| 8:05 AM | 30 | 42 | 0 | 0 | 0 | 22 | 27 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 130 | 2119 |
| 8:10 AM | 30 | 35 | 0 | 0 | 0 | 36 | 34 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 143 | 2115 |
| 8:15 AM | 34 | 28 | 0 | 1 | 0 | 28 | 32 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 3 | 0 | 137 | 2104 |
| 8:20 AM | 37 | 35 | 0 | 0 | 0 | 23 | 21 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 130 | 2066 |
| 8:25 AM | 20 | 38 | 0 | 2 | 0 | 47 | 17 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 1 | 0 | 132 | 2030 |
| 8:30 AM | 41 | 39 | 0 | 2 | 0 | 20 | 32 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 0 | 149 | 1981 |
| 8:35 AM | 28 | 39 | 0 | 0 | 0 | 28 | 25 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 128 | 1891 |
| 8:40 AM | 38 | 36 | 0 | 1 | 0 | 27 | 24 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 134 | 1822 |
| 8:45 AM | 42 | 22 | 0 | 1 | 0 | 21 | 23 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 2 | 0 | 123 | 1753 |
| 8:50 AM | 28 | 29 | 0 | 2 | 0 | 26 | 22 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | 117 | 1682 |
| 8:55 AM | 25 | 42 | 0 | 2 | 0 | 12 | 17 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 0 | 110 | 1600 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 768 | 576 | 0 | 4 | 0 | 256 | 652 | 0 | 0 | 0 | 0 | 0 | 188 | 4 | 28 | 0 | 2476 |
| Heavy Trucks | 8 | 8 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 12 | | | 12 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

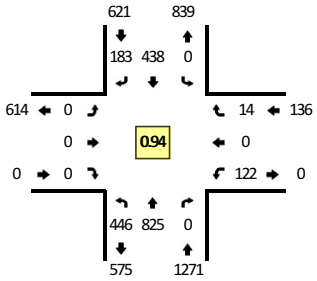
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 26. N Fowler Ave -- SR 168 WB Ramps
**CITY/STATE:** Clovis, CA

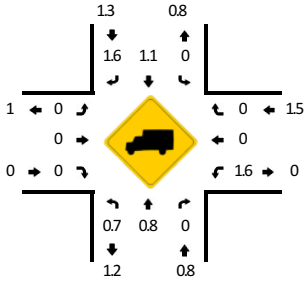
**QC JOB #:** 16475544
**DATE:** Tue, Feb 6 2024

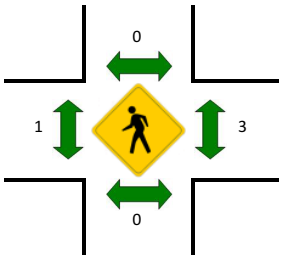
**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

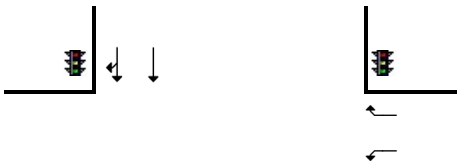


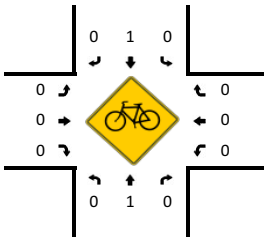


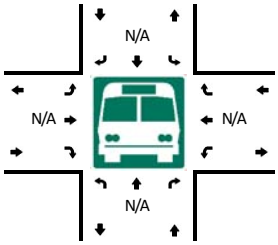


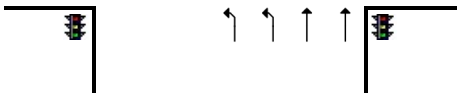


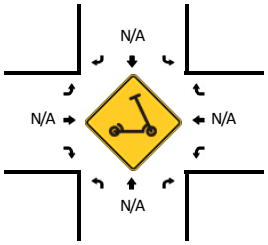








| 5-Min Count Period Beginning At | 26. N Fowler Ave (Northbound) | | | | 26. N Fowler Ave (Southbound) | | | | SR 168 WB Ramps (Eastbound) | | | | SR 168 WB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 32 | 45 | 0 | 2 | 0 | 42 | 23 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 2 | 0 | 158 | |
| 4:05 PM | 33 | 56 | 0 | 4 | 0 | 26 | 13 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 142 | |
| 4:10 PM | 33 | 58 | 0 | 3 | 0 | 41 | 16 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 163 | |
| 4:15 PM | 23 | 54 | 0 | 4 | 0 | 37 | 15 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 1 | 0 | 146 | |
| 4:20 PM | 41 | 73 | 0 | 1 | 0 | 27 | 16 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 164 | |
| 4:25 PM | 28 | 58 | 0 | 3 | 0 | 37 | 12 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 3 | 0 | 160 | |
| 4:30 PM | 45 | 85 | 0 | 2 | 0 | 38 | 12 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 0 | 194 | |
| 4:35 PM | 48 | 67 | 0 | 1 | 0 | 32 | 8 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 2 | 0 | 167 | |
| 4:40 PM | 26 | 75 | 0 | 3 | 0 | 41 | 15 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 165 | |
| 4:45 PM | 27 | 76 | 0 | 0 | 0 | 38 | 18 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 166 | |
| 4:50 PM | 29 | 72 | 0 | 1 | 0 | 34 | 12 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 160 | |
| 4:55 PM | 36 | 65 | 0 | 1 | 0 | 26 | 12 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 0 | 155 | 1940 |
| 5:00 PM | 28 | 57 | 0 | 1 | 0 | 29 | 18 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 145 | 1927 |
| 5:05 PM | 63 | 70 | 0 | 1 | 0 | 42 | 20 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 208 | 1993 |
| 5:10 PM | 43 | 56 | 0 | 2 | 0 | 27 | 11 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 3 | 0 | 150 | 1980 |
| 5:15 PM | 27 | 79 | 0 | 4 | 0 | 45 | 16 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 2 | 0 | 184 | 2018 |
| 5:20 PM | 27 | 72 | 0 | 2 | 0 | 38 | 14 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 161 | 2015 |
| 5:25 PM | 38 | 56 | 0 | 0 | 0 | 38 | 17 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 2 | 0 | 162 | 2017 |
| 5:30 PM | 41 | 78 | 0 | 1 | 0 | 45 | 9 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 184 | 2007 |
| 5:35 PM | 38 | 57 | 0 | 1 | 0 | 35 | 19 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 1 | 0 | 167 | 2007 |
| 5:40 PM | 34 | 87 | 0 | 1 | 0 | 41 | 17 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 186 | 2028 |
| 5:45 PM | 13 | 52 | 0 | 1 | 0 | 41 | 19 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 137 | 1999 |
| 5:50 PM | 31 | 63 | 0 | 0 | 0 | 34 | 18 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | 156 | 1995 |
| 5:55 PM | 17 | 62 | 0 | 1 | 0 | 37 | 13 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | 140 | 1980 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 532 | 820 | 0 | 28 | 0 | 456 | 188 | 0 | 0 | 0 | 0 | 0 | 124 | 0 | 20 | 0 | 2168 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 12 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 27. N Fowler Ave -- SR 168 EB Ramps

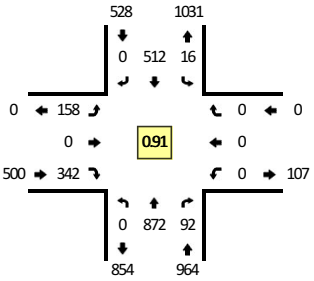
**CITY/STATE:** Clovis, CA

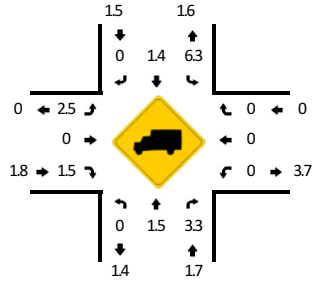
**QC JOB #:** 16475545

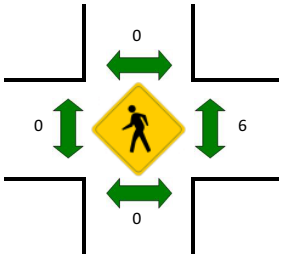
**DATE:** Tue, Feb 6 2024

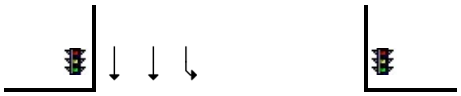
**Peak-Hour: 7:20 AM -- 8:20 AM**

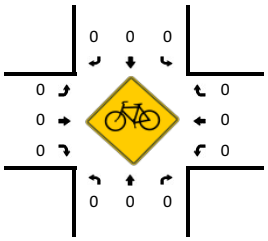
**Peak 15-Min: 7:30 AM -- 7:45 AM**

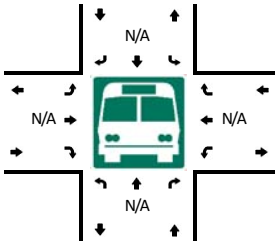


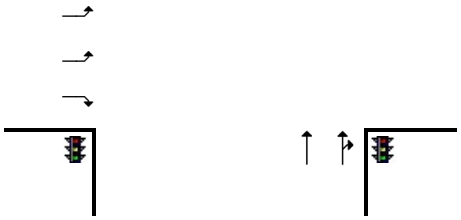



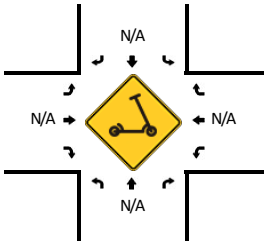








| 5-Min Count Period Beginning At | 27. N Fowler Ave (Northbound) | | | | 27. N Fowler Ave (Southbound) | | | | SR 168 EB Ramps (Eastbound) | | | | SR 168 EB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 52 | 3 | 0 | 1 | 26 | 0 | 0 | 4 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 97 | |
| 7:05 AM | 0 | 52 | 9 | 0 | 0 | 22 | 0 | 0 | 7 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 105 | |
| 7:10 AM | 0 | 60 | 7 | 0 | 3 | 31 | 0 | 0 | 11 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 131 | |
| 7:15 AM | 0 | 67 | 8 | 0 | 1 | 29 | 0 | 0 | 8 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 125 | |
| 7:20 AM | 0 | 64 | 12 | 0 | 0 | 35 | 0 | 0 | 19 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 157 | |
| 7:25 AM | 0 | 74 | 8 | 0 | 2 | 40 | 0 | 0 | 8 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 163 | |
| 7:30 AM | 0 | 85 | 8 | 0 | 2 | 37 | 0 | 0 | 14 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 177 | |
| 7:35 AM | 0 | 108 | 8 | 0 | 1 | 38 | 0 | 1 | 15 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 194 | |
| 7:40 AM | 0 | 89 | 4 | 0 | 0 | 38 | 0 | 0 | 16 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 176 | |
| 7:45 AM | 0 | 70 | 6 | 0 | 4 | 36 | 0 | 0 | 21 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 161 | |
| 7:50 AM | 0 | 68 | 5 | 0 | 0 | 61 | 0 | 0 | 11 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 178 | |
| 7:55 AM | 0 | 82 | 8 | 0 | 0 | 59 | 0 | 0 | 16 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 196 | 1860 |
| 8:00 AM | 0 | 53 | 7 | 0 | 1 | 56 | 0 | 0 | 10 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 154 | 1917 |
| 8:05 AM | 0 | 71 | 6 | 0 | 0 | 35 | 0 | 0 | 10 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 148 | 1960 |
| 8:10 AM | 0 | 53 | 7 | 0 | 1 | 40 | 0 | 0 | 11 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 141 | 1970 |
| 8:15 AM | 0 | 55 | 13 | 0 | 4 | 37 | 0 | 0 | 7 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 147 | 1992 |
| 8:20 AM | 0 | 57 | 8 | 0 | 1 | 36 | 0 | 0 | 15 | 1 | 34 | 0 | 0 | 0 | 0 | 0 | 152 | 1987 |
| 8:25 AM | 0 | 41 | 7 | 0 | 2 | 54 | 0 | 0 | 21 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 154 | 1978 |
| 8:30 AM | 0 | 62 | 10 | 0 | 3 | 33 | 0 | 0 | 18 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 147 | 1948 |
| 8:35 AM | 0 | 60 | 5 | 0 | 0 | 35 | 0 | 0 | 13 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 137 | 1891 |
| 8:40 AM | 0 | 53 | 5 | 0 | 2 | 36 | 0 | 0 | 15 | 1 | 20 | 0 | 0 | 0 | 0 | 0 | 132 | 1847 |
| 8:45 AM | 0 | 53 | 7 | 0 | 0 | 34 | 0 | 0 | 8 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 127 | 1813 |
| 8:50 AM | 0 | 57 | 6 | 0 | 0 | 34 | 0 | 0 | 10 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 127 | 1762 |
| 8:55 AM | 0 | 54 | 6 | 0 | 1 | 26 | 0 | 0 | 13 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 121 | 1687 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 1128 | 80 | 0 | 12 | 452 | 0 | 4 | 180 | 0 | 332 | 0 | 0 | 0 | 0 | 0 | 2188 |
| Heavy Trucks | 0 | 12 | 4 | | 4 | 0 | 0 | | 4 | 0 | 4 | | 0 | 0 | 0 | | 28 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 8 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

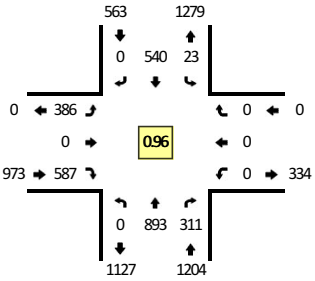
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 27. N Fowler Ave -- SR 168 EB Ramps
**CITY/STATE:** Clovis, CA

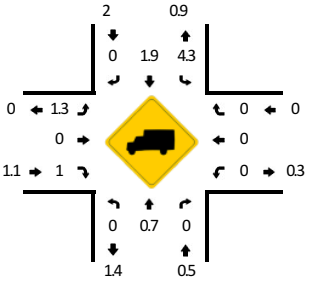
**QC JOB #:** 16475546
**DATE:** Tue, Feb 6 2024

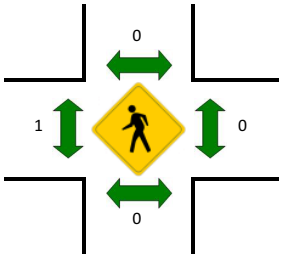
**Peak-Hour: 4:25 PM -- 5:25 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

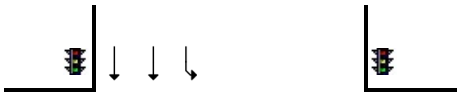


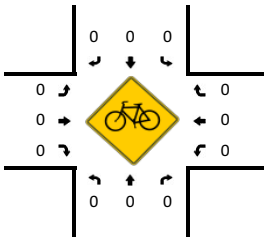


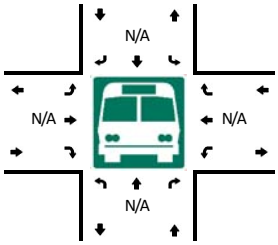


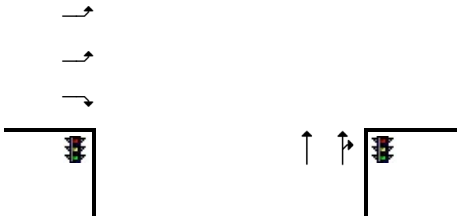


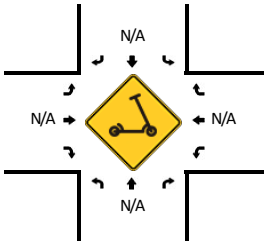








| 5-Min Count Period Beginning At | 27. N Fowler Ave (Northbound) | | | | 27. N Fowler Ave (Southbound) | | | | SR 168 EB Ramps (Eastbound) | | | | SR 168 EB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 56 | 28 | 0 | 1 | 60 | 0 | 0 | 22 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 207 | |
| 4:05 PM | 0 | 73 | 19 | 0 | 0 | 39 | 0 | 0 | 22 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 207 | |
| 4:10 PM | 0 | 64 | 21 | 0 | 3 | 52 | 0 | 0 | 22 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 209 | |
| 4:15 PM | 0 | 65 | 21 | 0 | 1 | 51 | 0 | 0 | 26 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 210 | |
| 4:20 PM | 0 | 73 | 22 | 0 | 3 | 33 | 0 | 0 | 34 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 209 | |
| 4:25 PM | 0 | 69 | 18 | 0 | 1 | 54 | 0 | 0 | 32 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 223 | |
| 4:30 PM | 0 | 78 | 29 | 0 | 2 | 49 | 0 | 0 | 48 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 240 | |
| 4:35 PM | 0 | 74 | 33 | 0 | 1 | 39 | 0 | 0 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 222 | |
| 4:40 PM | 0 | 71 | 18 | 0 | 6 | 38 | 0 | 0 | 35 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 211 | |
| 4:45 PM | 0 | 70 | 29 | 0 | 5 | 39 | 0 | 0 | 33 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 233 | |
| 4:50 PM | 0 | 64 | 26 | 0 | 1 | 47 | 0 | 0 | 33 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 222 | |
| 4:55 PM | 0 | 83 | 34 | 0 | 3 | 42 | 0 | 0 | 22 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 237 | 2630 |
| 5:00 PM | 0 | 71 | 22 | 0 | 1 | 39 | 0 | 0 | 25 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 205 | 2628 |
| 5:05 PM | 0 | 90 | 32 | 0 | 0 | 56 | 0 | 0 | 32 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 254 | 2675 |
| 5:10 PM | 0 | 80 | 21 | 0 | 1 | 34 | 0 | 0 | 23 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 218 | 2684 |
| 5:15 PM | 0 | 69 | 25 | 0 | 0 | 53 | 0 | 0 | 39 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 244 | 2718 |
| 5:20 PM | 0 | 74 | 24 | 0 | 2 | 50 | 0 | 0 | 29 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 231 | 2740 |
| 5:25 PM | 0 | 71 | 22 | 0 | 1 | 50 | 0 | 0 | 26 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 205 | 2722 |
| 5:30 PM | 0 | 82 | 24 | 0 | 3 | 43 | 0 | 0 | 27 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 221 | 2703 |
| 5:35 PM | 0 | 78 | 27 | 1 | 4 | 55 | 0 | 0 | 24 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 217 | 2698 |
| 5:40 PM | 0 | 77 | 23 | 0 | 0 | 52 | 0 | 0 | 32 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 222 | 2709 |
| 5:45 PM | 0 | 43 | 30 | 0 | 4 | 43 | 0 | 0 | 27 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 199 | 2675 |
| 5:50 PM | 0 | 62 | 16 | 0 | 1 | 46 | 0 | 0 | 27 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 183 | 2636 |
| 5:55 PM | 0 | 59 | 23 | 0 | 5 | 36 | 0 | 0 | 33 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 198 | 2597 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 956 | 312 | 0 | 4 | 572 | 0 | 0 | 376 | 0 | 644 | 0 | 0 | 0 | 0 | 0 | 2864 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 8 | 0 | | 8 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 4 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

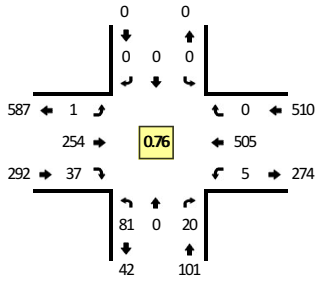
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** 28. N Armstrong Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

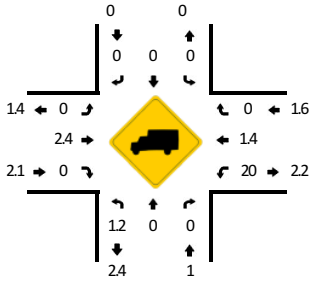
**QC JOB #:** 16475547
**DATE:** Tue, Feb 6 2024

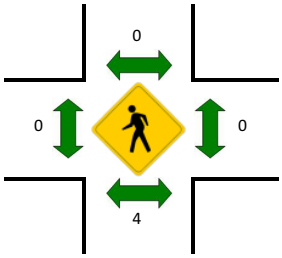
**Peak-Hour: 7:25 AM -- 8:25 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**

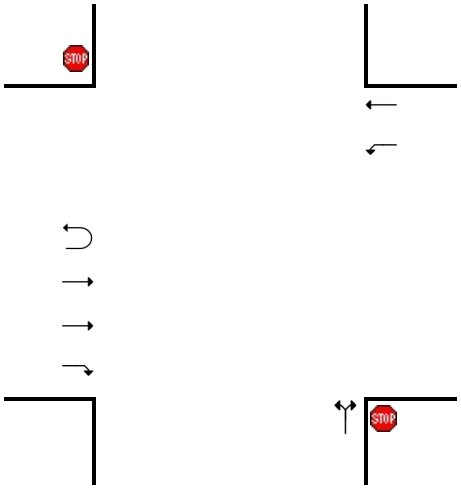


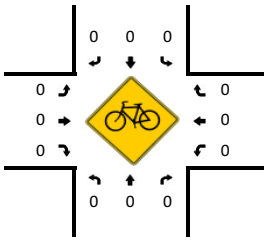


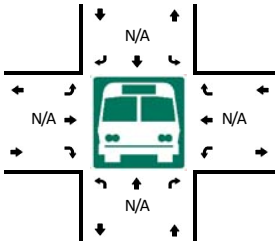


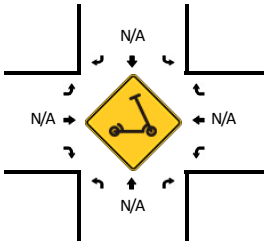



| 5-Min Count Period Beginning At | 28. N Armstrong Ave (Northbound) | | | | 28. N Armstrong Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 1 | 24 | 0 | 0 | 40 | |
| 7:05 AM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2 | 0 | 2 | 25 | 0 | 0 | 43 | |
| 7:10 AM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 0 | 35 | 0 | 0 | 61 | |
| 7:15 AM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 | 0 | 33 | 0 | 0 | 55 | |
| 7:20 AM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 25 | 0 | 0 | 46 | |
| 7:25 AM | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 0 | 0 | 17 | 0 | 0 | 47 | |
| 7:30 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 3 | 0 | 0 | 36 | 0 | 0 | 75 | |
| 7:35 AM | 8 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 2 | 0 | 0 | 42 | 0 | 0 | 74 | |
| 7:40 AM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3 | 0 | 1 | 43 | 0 | 0 | 79 | |
| 7:45 AM | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 5 | 0 | 2 | 38 | 0 | 0 | 83 | |
| 7:50 AM | 9 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 7 | 0 | 0 | 40 | 0 | 0 | 77 | |
| 7:55 AM | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 6 | 0 | 0 | 60 | 0 | 0 | 104 | 784 |
| 8:00 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 1 | 0 | 0 | 75 | 0 | 0 | 104 | 848 |
| 8:05 AM | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 2 | 0 | 0 | 62 | 0 | 0 | 88 | 893 |
| 8:10 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 1 | 1 | 1 | 43 | 0 | 0 | 69 | 901 |
| 8:15 AM | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 3 | 0 | 0 | 29 | 0 | 0 | 56 | 902 |
| 8:20 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 3 | 0 | 1 | 20 | 0 | 0 | 47 | 903 |
| 8:25 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 3 | 0 | 0 | 18 | 0 | 0 | 44 | 900 |
| 8:30 AM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 0 | 14 | 0 | 0 | 37 | 862 |
| 8:35 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 9 | 0 | 0 | 14 | 0 | 0 | 45 | 833 |
| 8:40 AM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 5 | 0 | 0 | 14 | 0 | 0 | 54 | 808 |
| 8:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 6 | 0 | 0 | 21 | 0 | 1 | 48 | 773 |
| 8:50 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 21 | 0 | 0 | 35 | 731 |
| 8:55 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 2 | 0 | 1 | 17 | 0 | 0 | 35 | 662 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 48 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 284 | 36 | 0 | 0 | 788 | 0 | 0 | 1184 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 16 | 0 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

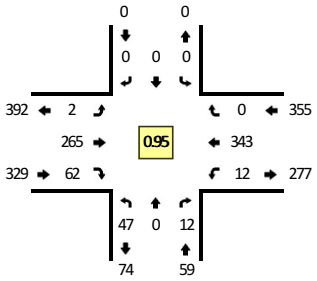
Report generated on 2/23/2024 2:42 PM

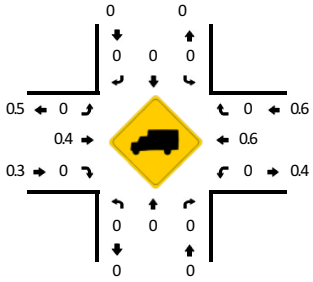
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

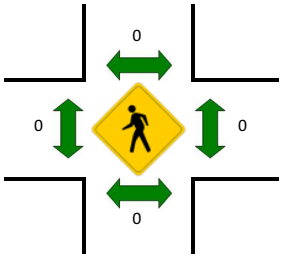
**LOCATION:** 28. N Armstrong Ave -- E Shepherd Ave | **QC JOB #:** 16475548
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

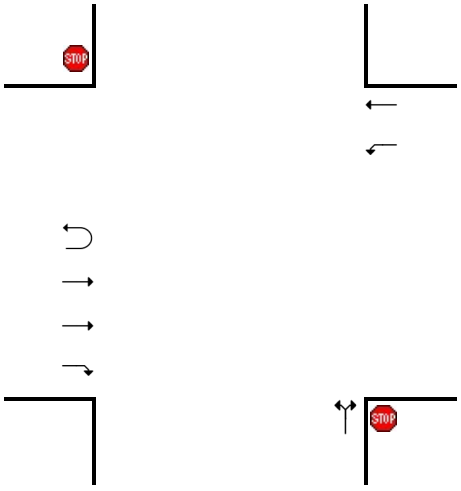
**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

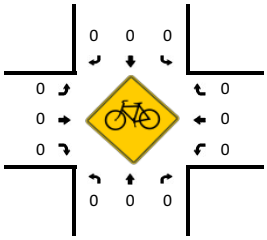


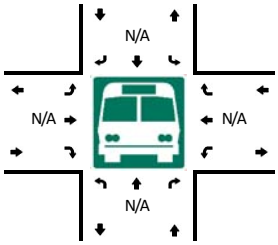



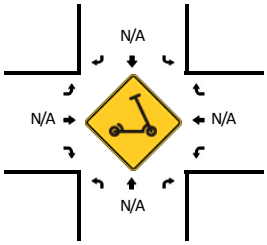

TRUE DATA TO IMPROVE MOBILITY




| 5-Min Count Period Beginning At | 28. N Armstrong Ave (Northbound) | | | | 28. N Armstrong Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 8 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 5 | 0 | 0 | 29 | 0 | 0 | 66 | |
| 4:05 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 0 | 18 | 0 | 0 | 40 | |
| 4:10 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 8 | 0 | 0 | 25 | 0 | 0 | 50 | |
| 4:15 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 6 | 0 | 0 | 11 | 0 | 0 | 44 | |
| 4:20 PM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 4 | 0 | 1 | 12 | 0 | 0 | 39 | |
| 4:25 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 3 | 0 | 0 | 22 | 0 | 0 | 40 | |
| 4:30 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 8 | 0 | 0 | 26 | 0 | 0 | 62 | |
| 4:35 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 8 | 0 | 1 | 20 | 0 | 0 | 47 | |
| 4:40 PM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 4 | 0 | 1 | 33 | 0 | 0 | 60 | |
| 4:45 PM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 0 | 0 | 41 | 0 | 0 | 66 | |
| 4:50 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 2 | 43 | 0 | 0 | 66 | |
| 4:55 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 5 | 0 | 0 | 25 | 0 | 0 | 50 | 630 |
| 5:00 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 5 | 1 | 1 | 25 | 0 | 0 | 54 | 618 |
| 5:05 PM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 6 | 0 | 0 | 25 | 0 | 0 | 56 | 634 |
| 5:10 PM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 4 | 0 | 2 | 32 | 0 | 0 | 66 | 650 |
| 5:15 PM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 5 | 0 | 1 | 34 | 0 | 0 | 70 | 676 |
| 5:20 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 4 | 1 | 1 | 28 | 0 | 0 | 59 | 696 |
| 5:25 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 9 | 0 | 1 | 24 | 0 | 0 | 58 | 714 |
| 5:30 PM | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 5 | 0 | 2 | 30 | 0 | 0 | 73 | 725 |
| 5:35 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 2 | 0 | 1 | 24 | 0 | 0 | 56 | 734 |
| 5:40 PM | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 5 | 0 | 0 | 25 | 0 | 0 | 63 | 737 |
| 5:45 PM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 11 | 0 | 1 | 28 | 0 | 0 | 72 | 743 |
| 5:50 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 4 | 0 | 1 | 20 | 0 | 0 | 54 | 731 |
| 5:55 PM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 3 | 0 | 2 | 18 | 0 | 0 | 48 | 729 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 56 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 268 | 52 | 4 | 16 | 376 | 0 | 0 | 780 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

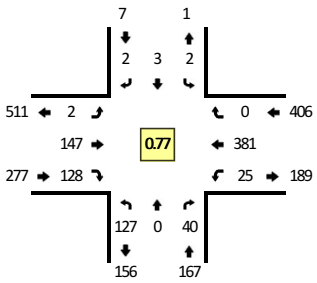
*Comments:*

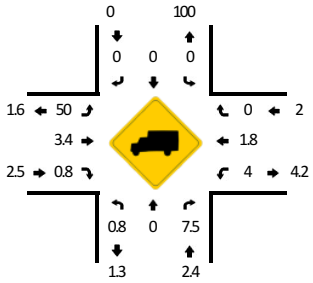
Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

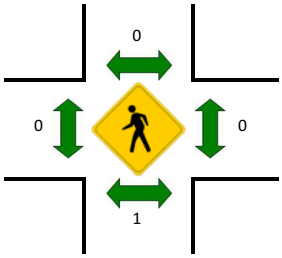
**LOCATION:** 29. N Temperance Ave -- E Shepherd Ave | **QC JOB #:** 16475549
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

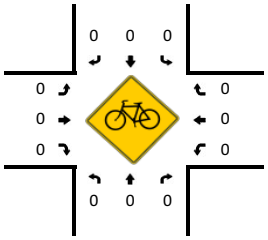
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**

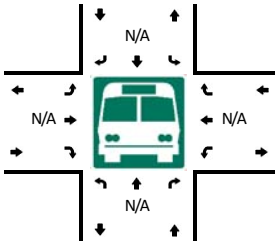


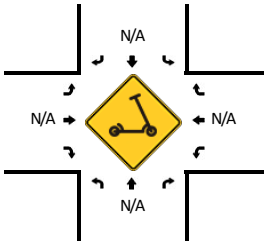



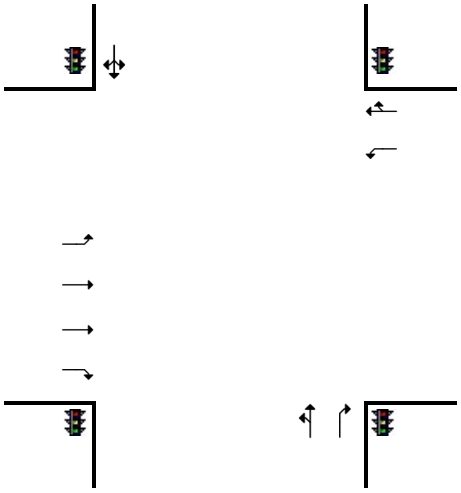

TRUE DATA TO IMPROVE MOBILITY



| 5-Min Count Period Beginning At | 29. N Temperance Ave (Northbound) | | | | 29. N Temperance Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 7 | 0 | 2 | 13 | 0 | 0 | 38 | |
| 7:05 AM | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 30 | 0 | 0 | 53 | |
| 7:10 AM | 2 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 10 | 13 | 0 | 0 | 21 | 0 | 0 | 50 | |
| 7:15 AM | 14 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 9 | 0 | 5 | 16 | 0 | 0 | 54 | |
| 7:20 AM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 5 | 0 | 2 | 19 | 0 | 0 | 44 | |
| 7:25 AM | 8 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 6 | 0 | 0 | 13 | 0 | 0 | 42 | |
| 7:30 AM | 16 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 9 | 0 | 0 | 18 | 0 | 0 | 66 | |
| 7:35 AM | 16 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 13 | 11 | 0 | 4 | 25 | 0 | 0 | 74 | |
| 7:40 AM | 15 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 18 | 11 | 0 | 3 | 32 | 0 | 0 | 84 | |
| 7:45 AM | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 13 | 0 | 5 | 29 | 0 | 0 | 75 | |
| 7:50 AM | 11 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 11 | 0 | 3 | 32 | 0 | 0 | 70 | |
| 7:55 AM | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 27 | 1 | 0 | 55 | 0 | 0 | 108 | 758 |
| 8:00 AM | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 9 | 0 | 3 | 59 | 0 | 0 | 92 | 812 |
| 8:05 AM | 7 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 12 | 0 | 1 | 50 | 0 | 0 | 80 | 839 |
| 8:10 AM | 8 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 12 | 8 | 0 | 3 | 34 | 0 | 0 | 67 | 856 |
| 8:15 AM | 4 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 22 | 0 | 0 | 48 | 850 |
| 8:20 AM | 8 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 0 | 3 | 15 | 0 | 0 | 47 | 853 |
| 8:25 AM | 8 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 18 | 4 | 0 | 0 | 10 | 0 | 0 | 46 | 857 |
| 8:30 AM | 5 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 13 | 4 | 0 | 1 | 10 | 0 | 0 | 38 | 829 |
| 8:35 AM | 5 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 17 | 4 | 0 | 1 | 8 | 0 | 0 | 41 | 796 |
| 8:40 AM | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 8 | 0 | 3 | 7 | 0 | 1 | 49 | 761 |
| 8:45 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 13 | 1 | 0 | 13 | 0 | 0 | 46 | 732 |
| 8:50 AM | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 9 | 0 | 1 | 17 | 0 | 0 | 42 | 704 |
| 8:55 AM | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 0 | 3 | 11 | 0 | 0 | 33 | 629 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 120 | 0 | 24 | 0 | 4 | 0 | 0 | 0 | 0 | 104 | 192 | 4 | 16 | 656 | 0 | 0 | 1120 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 16 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 0 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

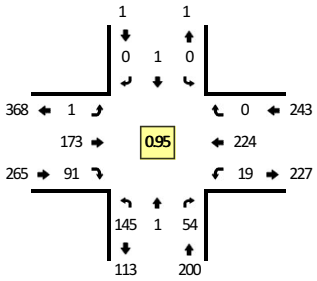
Type of peak hour being reported: Intersection Peak

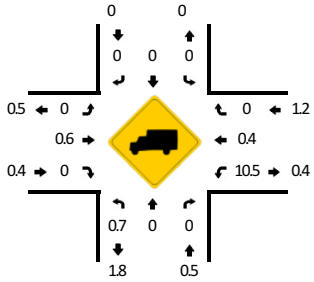
Method for determining peak hour: Total Entering Volume

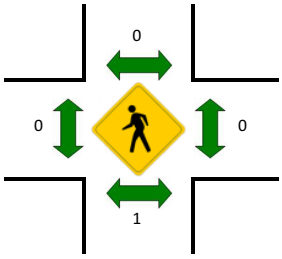
**LOCATION:** 29. N Temperance Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

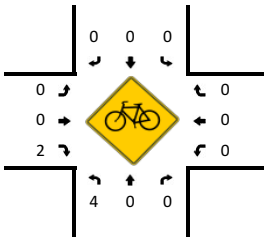
**QC JOB #:** 16475550
**DATE:** Tue, Feb 6 2024

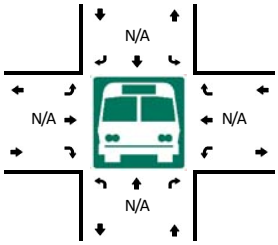
**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

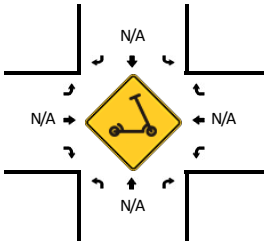



| 5-Min Count Period Beginning At | 29. N Temperance Ave (Northbound) | | | | 29. N Temperance Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 8 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 1 | 15 | 8 | 0 | 1 | 13 | 0 | 0 | 53 | |
| 4:05 PM | 5 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 13 | 6 | 0 | 2 | 13 | 0 | 0 | 42 | |
| 4:10 PM | 13 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 1 | 6 | 6 | 0 | 0 | 9 | 0 | 0 | 41 | |
| 4:15 PM | 4 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 6 | 0 | 4 | 7 | 0 | 0 | 49 | |
| 4:20 PM | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 4 | 0 | 1 | 12 | 0 | 0 | 34 | |
| 4:25 PM | 12 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 | 0 | 1 | 14 | 0 | 0 | 50 | |
| 4:30 PM | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 7 | 0 | 0 | 10 | 0 | 0 | 48 | |
| 4:35 PM | 7 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 9 | 0 | 2 | 25 | 0 | 0 | 63 | |
| 4:40 PM | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 22 | 0 | 0 | 50 | |
| 4:45 PM | 17 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 4 | 0 | 5 | 29 | 0 | 0 | 71 | |
| 4:50 PM | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 6 | 0 | 0 | 28 | 0 | 0 | 68 | |
| 4:55 PM | 7 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 0 | 0 | 16 | 0 | 0 | 45 | 614 |
| 5:00 PM | 10 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 7 | 0 | 3 | 17 | 0 | 0 | 54 | 615 |
| 5:05 PM | 11 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 8 | 0 | 1 | 12 | 0 | 0 | 49 | 622 |
| 5:10 PM | 14 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 12 | 0 | 2 | 22 | 0 | 0 | 67 | 648 |
| 5:15 PM | 13 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 5 | 0 | 2 | 20 | 0 | 0 | 63 | 662 |
| 5:20 PM | 12 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 0 | 1 | 19 | 0 | 0 | 55 | 683 |
| 5:25 PM | 8 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 8 | 0 | 1 | 17 | 0 | 0 | 51 | 684 |
| 5:30 PM | 13 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 17 | 13 | 0 | 0 | 17 | 0 | 0 | 63 | 699 |
| 5:35 PM | 10 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 9 | 1 | 3 | 12 | 0 | 0 | 60 | 696 |
| 5:40 PM | 15 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 8 | 0 | 1 | 15 | 0 | 0 | 63 | 709 |
| 5:45 PM | 9 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 6 | 0 | 1 | 18 | 0 | 0 | 58 | 696 |
| 5:50 PM | 9 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 20 | 5 | 0 | 1 | 16 | 0 | 0 | 56 | 684 |
| 5:55 PM | 8 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 19 | 10 | 0 | 2 | 10 | 0 | 0 | 57 | 696 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 152 | 0 | 64 | 0 | 0 | 4 | 0 | 0 | 0 | 208 | 120 | 4 | 16 | 176 | 0 | 0 | 744 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Pedestrians | | | | | | | | | | | | | | | | | |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 8 | | 0 | 0 | 0 | | 8 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

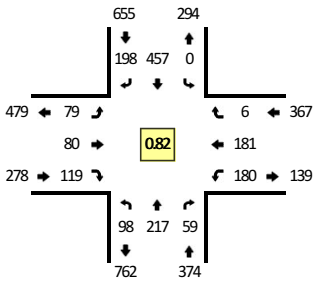
Report generated on 2/23/2024 2:42 PM

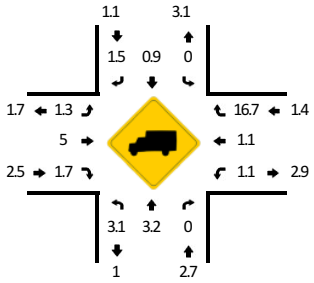
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

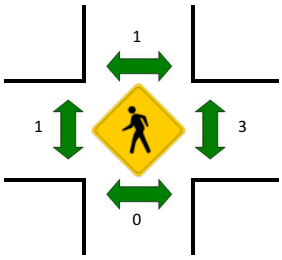
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

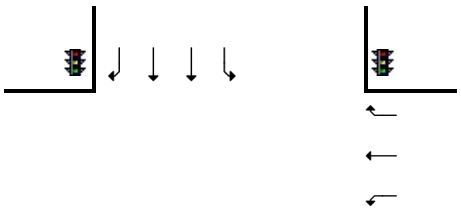
**LOCATION:** 30. N Temperance Ave -- Nees Ave | **QC JOB #:** 16475551
**CITY/STATE:** Clovis, CA | **DATE:** Thu, Feb 8 2024

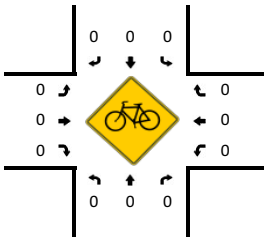
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:30 AM -- 7:45 AM**

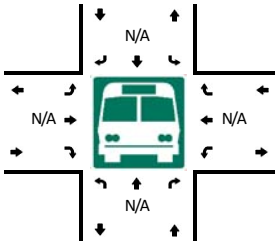


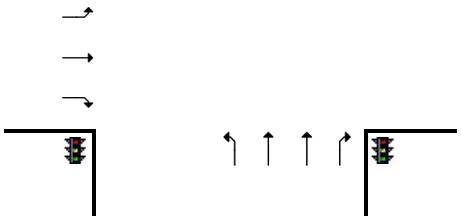



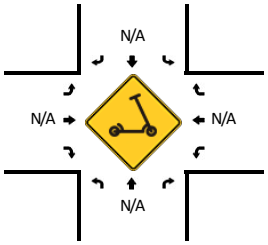








| 5-Min Count Period Beginning At | 30. N Temperance Ave (Northbound) | | | | 30. N Temperance Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 3 | 13 | 2 | 0 | 0 | 27 | 3 | 0 | 1 | 2 | 6 | 0 | 5 | 3 | 0 | 0 | 65 | |
| 7:05 AM | 3 | 10 | 6 | 0 | 0 | 31 | 6 | 0 | 3 | 2 | 3 | 0 | 20 | 6 | 0 | 0 | 90 | |
| 7:10 AM | 6 | 15 | 5 | 1 | 0 | 21 | 5 | 0 | 4 | 0 | 6 | 0 | 12 | 5 | 0 | 0 | 80 | |
| 7:15 AM | 11 | 17 | 3 | 0 | 0 | 35 | 15 | 0 | 0 | 4 | 7 | 0 | 20 | 8 | 1 | 0 | 121 | |
| 7:20 AM | 10 | 24 | 3 | 0 | 0 | 40 | 10 | 0 | 3 | 4 | 10 | 0 | 23 | 10 | 0 | 0 | 137 | |
| 7:25 AM | 11 | 18 | 3 | 0 | 0 | 31 | 25 | 0 | 2 | 4 | 2 | 0 | 9 | 12 | 0 | 0 | 117 | |
| 7:30 AM | 12 | 12 | 4 | 0 | 0 | 34 | 20 | 0 | 11 | 4 | 8 | 0 | 28 | 31 | 0 | 0 | 164 | |
| 7:35 AM | 18 | 14 | 4 | 1 | 0 | 32 | 27 | 0 | 8 | 5 | 5 | 0 | 23 | 30 | 0 | 0 | 167 | |
| 7:40 AM | 7 | 9 | 6 | 1 | 0 | 48 | 35 | 0 | 6 | 5 | 11 | 0 | 20 | 30 | 0 | 0 | 178 | |
| 7:45 AM | 9 | 25 | 3 | 2 | 0 | 39 | 22 | 0 | 6 | 11 | 17 | 2 | 6 | 13 | 1 | 0 | 156 | |
| 7:50 AM | 2 | 19 | 4 | 0 | 0 | 46 | 4 | 0 | 13 | 15 | 17 | 2 | 16 | 8 | 1 | 0 | 147 | |
| 7:55 AM | 4 | 16 | 8 | 0 | 0 | 49 | 5 | 0 | 8 | 14 | 11 | 1 | 7 | 8 | 1 | 0 | 132 | 1554 |
| 8:00 AM | 6 | 23 | 6 | 0 | 0 | 31 | 11 | 0 | 5 | 8 | 8 | 0 | 6 | 9 | 1 | 0 | 114 | 1603 |
| 8:05 AM | 2 | 18 | 7 | 1 | 0 | 23 | 14 | 0 | 4 | 5 | 14 | 0 | 10 | 13 | 1 | 0 | 112 | 1625 |
| 8:10 AM | 0 | 22 | 8 | 1 | 0 | 49 | 10 | 0 | 5 | 1 | 9 | 3 | 12 | 9 | 0 | 0 | 129 | 1674 |
| 8:15 AM | 3 | 13 | 4 | 0 | 1 | 30 | 6 | 0 | 6 | 3 | 8 | 1 | 16 | 7 | 0 | 0 | 98 | 1651 |
| 8:20 AM | 5 | 20 | 4 | 0 | 1 | 19 | 9 | 0 | 4 | 3 | 12 | 0 | 10 | 9 | 1 | 0 | 97 | 1611 |
| 8:25 AM | 10 | 25 | 11 | 0 | 0 | 31 | 5 | 0 | 8 | 4 | 9 | 0 | 6 | 4 | 1 | 0 | 114 | 1608 |
| 8:30 AM | 4 | 23 | 2 | 0 | 1 | 24 | 9 | 0 | 4 | 4 | 4 | 0 | 12 | 4 | 0 | 0 | 91 | 1535 |
| 8:35 AM | 11 | 27 | 3 | 0 | 1 | 31 | 1 | 0 | 5 | 8 | 10 | 0 | 10 | 3 | 1 | 0 | 111 | 1479 |
| 8:40 AM | 7 | 20 | 3 | 0 | 0 | 18 | 3 | 0 | 8 | 6 | 9 | 0 | 13 | 5 | 0 | 0 | 92 | 1393 |
| 8:45 AM | 5 | 18 | 3 | 0 | 0 | 28 | 6 | 0 | 0 | 3 | 10 | 0 | 9 | 9 | 0 | 0 | 91 | 1328 |
| 8:50 AM | 7 | 15 | 5 | 0 | 0 | 22 | 6 | 0 | 5 | 4 | 7 | 0 | 14 | 2 | 0 | 0 | 87 | 1268 |
| 8:55 AM | 5 | 11 | 2 | 0 | 0 | 24 | 3 | 0 | 1 | 1 | 5 | 0 | 9 | 3 | 1 | 0 | 65 | 1201 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 148 | 140 | 56 | 8 | 0 | 456 | 328 | 0 | 100 | 56 | 96 | 0 | 284 | 364 | 0 | 0 | 2036 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 12 | 4 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 4 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

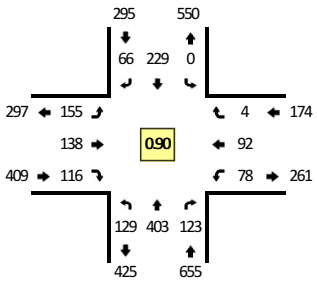
*Comments:*

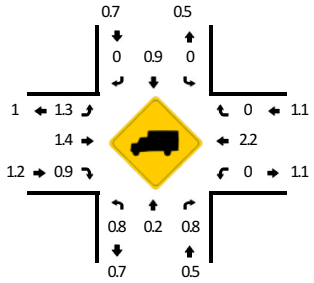
Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

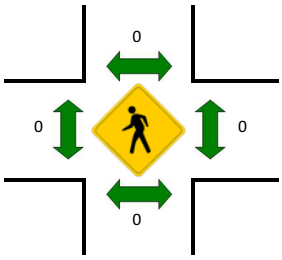
**LOCATION:** 30. N Temperance Ave -- Nees Ave | **QC JOB #:** 16475552
**CITY/STATE:** Clovis, CA | **DATE:** Thu, Feb 8 2024

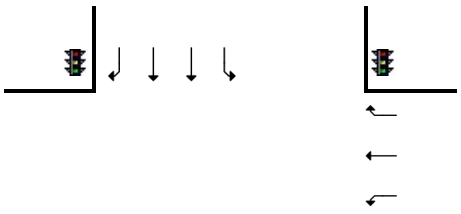
**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:25 PM -- 5:40 PM**

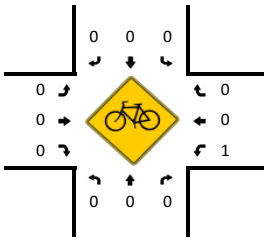


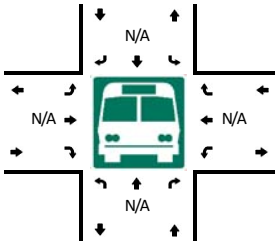



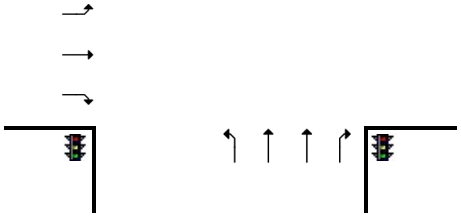

TRUE DATA TO IMPROVE MOBILITY

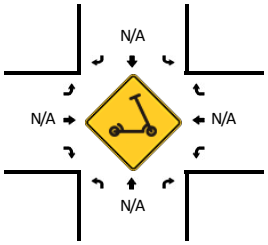







| 5-Min Count Period Beginning At | 30. N Temperance Ave (Northbound) | | | | 30. N Temperance Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 6 | 38 | 9 | 0 | 1 | 25 | 4 | 0 | 8 | 20 | 15 | 0 | 3 | 5 | 0 | 0 | 134 | |
| 4:05 PM | 8 | 30 | 7 | 1 | 0 | 21 | 7 | 0 | 6 | 5 | 3 | 1 | 14 | 5 | 0 | 0 | 108 | |
| 4:10 PM | 8 | 26 | 11 | 0 | 0 | 22 | 3 | 0 | 8 | 11 | 10 | 1 | 5 | 2 | 0 | 0 | 107 | |
| 4:15 PM | 8 | 25 | 19 | 1 | 0 | 16 | 1 | 0 | 11 | 10 | 12 | 1 | 2 | 5 | 0 | 0 | 111 | |
| 4:20 PM | 12 | 30 | 13 | 0 | 0 | 12 | 8 | 0 | 8 | 5 | 8 | 0 | 9 | 3 | 1 | 0 | 109 | |
| 4:25 PM | 11 | 28 | 9 | 0 | 0 | 15 | 3 | 0 | 7 | 5 | 14 | 1 | 6 | 5 | 0 | 0 | 104 | |
| 4:30 PM | 4 | 24 | 11 | 0 | 0 | 21 | 8 | 0 | 11 | 11 | 9 | 1 | 6 | 5 | 0 | 0 | 111 | |
| 4:35 PM | 11 | 30 | 12 | 0 | 0 | 13 | 5 | 0 | 6 | 5 | 9 | 1 | 3 | 7 | 1 | 0 | 103 | |
| 4:40 PM | 10 | 23 | 10 | 0 | 0 | 23 | 3 | 0 | 10 | 11 | 6 | 0 | 4 | 5 | 0 | 0 | 105 | |
| 4:45 PM | 12 | 29 | 11 | 1 | 0 | 23 | 7 | 0 | 10 | 12 | 6 | 3 | 10 | 3 | 0 | 0 | 127 | |
| 4:50 PM | 6 | 33 | 10 | 1 | 0 | 19 | 5 | 0 | 11 | 8 | 8 | 2 | 3 | 4 | 0 | 0 | 110 | |
| 4:55 PM | 6 | 39 | 12 | 1 | 0 | 16 | 5 | 0 | 8 | 9 | 9 | 1 | 6 | 8 | 0 | 0 | 120 | 1349 |
| 5:00 PM | 8 | 27 | 4 | 0 | 0 | 14 | 4 | 0 | 12 | 13 | 11 | 2 | 8 | 5 | 0 | 0 | 108 | 1323 |
| 5:05 PM | 19 | 38 | 7 | 0 | 0 | 19 | 6 | 0 | 14 | 12 | 4 | 3 | 6 | 7 | 1 | 0 | 136 | 1351 |
| 5:10 PM | 9 | 29 | 7 | 0 | 0 | 20 | 6 | 0 | 6 | 9 | 6 | 1 | 10 | 13 | 0 | 0 | 116 | 1360 |
| 5:15 PM | 15 | 34 | 9 | 0 | 0 | 25 | 8 | 0 | 13 | 13 | 10 | 0 | 8 | 5 | 0 | 0 | 140 | 1389 |
| 5:20 PM | 6 | 36 | 14 | 0 | 0 | 11 | 7 | 0 | 14 | 10 | 5 | 2 | 4 | 9 | 0 | 0 | 118 | 1398 |
| 5:25 PM | 11 | 45 | 11 | 0 | 0 | 24 | 5 | 0 | 16 | 7 | 17 | 0 | 8 | 8 | 1 | 0 | 153 | 1447 |
| 5:30 PM | 16 | 36 | 16 | 1 | 0 | 16 | 4 | 0 | 12 | 16 | 13 | 0 | 3 | 10 | 0 | 0 | 143 | 1479 |
| 5:35 PM | 11 | 26 | 14 | 0 | 0 | 19 | 4 | 0 | 15 | 13 | 10 | 2 | 7 | 8 | 1 | 0 | 130 | 1506 |
| 5:40 PM | 6 | 37 | 13 | 0 | 0 | 19 | 4 | 0 | 12 | 12 | 10 | 0 | 6 | 5 | 0 | 0 | 124 | 1525 |
| 5:45 PM | 13 | 17 | 10 | 0 | 0 | 20 | 7 | 0 | 12 | 15 | 13 | 0 | 6 | 10 | 1 | 0 | 124 | 1522 |
| 5:50 PM | 7 | 39 | 6 | 0 | 0 | 26 | 6 | 0 | 9 | 9 | 8 | 1 | 6 | 4 | 0 | 0 | 121 | 1533 |
| 5:55 PM | 4 | 22 | 9 | 0 | 1 | 16 | 4 | 0 | 11 | 13 | 12 | 1 | 6 | 5 | 0 | 0 | 104 | 1517 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 152 | 428 | 164 | 4 | 0 | 236 | 52 | 0 | 172 | 144 | 160 | 8 | 72 | 104 | 8 | 0 | 1704 |
| Heavy Trucks | 0 | 0 | 4 | | 0 | 4 | 0 | | 4 | 0 | 4 | | 0 | 4 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

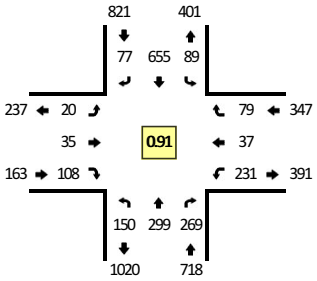
Type of peak hour being reported: Intersection Peak

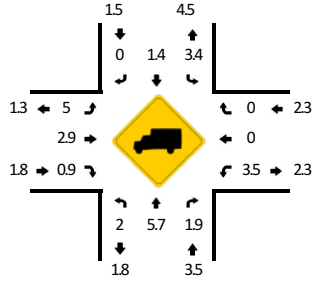
Method for determining peak hour: Total Entering Volume

**LOCATION:** 31. N Temperance Ave -- Alluvial Ave/Owens Mountain Pkwy
**CITY/STATE:** Clovis, CA

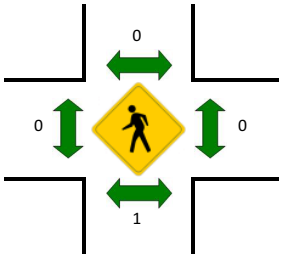
**QC JOB #:** 16475553
**DATE:** Thu, Feb 8 2024

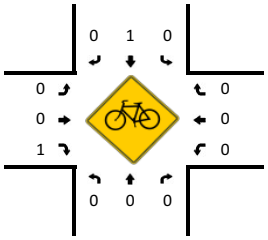
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

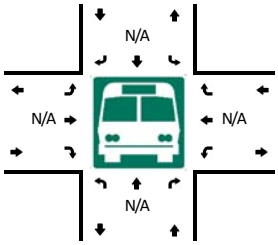


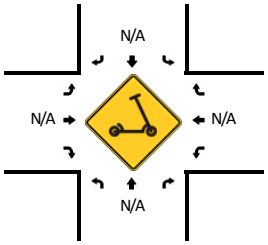




TRUE DATA TO IMPROVE MOBILITY




| 5-Min Count Period Beginning At | 31. N Temperance Ave (Northbound) | | | | 31. N Temperance Ave (Southbound) | | | | Alluvial Ave/Owens Mountain Pkwy (Eastbound) | | | | Alluvial Ave/Owens Mountain Pkwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 4 | 19 | 16 | 1 | 3 | 30 | 1 | 1 | 0 | 3 | 4 | 0 | 18 | 1 | 5 | 0 | 106 | |
| 7:05 AM | 10 | 17 | 21 | 2 | 13 | 40 | 4 | 0 | 2 | 2 | 4 | 0 | 15 | 2 | 2 | 0 | 134 | |
| 7:10 AM | 7 | 21 | 16 | 2 | 5 | 26 | 4 | 0 | 0 | 1 | 5 | 0 | 19 | 6 | 8 | 0 | 120 | |
| 7:15 AM | 7 | 28 | 18 | 1 | 5 | 55 | 2 | 0 | 0 | 2 | 12 | 0 | 18 | 6 | 8 | 1 | 163 | |
| 7:20 AM | 5 | 27 | 16 | 1 | 7 | 65 | 2 | 1 | 0 | 2 | 7 | 0 | 15 | 1 | 5 | 0 | 154 | |
| 7:25 AM | 5 | 25 | 33 | 2 | 5 | 47 | 3 | 0 | 0 | 1 | 9 | 0 | 23 | 3 | 8 | 0 | 164 | |
| 7:30 AM | 3 | 19 | 24 | 6 | 8 | 53 | 6 | 0 | 3 | 3 | 8 | 0 | 15 | 2 | 6 | 0 | 156 | |
| 7:35 AM | 9 | 26 | 21 | 2 | 11 | 61 | 8 | 0 | 2 | 2 | 5 | 0 | 28 | 4 | 2 | 0 | 181 | |
| 7:40 AM | 10 | 27 | 22 | 3 | 4 | 67 | 7 | 1 | 3 | 2 | 10 | 0 | 21 | 3 | 6 | 0 | 186 | |
| 7:45 AM | 12 | 25 | 21 | 2 | 8 | 56 | 12 | 1 | 3 | 5 | 14 | 0 | 18 | 1 | 5 | 0 | 183 | |
| 7:50 AM | 14 | 25 | 30 | 3 | 13 | 56 | 10 | 0 | 1 | 3 | 8 | 0 | 10 | 5 | 15 | 0 | 193 | |
| 7:55 AM | 17 | 20 | 22 | 3 | 9 | 42 | 12 | 0 | 2 | 7 | 10 | 0 | 26 | 5 | 5 | 0 | 180 | 1920 |
| 8:00 AM | 20 | 28 | 22 | 2 | 7 | 41 | 8 | 0 | 0 | 4 | 9 | 0 | 20 | 2 | 9 | 0 | 172 | 1986 |
| 8:05 AM | 15 | 26 | 22 | 1 | 2 | 48 | 3 | 0 | 3 | 3 | 11 | 0 | 18 | 4 | 5 | 0 | 161 | 2013 |
| 8:10 AM | 6 | 23 | 18 | 1 | 7 | 64 | 4 | 0 | 3 | 1 | 5 | 0 | 18 | 1 | 5 | 0 | 156 | 2049 |
| 8:15 AM | 7 | 16 | 19 | 1 | 6 | 39 | 7 | 0 | 0 | 5 | 7 | 0 | 16 | 3 | 4 | 0 | 130 | 2016 |
| 8:20 AM | 7 | 23 | 21 | 1 | 10 | 36 | 5 | 0 | 3 | 3 | 3 | 0 | 28 | 8 | 8 | 0 | 156 | 2018 |
| 8:25 AM | 13 | 31 | 16 | 1 | 4 | 36 | 7 | 0 | 2 | 3 | 2 | 0 | 13 | 0 | 13 | 0 | 141 | 1995 |
| 8:30 AM | 2 | 27 | 20 | 1 | 7 | 27 | 5 | 1 | 1 | 4 | 2 | 0 | 16 | 4 | 4 | 0 | 121 | 1960 |
| 8:35 AM | 2 | 30 | 14 | 0 | 3 | 38 | 6 | 1 | 5 | 1 | 5 | 0 | 16 | 5 | 5 | 0 | 131 | 1910 |
| 8:40 AM | 10 | 28 | 12 | 1 | 11 | 36 | 3 | 1 | 1 | 7 | 6 | 0 | 13 | 2 | 3 | 0 | 134 | 1858 |
| 8:45 AM | 9 | 23 | 19 | 1 | 3 | 35 | 4 | 0 | 0 | 4 | 5 | 0 | 18 | 2 | 6 | 0 | 129 | 1804 |
| 8:50 AM | 6 | 23 | 22 | 0 | 5 | 38 | 4 | 1 | 1 | 2 | 6 | 0 | 14 | 1 | 6 | 0 | 129 | 1740 |
| 8:55 AM | 12 | 15 | 9 | 0 | 5 | 32 | 7 | 0 | 2 | 2 | 8 | 0 | 14 | 1 | 6 | 1 | 114 | 1674 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 144 | 308 | 292 | 32 | 100 | 716 | 116 | 8 | 28 | 40 | 128 | 0 | 196 | 36 | 104 | 0 | 2248 |
| Heavy Trucks | 0 | 12 | 0 | | 8 | 0 | 0 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 31. N Temperance Ave -- Alluvial Ave/Owens Mountain Pkwy

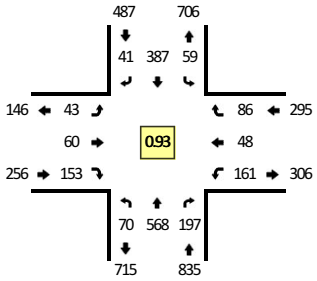
**QC JOB #:** 16475554

**CITY/STATE:** Clovis, CA

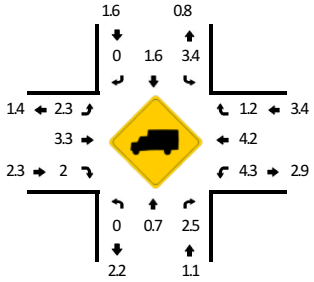
**DATE:** Thu, Feb 8 2024

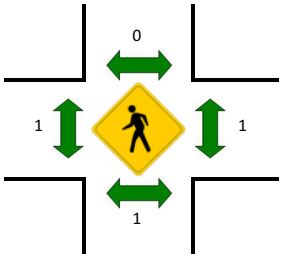
**Peak-Hour: 4:45 PM -- 5:45 PM**

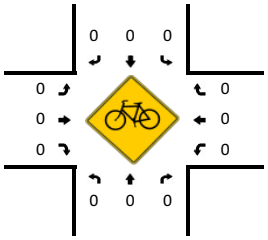
**Peak 15-Min: 4:55 PM -- 5:10 PM**

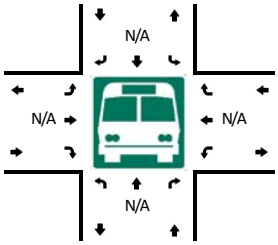


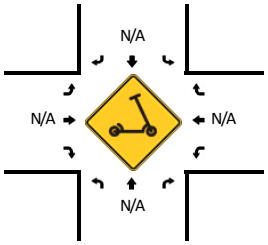

TRUE DATA TO IMPROVE MOBILITY




| 5-Min Count Period Beginning At | 31. N Temperance Ave (Northbound) | | | | 31. N Temperance Ave (Southbound) | | | | Alluvial Ave/Owens Mountain Pkwy (Eastbound) | | | | Alluvial Ave/Owens Mountain Pkwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 4 | 37 | 14 | 1 | 4 | 40 | 1 | 0 | 2 | 2 | 8 | 0 | 11 | 1 | 9 | 0 | 134 | |
| 4:05 PM | 8 | 40 | 10 | 1 | 2 | 32 | 1 | 0 | 3 | 2 | 13 | 0 | 13 | 2 | 4 | 0 | 131 | |
| 4:10 PM | 6 | 39 | 17 | 0 | 3 | 40 | 7 | 0 | 2 | 3 | 11 | 0 | 10 | 0 | 11 | 0 | 149 | |
| 4:15 PM | 10 | 45 | 15 | 1 | 4 | 29 | 3 | 0 | 3 | 6 | 9 | 0 | 11 | 1 | 3 | 0 | 140 | |
| 4:20 PM | 0 | 0 | 0 | 0 | 3 | 27 | 3 | 0 | 4 | 1 | 14 | 1 | 0 | 0 | 0 | 0 | 53 | |
| 4:25 PM | 2 | 33 | 11 | 2 | 4 | 31 | 1 | 2 | 6 | 5 | 12 | 0 | 14 | 0 | 5 | 0 | 128 | |
| 4:30 PM | 4 | 40 | 10 | 0 | 4 | 30 | 3 | 3 | 2 | 3 | 9 | 0 | 12 | 5 | 7 | 0 | 132 | |
| 4:35 PM | 1 | 41 | 22 | 0 | 2 | 27 | 1 | 1 | 5 | 4 | 12 | 1 | 10 | 1 | 3 | 0 | 131 | |
| 4:40 PM | 8 | 30 | 19 | 3 | 2 | 28 | 1 | 0 | 1 | 1 | 11 | 0 | 14 | 0 | 11 | 0 | 129 | |
| 4:45 PM | 8 | 54 | 22 | 1 | 6 | 42 | 2 | 0 | 2 | 7 | 8 | 0 | 9 | 4 | 14 | 0 | 179 | |
| 4:50 PM | 7 | 36 | 15 | 1 | 4 | 24 | 1 | 0 | 0 | 3 | 2 | 0 | 16 | 2 | 7 | 0 | 118 | |
| 4:55 PM | 3 | 35 | 21 | 2 | 5 | 30 | 7 | 0 | 8 | 7 | 30 | 0 | 12 | 2 | 9 | 0 | 171 | 1595 |
| 5:00 PM | 6 | 46 | 17 | 2 | 3 | 41 | 4 | 2 | 3 | 10 | 32 | 0 | 14 | 2 | 8 | 0 | 190 | 1651 |
| 5:05 PM | 3 | 40 | 10 | 1 | 4 | 32 | 5 | 1 | 6 | 5 | 13 | 0 | 16 | 2 | 3 | 0 | 141 | 1661 |
| 5:10 PM | 4 | 59 | 16 | 1 | 5 | 29 | 2 | 0 | 4 | 5 | 14 | 0 | 9 | 6 | 3 | 0 | 157 | 1669 |
| 5:15 PM | 4 | 36 | 22 | 2 | 2 | 39 | 5 | 0 | 2 | 4 | 13 | 0 | 13 | 4 | 8 | 0 | 154 | 1683 |
| 5:20 PM | 6 | 55 | 15 | 0 | 2 | 20 | 3 | 2 | 3 | 6 | 6 | 0 | 15 | 4 | 12 | 0 | 149 | 1779 |
| 5:25 PM | 1 | 57 | 15 | 3 | 8 | 38 | 5 | 1 | 4 | 4 | 9 | 0 | 13 | 6 | 4 | 0 | 168 | 1819 |
| 5:30 PM | 5 | 47 | 9 | 1 | 4 | 35 | 3 | 0 | 5 | 3 | 7 | 1 | 14 | 6 | 10 | 0 | 150 | 1837 |
| 5:35 PM | 6 | 52 | 19 | 0 | 5 | 29 | 3 | 1 | 3 | 2 | 9 | 0 | 16 | 3 | 3 | 0 | 151 | 1857 |
| 5:40 PM | 3 | 51 | 16 | 0 | 1 | 28 | 1 | 3 | 2 | 4 | 10 | 0 | 14 | 7 | 5 | 0 | 145 | 1873 |
| 5:45 PM | 4 | 36 | 12 | 0 | 4 | 41 | 3 | 0 | 7 | 5 | 8 | 0 | 10 | 2 | 4 | 0 | 136 | 1830 |
| 5:50 PM | 6 | 29 | 13 | 0 | 1 | 28 | 7 | 1 | 7 | 2 | 13 | 0 | 7 | 2 | 4 | 0 | 120 | 1832 |
| 5:55 PM | 5 | 35 | 11 | 0 | 6 | 30 | 2 | 0 | 1 | 2 | 7 | 0 | 22 | 2 | 6 | 0 | 129 | 1790 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 48 | 484 | 192 | 20 | 48 | 412 | 64 | 12 | 68 | 88 | 300 | 0 | 168 | 24 | 80 | 0 | 2008 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 12 | 0 | | 4 | 4 | 0 | | 8 | 0 | 4 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 4 | | | | 0 | | | | 4 | | | | 0 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 32. N Temperance Ave -- SR 168 WB Ramps

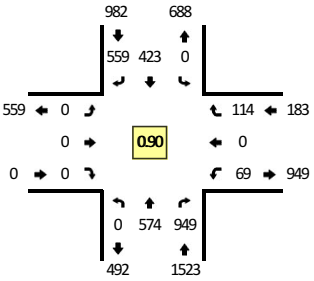
**CITY/STATE:** Clovis, CA

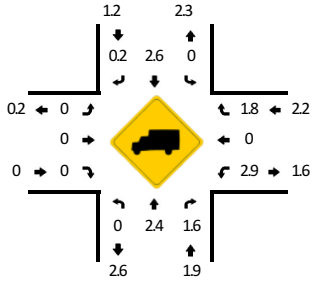
**QC JOB #:** 16475555

**DATE:** Tue, Feb 6 2024

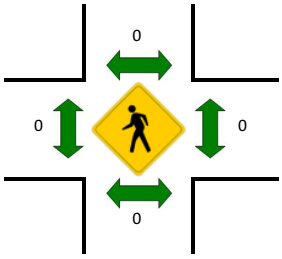
**Peak-Hour: 7:10 AM -- 8:10 AM**

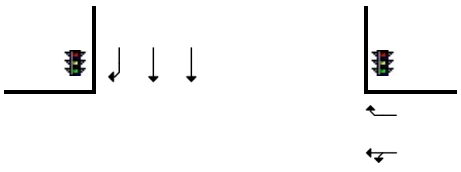
**Peak 15-Min: 7:25 AM -- 7:40 AM**

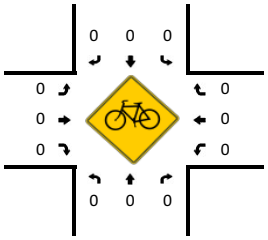


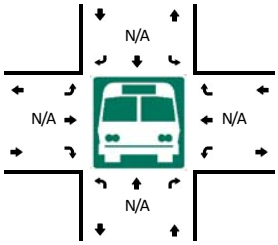



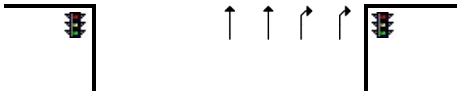

TRUE DATA TO IMPROVE MOBILITY

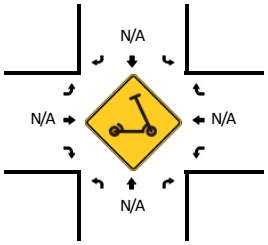







| 5-Min Count Period Beginning At | 32. N Temperance Ave (Northbound) | | | | 32. N Temperance Ave (Southbound) | | | | SR 168 WB Ramps (Eastbound) | | | | SR 168 WB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 29 | 52 | 0 | 0 | 23 | 32 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 144 | |
| 7:05 AM | 0 | 36 | 79 | 0 | 0 | 22 | 33 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 174 | |
| 7:10 AM | 0 | 38 | 65 | 0 | 0 | 26 | 40 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 189 | |
| 7:15 AM | 0 | 39 | 66 | 0 | 0 | 45 | 49 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 210 | |
| 7:20 AM | 0 | 36 | 75 | 0 | 0 | 33 | 54 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 208 | |
| 7:25 AM | 0 | 49 | 90 | 0 | 0 | 30 | 47 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 13 | 0 | 233 | |
| 7:30 AM | 0 | 65 | 102 | 0 | 0 | 33 | 53 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 267 | |
| 7:35 AM | 0 | 50 | 97 | 0 | 0 | 29 | 54 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 245 | |
| 7:40 AM | 0 | 49 | 76 | 0 | 0 | 35 | 58 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 10 | 0 | 233 | |
| 7:45 AM | 0 | 47 | 97 | 0 | 0 | 45 | 46 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 10 | 0 | 250 | |
| 7:50 AM | 0 | 64 | 93 | 0 | 0 | 37 | 40 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 14 | 0 | 261 | |
| 7:55 AM | 0 | 54 | 56 | 0 | 0 | 41 | 45 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 0 | 214 | 2628 |
| 8:00 AM | 0 | 46 | 55 | 0 | 0 | 37 | 40 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 185 | 2669 |
| 8:05 AM | 0 | 37 | 77 | 0 | 0 | 32 | 33 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 6 | 0 | 193 | 2688 |
| 8:10 AM | 0 | 30 | 56 | 0 | 0 | 48 | 35 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 180 | 2679 |
| 8:15 AM | 0 | 37 | 64 | 0 | 0 | 33 | 39 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 181 | 2650 |
| 8:20 AM | 0 | 38 | 77 | 0 | 0 | 27 | 22 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 0 | 175 | 2617 |
| 8:25 AM | 0 | 41 | 34 | 0 | 0 | 25 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 130 | 2514 |
| 8:30 AM | 0 | 51 | 89 | 0 | 0 | 23 | 22 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 195 | 2442 |
| 8:35 AM | 0 | 42 | 62 | 0 | 0 | 26 | 26 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 3 | 0 | 166 | 2363 |
| 8:40 AM | 0 | 32 | 63 | 0 | 0 | 30 | 29 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 163 | 2293 |
| 8:45 AM | 0 | 39 | 49 | 0 | 0 | 32 | 33 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 162 | 2205 |
| 8:50 AM | 0 | 44 | 66 | 0 | 0 | 32 | 28 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 180 | 2124 |
| 8:55 AM | 0 | 46 | 50 | 0 | 0 | 19 | 26 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 151 | 2061 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 656 | 1156 | 0 | 0 | 368 | 616 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 124 | 0 | 2980 |
| Heavy Trucks | 0 | 8 | 16 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 36 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

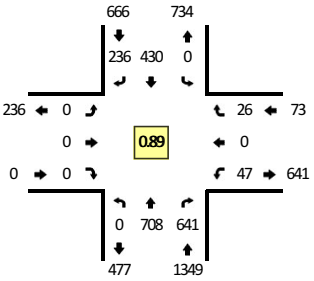
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 32. N Temperance Ave -- SR 168 WB Ramps
**CITY/STATE:** Clovis, CA

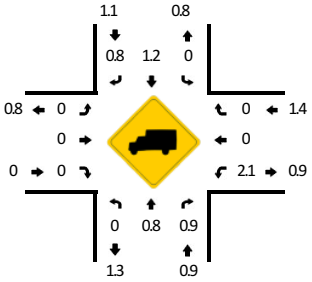
**QC JOB #:** 16475556
**DATE:** Tue, Feb 6 2024

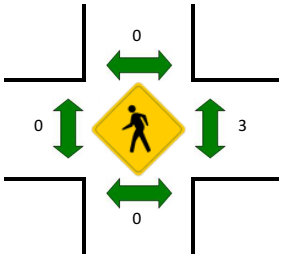
**Peak-Hour: 4:15 PM -- 5:15 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

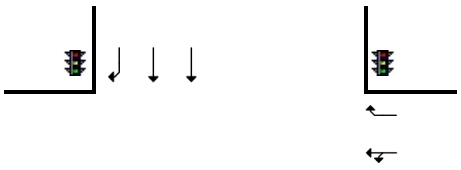


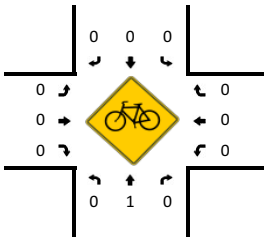


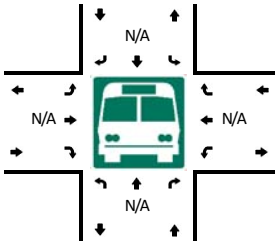


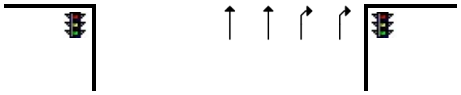


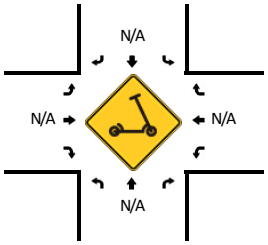








| 5-Min Count Period Beginning At | 32. N Temperance Ave (Northbound) | | | | 32. N Temperance Ave (Southbound) | | | | SR 168 WB Ramps (Eastbound) | | | | SR 168 WB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 52 | 40 | 0 | 0 | 45 | 18 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 162 | |
| 4:05 PM | 0 | 55 | 43 | 0 | 0 | 35 | 22 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 158 | |
| 4:10 PM | 0 | 65 | 47 | 0 | 0 | 34 | 20 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 174 | |
| 4:15 PM | 0 | 56 | 55 | 0 | 0 | 35 | 9 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 164 | |
| 4:20 PM | 0 | 57 | 37 | 0 | 0 | 49 | 20 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 166 | |
| 4:25 PM | 0 | 56 | 46 | 0 | 0 | 26 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 147 | |
| 4:30 PM | 0 | 54 | 61 | 0 | 0 | 33 | 20 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 175 | |
| 4:35 PM | 0 | 49 | 71 | 0 | 0 | 22 | 20 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 166 | |
| 4:40 PM | 0 | 63 | 60 | 0 | 0 | 34 | 26 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 191 | |
| 4:45 PM | 0 | 61 | 50 | 0 | 0 | 32 | 20 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 172 | |
| 4:50 PM | 0 | 49 | 43 | 0 | 0 | 45 | 26 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 169 | |
| 4:55 PM | 0 | 51 | 48 | 0 | 0 | 30 | 19 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 151 | 1995 |
| 5:00 PM | 0 | 63 | 47 | 0 | 0 | 40 | 25 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 180 | 2013 |
| 5:05 PM | 0 | 76 | 62 | 0 | 0 | 40 | 18 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 204 | 2059 |
| 5:10 PM | 0 | 73 | 61 | 0 | 0 | 44 | 17 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 2 | 0 | 203 | 2088 |
| 5:15 PM | 0 | 57 | 38 | 0 | 0 | 37 | 15 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 156 | 2080 |
| 5:20 PM | 0 | 60 | 41 | 0 | 0 | 38 | 15 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 163 | 2077 |
| 5:25 PM | 0 | 55 | 41 | 0 | 0 | 37 | 19 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 158 | 2088 |
| 5:30 PM | 0 | 53 | 44 | 0 | 0 | 34 | 14 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 148 | 2061 |
| 5:35 PM | 0 | 73 | 47 | 0 | 0 | 43 | 21 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 187 | 2082 |
| 5:40 PM | 0 | 43 | 51 | 0 | 0 | 33 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 139 | 2030 |
| 5:45 PM | 0 | 59 | 43 | 0 | 0 | 48 | 19 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 175 | 2033 |
| 5:50 PM | 0 | 50 | 40 | 0 | 0 | 39 | 13 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 151 | 2015 |
| 5:55 PM | 0 | 60 | 25 | 0 | 0 | 42 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 151 | 2015 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 848 | 680 | 0 | 0 | 496 | 240 | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 28 | 0 | 2348 |
| Heavy Trucks | 0 | 4 | 8 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

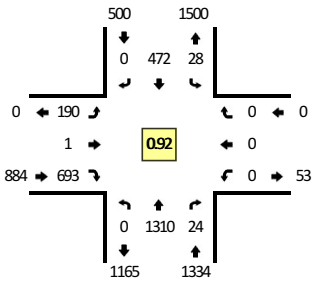
Report generated on 2/23/2024 2:42 PM

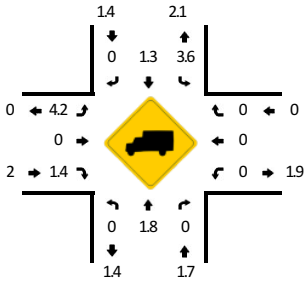
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

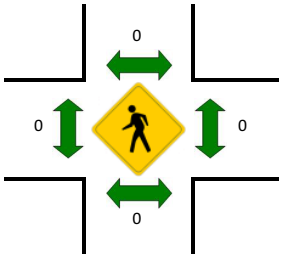
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

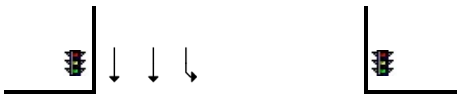
**LOCATION:** 33. N Temperance Ave -- SR 168 EB Ramps | **QC JOB #:** 16475557
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

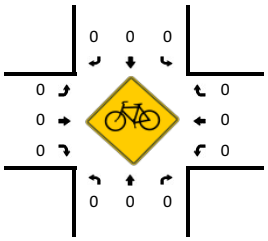
**Peak-Hour: 7:20 AM -- 8:20 AM**
**Peak 15-Min: 7:40 AM -- 7:55 AM**

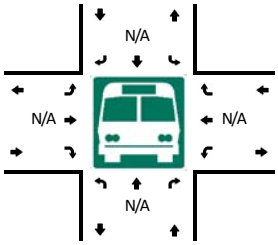


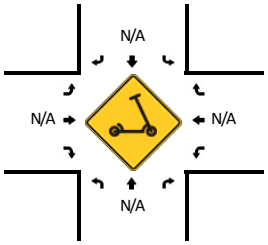








| 5-Min Count Period Beginning At | 33. N Temperance Ave (Northbound) | | | | 33. N Temperance Ave (Southbound) | | | | SR 168 EB Ramps (Eastbound) | | | | SR 168 EB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 75 | 0 | 0 | 0 | 26 | 0 | 0 | 9 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 139 | |
| 7:05 AM | 0 | 102 | 1 | 0 | 1 | 23 | 0 | 0 | 11 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 166 | |
| 7:10 AM | 0 | 90 | 0 | 0 | 3 | 34 | 0 | 0 | 13 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 167 | |
| 7:15 AM | 0 | 89 | 3 | 0 | 2 | 33 | 0 | 0 | 14 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 182 | |
| 7:20 AM | 0 | 103 | 4 | 0 | 2 | 47 | 0 | 0 | 15 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 244 | |
| 7:25 AM | 0 | 119 | 0 | 0 | 0 | 31 | 0 | 0 | 17 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 227 | |
| 7:30 AM | 0 | 143 | 5 | 0 | 1 | 33 | 0 | 0 | 19 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 254 | |
| 7:35 AM | 0 | 137 | 5 | 0 | 4 | 29 | 0 | 0 | 8 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 238 | |
| 7:40 AM | 0 | 115 | 0 | 0 | 5 | 42 | 0 | 0 | 16 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 224 | |
| 7:45 AM | 0 | 123 | 0 | 0 | 4 | 41 | 0 | 0 | 16 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 248 | |
| 7:50 AM | 0 | 135 | 1 | 0 | 2 | 48 | 0 | 0 | 23 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 270 | |
| 7:55 AM | 0 | 78 | 4 | 0 | 4 | 40 | 0 | 0 | 27 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 224 | 2583 |
| 8:00 AM | 0 | 94 | 1 | 0 | 2 | 38 | 0 | 0 | 10 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 197 | 2641 |
| 8:05 AM | 0 | 98 | 2 | 0 | 0 | 39 | 0 | 0 | 10 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 198 | 2673 |
| 8:10 AM | 0 | 80 | 0 | 0 | 2 | 48 | 0 | 0 | 12 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 196 | 2702 |
| 8:15 AM | 0 | 85 | 2 | 0 | 2 | 36 | 0 | 0 | 17 | 1 | 55 | 0 | 0 | 0 | 0 | 0 | 198 | 2718 |
| 8:20 AM | 0 | 95 | 2 | 0 | 3 | 29 | 0 | 0 | 12 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 182 | 2656 |
| 8:25 AM | 0 | 57 | 0 | 0 | 0 | 17 | 0 | 0 | 21 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 151 | 2580 |
| 8:30 AM | 0 | 125 | 1 | 0 | 1 | 27 | 0 | 0 | 14 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 207 | 2533 |
| 8:35 AM | 0 | 93 | 1 | 0 | 2 | 34 | 0 | 0 | 10 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 171 | 2466 |
| 8:40 AM | 0 | 87 | 2 | 0 | 1 | 35 | 0 | 0 | 7 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 173 | 2415 |
| 8:45 AM | 0 | 86 | 2 | 0 | 2 | 37 | 0 | 0 | 17 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 187 | 2354 |
| 8:50 AM | 0 | 91 | 1 | 0 | 1 | 35 | 0 | 0 | 9 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 177 | 2261 |
| 8:55 AM | 0 | 82 | 3 | 0 | 2 | 19 | 0 | 0 | 16 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 175 | 2212 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 1492 | 4 | 0 | 44 | 524 | 0 | 0 | 220 | 0 | 684 | 0 | 0 | 0 | 0 | 0 | 2968 |
| Heavy Trucks | 0 | 28 | 0 | | 4 | 4 | 0 | | 16 | 0 | 4 | | 0 | 0 | 0 | | 56 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

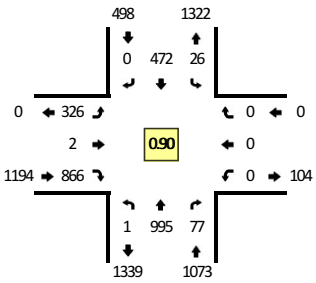
*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

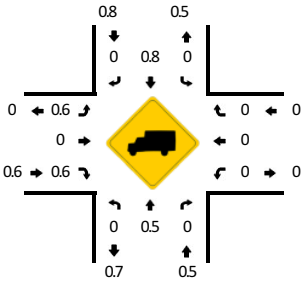
**LOCATION:** 33. N Temperance Ave -- SR 168 EB Ramps | **QC JOB #:** 16475558
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

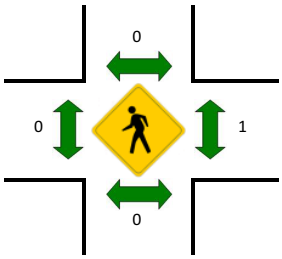
**Peak-Hour: 4:40 PM -- 5:40 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

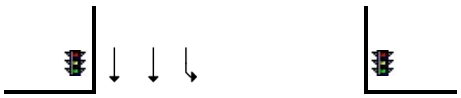


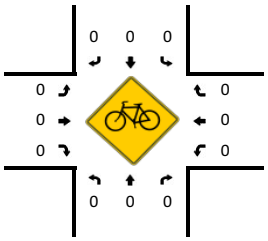


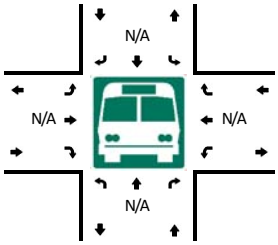




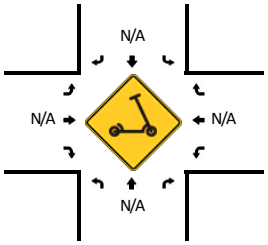








| 5-Min Count Period Beginning At | 33. N Temperance Ave (Northbound) | | | | 33. N Temperance Ave (Southbound) | | | | SR 168 EB Ramps (Eastbound) | | | | SR 168 EB Ramps (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 66 | 8 | 0 | 3 | 40 | 0 | 0 | 20 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 195 | |
| 4:05 PM | 0 | 73 | 2 | 0 | 4 | 36 | 0 | 0 | 31 | 1 | 79 | 0 | 0 | 0 | 0 | 0 | 226 | |
| 4:10 PM | 0 | 87 | 4 | 0 | 6 | 32 | 0 | 0 | 24 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 206 | |
| 4:15 PM | 0 | 80 | 7 | 0 | 4 | 34 | 0 | 0 | 30 | 1 | 69 | 0 | 0 | 0 | 0 | 0 | 225 | |
| 4:20 PM | 0 | 72 | 5 | 0 | 7 | 45 | 0 | 0 | 26 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 206 | |
| 4:25 PM | 0 | 76 | 4 | 0 | 1 | 26 | 0 | 0 | 26 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 203 | |
| 4:30 PM | 0 | 92 | 5 | 0 | 4 | 34 | 0 | 0 | 18 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 218 | |
| 4:35 PM | 0 | 99 | 3 | 0 | 1 | 24 | 0 | 0 | 19 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 210 | |
| 4:40 PM | 0 | 92 | 8 | 0 | 2 | 29 | 0 | 0 | 32 | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 226 | |
| 4:45 PM | 0 | 86 | 3 | 0 | 4 | 40 | 0 | 0 | 22 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 227 | |
| 4:50 PM | 0 | 83 | 6 | 0 | 4 | 45 | 0 | 1 | 20 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 223 | |
| 4:55 PM | 0 | 67 | 2 | 0 | 1 | 33 | 0 | 0 | 23 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 210 | 2575 |
| 5:00 PM | 0 | 71 | 12 | 0 | 3 | 23 | 0 | 0 | 39 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 221 | 2601 |
| 5:05 PM | 0 | 100 | 9 | 0 | 1 | 51 | 0 | 0 | 35 | 2 | 70 | 0 | 0 | 0 | 0 | 0 | 268 | 2643 |
| 5:10 PM | 0 | 110 | 8 | 0 | 3 | 41 | 0 | 0 | 26 | 0 | 81 | 0 | 0 | 0 | 0 | 0 | 269 | 2706 |
| 5:15 PM | 0 | 73 | 4 | 0 | 4 | 41 | 0 | 0 | 26 | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 231 | 2712 |
| 5:20 PM | 0 | 75 | 3 | 0 | 0 | 48 | 0 | 0 | 22 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 219 | 2725 |
| 5:25 PM | 0 | 83 | 8 | 1 | 2 | 43 | 0 | 0 | 21 | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 232 | 2754 |
| 5:30 PM | 0 | 69 | 7 | 0 | 0 | 30 | 0 | 0 | 26 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 197 | 2733 |
| 5:35 PM | 0 | 86 | 7 | 0 | 1 | 48 | 0 | 0 | 34 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 242 | 2765 |
| 5:40 PM | 0 | 66 | 3 | 0 | 0 | 26 | 0 | 0 | 22 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 194 | 2733 |
| 5:45 PM | 0 | 83 | 3 | 0 | 2 | 55 | 0 | 0 | 20 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 217 | 2723 |
| 5:50 PM | 0 | 59 | 7 | 1 | 3 | 37 | 0 | 0 | 34 | 1 | 53 | 0 | 0 | 0 | 0 | 0 | 195 | 2695 |
| 5:55 PM | 0 | 61 | 3 | 1 | 6 | 38 | 0 | 0 | 25 | 2 | 64 | 0 | 0 | 0 | 0 | 0 | 200 | 2685 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 1132 | 84 | 0 | 32 | 532 | 0 | 0 | 348 | 8 | 936 | 0 | 0 | 0 | 0 | 0 | 3072 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 12 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

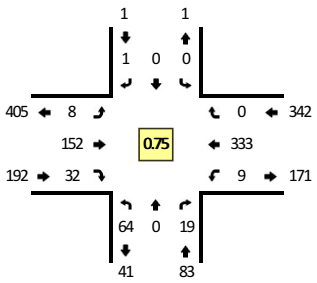
*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

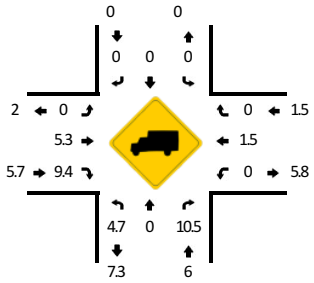
**LOCATION:** 34. N Locan Ave -- E Shepherd Ave | **QC JOB #:** 16475559
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

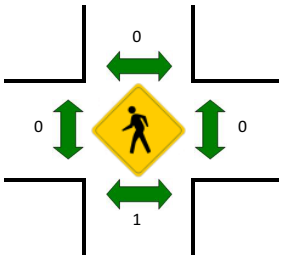
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**

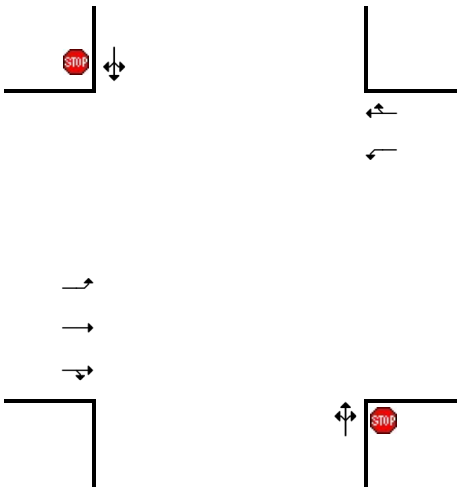


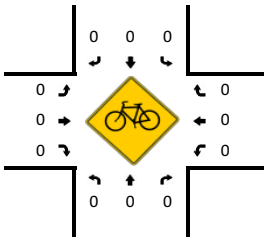


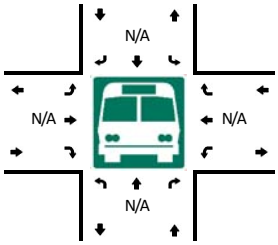


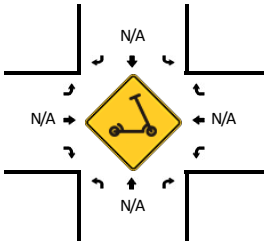



| 5-Min Count Period Beginning At | 34. N Locan Ave (Northbound) | | | | 34. N Locan Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 11 | 0 | 0 | 18 | |
| 7:05 AM | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 25 | 0 | 0 | 37 | |
| 7:10 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 2 | 1 | 0 | 16 | 0 | 0 | 35 | |
| 7:15 AM | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 2 | 0 | 19 | 0 | 0 | 36 | |
| 7:20 AM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 3 | 1 | 0 | 11 | 0 | 0 | 31 | |
| 7:25 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1 | 0 | 0 | 9 | 0 | 0 | 26 | |
| 7:30 AM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 3 | 0 | 0 | 16 | 0 | 0 | 51 | |
| 7:35 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 1 | 0 | 1 | 26 | 0 | 0 | 51 | |
| 7:40 AM | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 18 | 3 | 0 | 2 | 29 | 0 | 0 | 61 | |
| 7:45 AM | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 3 | 2 | 3 | 24 | 0 | 0 | 54 | |
| 7:50 AM | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 0 | 0 | 27 | 0 | 0 | 47 | |
| 7:55 AM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 2 | 0 | 0 | 53 | 0 | 0 | 71 | 518 |
| 8:00 AM | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 57 | 0 | 0 | 75 | 575 |
| 8:05 AM | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 1 | 0 | 40 | 0 | 0 | 60 | 598 |
| 8:10 AM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 27 | 0 | 0 | 43 | 606 |
| 8:15 AM | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 5 | 1 | 0 | 14 | 0 | 0 | 37 | 607 |
| 8:20 AM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 2 | 3 | 0 | 13 | 0 | 0 | 35 | 611 |
| 8:25 AM | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 3 | 0 | 1 | 7 | 0 | 0 | 33 | 618 |
| 8:30 AM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 2 | 1 | 6 | 0 | 0 | 30 | 597 |
| 8:35 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 3 | 0 | 2 | 10 | 0 | 0 | 32 | 578 |
| 8:40 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 5 | 0 | 0 | 8 | 0 | 0 | 31 | 548 |
| 8:45 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1 | 1 | 0 | 13 | 0 | 0 | 27 | 521 |
| 8:50 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 1 | 14 | 0 | 0 | 24 | 498 |
| 8:55 AM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 13 | 0 | 0 | 20 | 447 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 80 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 28 | 4 | 8 | 600 | 0 | 0 | 824 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 4 | | 0 | 8 | 0 | | 16 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

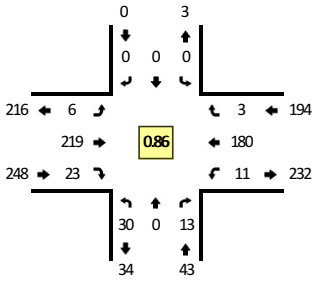
Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

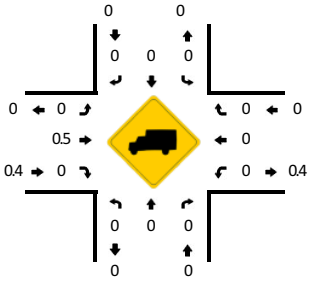
**LOCATION:** 34. N Locan Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

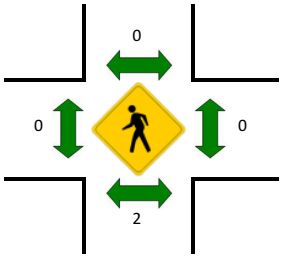
**QC JOB #:** 16475560
**DATE:** Tue, Feb 6 2024

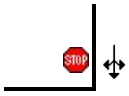
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:45 PM -- 6:00 PM**

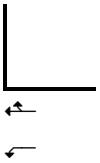


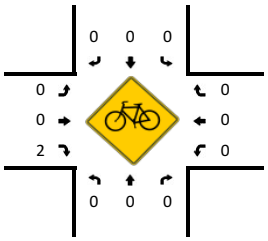

TRUE DATA TO IMPROVE MOBILITY

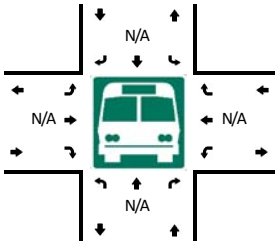


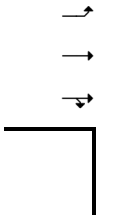



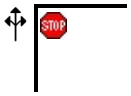



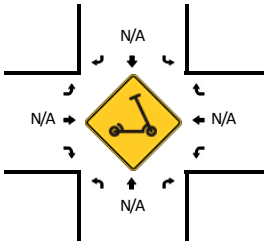








| 5-Min Count Period Beginning At | 34. N Locan Ave (Northbound) | | | | 34. N Locan Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 1 | 0 | 1 | 13 | 0 | 0 | 32 | |
| 4:05 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 3 | 1 | 1 | 11 | 0 | 0 | 27 | |
| 4:10 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 3 | 1 | 0 | 6 | 0 | 0 | 23 | |
| 4:15 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 1 | 0 | 1 | 11 | 0 | 0 | 37 | |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 1 | 13 | 0 | 0 | 30 | |
| 4:25 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 1 | 0 | 1 | 16 | 0 | 0 | 35 | |
| 4:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 3 | 1 | 2 | 6 | 0 | 0 | 32 | |
| 4:35 PM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 2 | 0 | 0 | 22 | 0 | 0 | 45 | |
| 4:40 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 2 | 0 | 2 | 26 | 0 | 0 | 45 | |
| 4:45 PM | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 13 | 1 | 0 | 2 | 29 | 0 | 0 | 51 | |
| 4:50 PM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 1 | 22 | 0 | 0 | 47 | |
| 4:55 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 1 | 0 | 13 | 0 | 0 | 26 | 430 |
| 5:00 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 1 | 15 | 0 | 0 | 35 | 433 |
| 5:05 PM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 2 | 1 | 1 | 10 | 0 | 0 | 38 | 444 |
| 5:10 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 21 | 0 | 0 | 34 | 455 |
| 5:15 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 2 | 0 | 2 | 17 | 0 | 0 | 44 | 462 |
| 5:20 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 1 | 0 | 20 | 0 | 0 | 42 | 474 |
| 5:25 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 2 | 1 | 1 | 18 | 0 | 0 | 39 | 478 |
| 5:30 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 2 | 0 | 11 | 0 | 0 | 35 | 481 |
| 5:35 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 3 | 1 | 1 | 14 | 0 | 0 | 40 | 476 |
| 5:40 PM | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 2 | 9 | 1 | 0 | 37 | 468 |
| 5:45 PM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 5 | 0 | 2 | 13 | 0 | 0 | 55 | 472 |
| 5:50 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 5 | 0 | 0 | 18 | 1 | 0 | 45 | 470 |
| 5:55 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 2 | 0 | 1 | 14 | 1 | 0 | 41 | 485 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 24 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 272 | 48 | 0 | 12 | 180 | 8 | 0 | 564 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

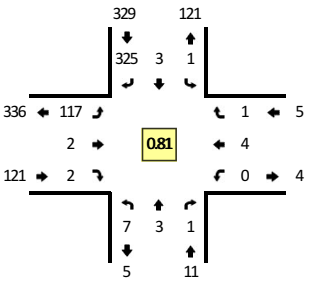
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** 35. N Locan Ave -- Nees Ave
**CITY/STATE:** Clovis, CA

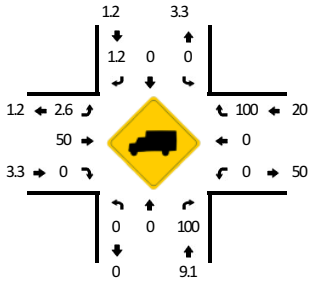
**QC JOB #:** 16475561
**DATE:** Tue, Feb 6 2024

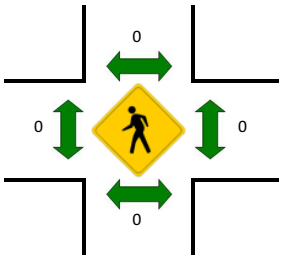
**Peak-Hour: 7:05 AM -- 8:05 AM**
**Peak 15-Min: 7:30 AM -- 7:45 AM**

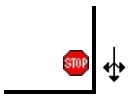


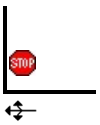


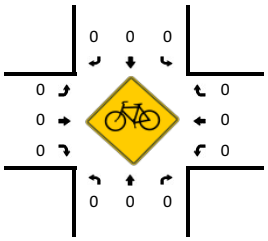


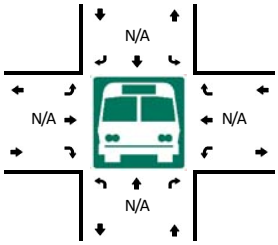


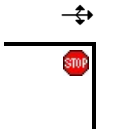



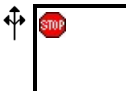



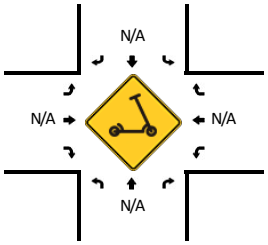




| 5-Min Count Period Beginning At | 35. N Locan Ave (Northbound) | | | | 35. N Locan Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | |
| 7:05 AM | 0 | 0 | 1 | 0 | 0 | 0 | 18 | 0 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 30 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | |
| 7:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | |
| 7:25 AM | 1 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | |
| 7:30 AM | 2 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 45 | |
| 7:35 AM | 0 | 2 | 0 | 0 | 0 | 0 | 43 | 0 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 56 | |
| 7:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | |
| 7:45 AM | 0 | 1 | 0 | 0 | 0 | 1 | 20 | 0 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 41 | |
| 7:50 AM | 3 | 0 | 0 | 0 | 0 | 2 | 20 | 0 | 21 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 48 | |
| 7:55 AM | 1 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 463 |
| 8:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 23 | 0 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 31 | 466 |
| 8:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 465 |
| 8:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 464 |
| 8:15 AM | 2 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 19 | 449 |
| 8:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 440 |
| 8:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 12 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 21 | 419 |
| 8:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 27 | 401 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 9 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 20 | 365 |
| 8:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19 | 341 |
| 8:45 AM | 2 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 20 | 320 |
| 8:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19 | 291 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 268 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 8 | 0 | 0 | 0 | 0 | 464 | 0 | 88 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 576 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

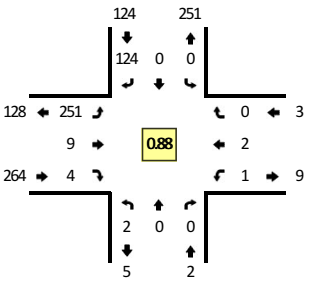
Type of peak hour being reported: Intersection Peak

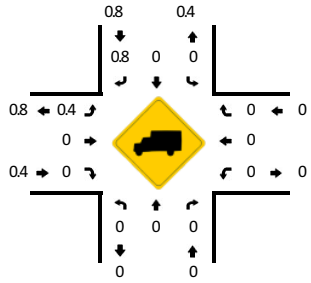
Method for determining peak hour: Total Entering Volume

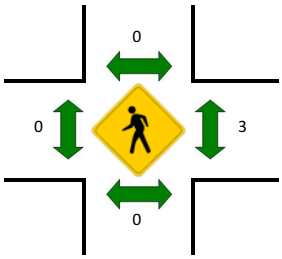
**LOCATION:** 35. N Locan Ave -- Nees Ave
**CITY/STATE:** Clovis, CA

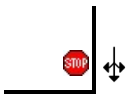
**QC JOB #:** 16475562
**DATE:** Tue, Feb 6 2024

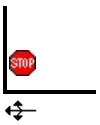
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

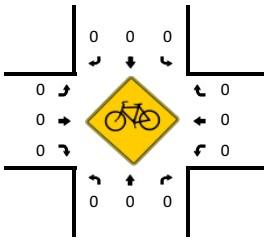


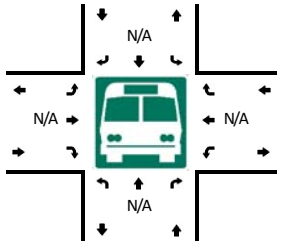



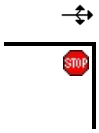



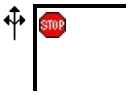



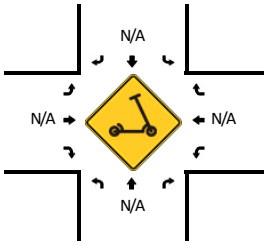




| 5-Min Count Period Beginning At | 35. N Locan Ave (Northbound) | | | | 35. N Locan Ave (Southbound) | | | | Nees Ave (Eastbound) | | | | Nees Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 19 | |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 26 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 37 | |
| 4:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 19 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | |
| 4:25 PM | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 27 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 36 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | |
| 4:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 22 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 31 | |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 16 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 28 | |
| 4:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 16 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 29 | |
| 4:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 21 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 35 | |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 17 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 25 | 341 |
| 5:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 19 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 31 | 343 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 364 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 360 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 20 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 39 | 384 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 21 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 30 | 382 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 377 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 384 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 24 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 34 | 387 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 20 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 388 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 392 |
| 5:50 PM | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 381 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 22 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 37 | 393 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 188 | 0 | 252 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 448 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 4 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

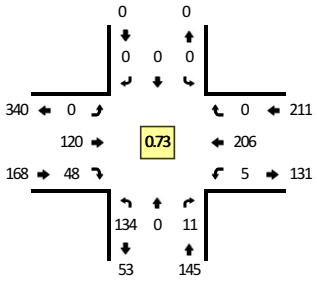
Report generated on 2/23/2024 2:42 PM

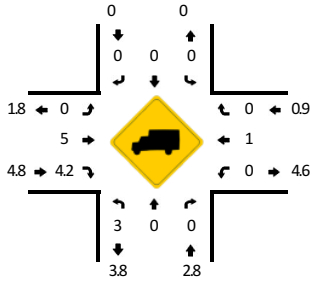
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

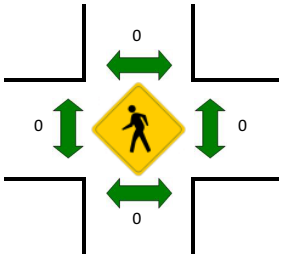
**LOCATION:** 37. De Wolf Ave -- E Shepherd Ave | **QC JOB #:** 16475563
**CITY/STATE:** Clovis, CA | **DATE:** Tue, Feb 6 2024

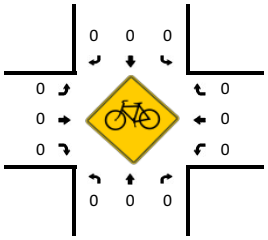
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**

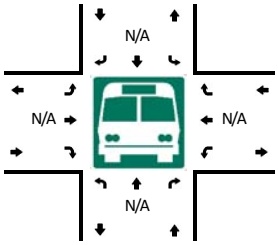


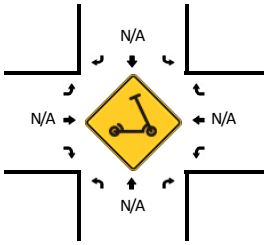



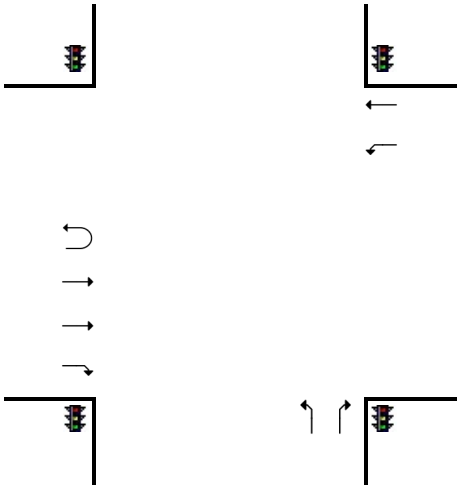

TRUE DATA TO IMPROVE MOBILITY



| 5-Min Count Period Beginning At | 37. De Wolf Ave (Northbound) | | | | 37. De Wolf Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 6 | 0 | 0 | 19 | |
| 7:05 AM | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 19 | 0 | 0 | 32 | |
| 7:10 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 5 | 0 | 0 | 8 | 0 | 0 | 31 | |
| 7:15 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 0 | 2 | 13 | 0 | 0 | 28 | |
| 7:20 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 0 | 0 | 7 | 0 | 0 | 22 | |
| 7:25 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 | 0 | 0 | 8 | 0 | 0 | 24 | |
| 7:30 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 10 | 0 | 1 | 8 | 0 | 0 | 41 | |
| 7:35 AM | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 5 | 0 | 0 | 19 | 0 | 0 | 47 | |
| 7:40 AM | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 9 | 0 | 1 | 23 | 0 | 0 | 62 | |
| 7:45 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 2 | 0 | 0 | 16 | 0 | 0 | 40 | |
| 7:50 AM | 15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | 1 | 15 | 0 | 0 | 42 | |
| 7:55 AM | 23 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 3 | 0 | 0 | 30 | 0 | 0 | 64 | 452 |
| 8:00 AM | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 39 | 0 | 0 | 72 | 505 |
| 8:05 AM | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 17 | 0 | 0 | 43 | 516 |
| 8:10 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2 | 0 | 1 | 15 | 0 | 0 | 36 | 521 |
| 8:15 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 11 | 0 | 0 | 21 | 514 |
| 8:20 AM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 0 | 9 | 0 | 0 | 27 | 519 |
| 8:25 AM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 4 | 0 | 0 | 4 | 0 | 0 | 29 | 524 |
| 8:30 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 5 | 0 | 0 | 6 | 0 | 0 | 25 | 508 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 | 1 | 11 | 0 | 0 | 28 | 489 |
| 8:40 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 5 | 0 | 0 | 7 | 0 | 0 | 28 | 455 |
| 8:45 AM | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 3 | 0 | 0 | 7 | 0 | 0 | 24 | 439 |
| 8:50 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 12 | 0 | 0 | 25 | 422 |
| 8:55 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 10 | 0 | 0 | 19 | 377 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 256 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 20 | 0 | 4 | 344 | 0 | 0 | 716 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 8 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

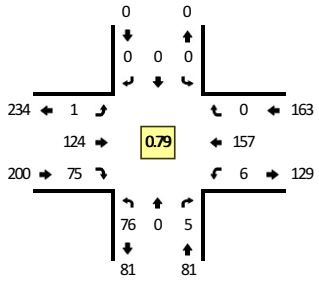
Type of peak hour being reported: Intersection Peak

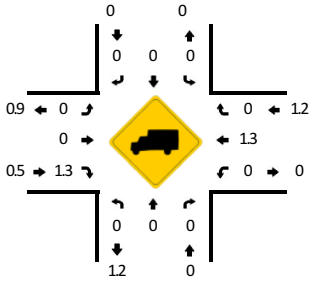
Method for determining peak hour: Total Entering Volume

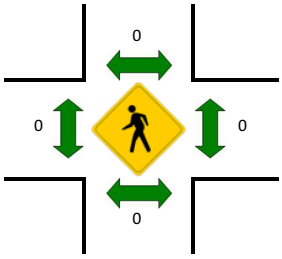
**LOCATION:** 37. De Wolf Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

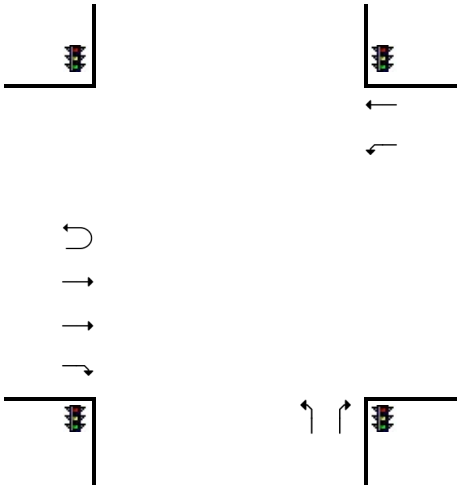
**QC JOB #:** 16475564
**DATE:** Tue, Feb 6 2024

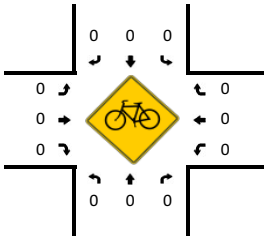
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 4:35 PM -- 4:50 PM**

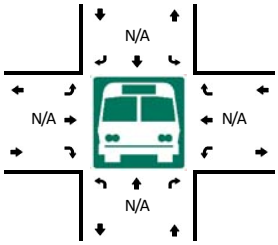


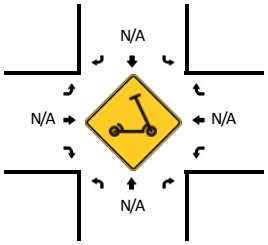






| 5-Min Count Period Beginning At | 37. De Wolf Ave (Northbound) | | | | 37. De Wolf Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 3 | 0 | 2 | 11 | 0 | 0 | 35 | |
| 4:05 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | 7 | 0 | 0 | 20 | |
| 4:10 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 3 | 0 | 0 | 5 | 0 | 0 | 22 | |
| 4:15 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 8 | 0 | 0 | 9 | 0 | 0 | 36 | |
| 4:20 PM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 9 | 0 | 1 | 10 | 0 | 0 | 34 | |
| 4:25 PM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 | 0 | 1 | 13 | 0 | 0 | 30 | |
| 4:30 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 7 | 0 | 0 | 28 | |
| 4:35 PM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 1 | 0 | 14 | 0 | 0 | 37 | |
| 4:40 PM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 3 | 0 | 2 | 22 | 0 | 0 | 46 | |
| 4:45 PM | 13 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 5 | 0 | 1 | 26 | 0 | 0 | 57 | |
| 4:50 PM | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 6 | 0 | 0 | 9 | 0 | 0 | 34 | |
| 4:55 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 | 0 | 0 | 10 | 0 | 0 | 27 | 406 |
| 5:00 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 6 | 0 | 1 | 11 | 0 | 0 | 31 | 402 |
| 5:05 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 6 | 0 | 1 | 8 | 0 | 0 | 28 | 410 |
| 5:10 PM | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 14 | 0 | 0 | 33 | 421 |
| 5:15 PM | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 15 | 0 | 0 | 47 | 432 |
| 5:20 PM | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 10 | 0 | 0 | 8 | 0 | 0 | 37 | 435 |
| 5:25 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 1 | 14 | 0 | 0 | 37 | 442 |
| 5:30 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 9 | 0 | 0 | 6 | 0 | 0 | 30 | 444 |
| 5:35 PM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 7 | 0 | 0 | 8 | 0 | 0 | 31 | 438 |
| 5:40 PM | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 7 | 0 | 0 | 8 | 0 | 1 | 39 | 431 |
| 5:45 PM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 10 | 0 | 0 | 8 | 0 | 0 | 39 | 413 |
| 5:50 PM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 8 | 0 | 0 | 8 | 0 | 0 | 35 | 414 |
| 5:55 PM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 6 | 0 | 0 | 10 | 0 | 0 | 37 | 424 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 100 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 136 | 56 | 4 | 12 | 248 | 0 | 0 | 560 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 38. N De Wolf Ave -- Owens Mountain Pkwy

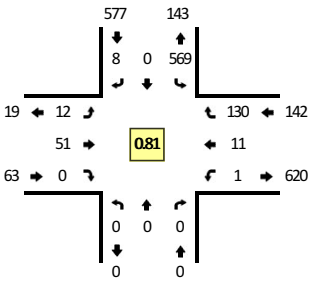
**CITY/STATE:** Clovis, CA

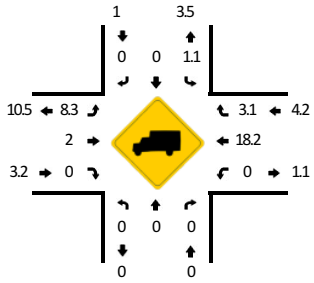
**QC JOB #:** 16475565

**DATE:** Thu, Feb 15 2024

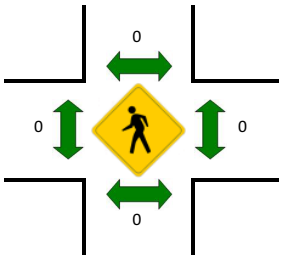
**Peak-Hour: 7:15 AM -- 8:15 AM**

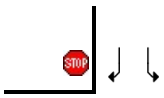
**Peak 15-Min: 7:40 AM -- 7:55 AM**

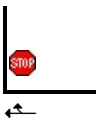


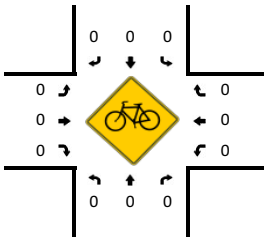



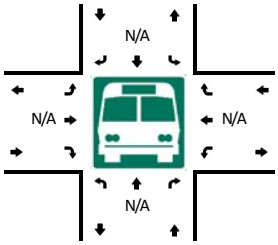

TRUE DATA TO IMPROVE MOBILITY

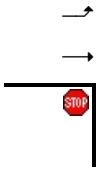


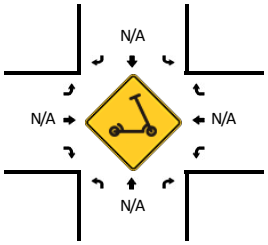










| 5-Min Count Period Beginning At | 38. N De Wolf Ave (Northbound) | | | | 38. N De Wolf Ave (Southbound) | | | | Owens Mountain Pkwy (Eastbound) | | | | Owens Mountain Pkwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 28 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4 | 0 | 36 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 33 | 0 | 1 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 9 | 0 | 49 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 30 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 38 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 9 | 0 | 48 | |
| 7:20 AM | 0 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 8 | 0 | 60 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 13 | 0 | 72 | |
| 7:30 AM | 0 | 0 | 0 | 0 | 46 | 0 | 3 | 1 | 2 | 7 | 0 | 0 | 0 | 0 | 10 | 0 | 69 | |
| 7:35 AM | 0 | 0 | 0 | 0 | 60 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 12 | 0 | 78 | |
| 7:40 AM | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 15 | 1 | 86 | |
| 7:45 AM | 0 | 0 | 0 | 0 | 59 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 2 | 8 | 0 | 73 | |
| 7:50 AM | 0 | 0 | 0 | 0 | 66 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 9 | 0 | 83 | |
| 7:55 AM | 0 | 0 | 0 | 0 | 41 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 11 | 0 | 58 | 750 |
| 8:00 AM | 0 | 0 | 0 | 0 | 37 | 0 | 1 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 17 | 0 | 63 | 777 |
| 8:05 AM | 0 | 0 | 0 | 0 | 28 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 0 | 38 | 766 |
| 8:10 AM | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 13 | 0 | 54 | 782 |
| 8:15 AM | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 9 | 0 | 38 | 772 |
| 8:20 AM | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 10 | 0 | 43 | 755 |
| 8:25 AM | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 | 0 | 35 | 718 |
| 8:30 AM | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 9 | 0 | 41 | 690 |
| 8:35 AM | 0 | 0 | 0 | 0 | 36 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 6 | 0 | 47 | 659 |
| 8:40 AM | 0 | 0 | 0 | 0 | 22 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 | 0 | 36 | 609 |
| 8:45 AM | 0 | 0 | 0 | 0 | 23 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 15 | 0 | 46 | 582 |
| 8:50 AM | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 8 | 0 | 35 | 534 |
| 8:55 AM | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | 0 | 25 | 501 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 752 | 0 | 4 | 0 | 8 | 56 | 0 | 0 | 0 | 16 | 128 | 4 | 968 |
| Heavy Trucks | 0 | 0 | 0 | | 8 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 8 | | 24 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

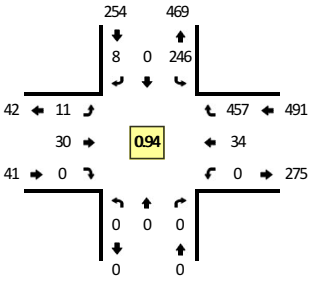
Report generated on 2/23/2024 2:42 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

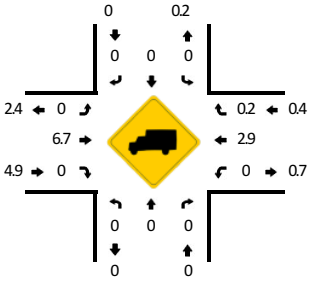
**LOCATION:** 38. N De Wolf Ave -- Owens Mountain Pkwy | **QC JOB #:** 16475566
**CITY/STATE:** Clovis, CA | **DATE:** Wed, Feb 14 2024

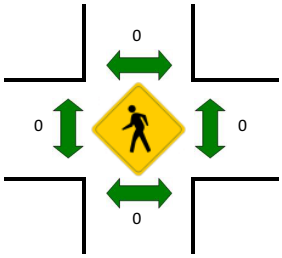
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**





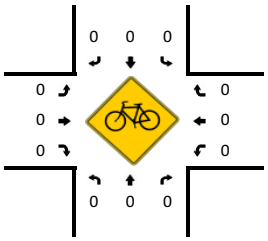


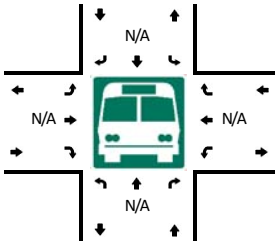




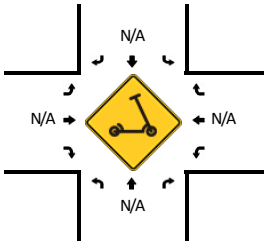











| 5-Min Count Period Beginning At | 38. N De Wolf Ave (Northbound) | | | | 38. N De Wolf Ave (Southbound) | | | | Owens Mountain Pkwy (Eastbound) | | | | Owens Mountain Pkwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 31 | 0 | 58 | |
| 4:05 PM | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 31 | 0 | 48 | |
| 4:10 PM | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 34 | 0 | 54 | |
| 4:15 PM | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 35 | 0 | 55 | |
| 4:20 PM | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 30 | 0 | 45 | |
| 4:25 PM | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 20 | 0 | 40 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 30 | 0 | 44 | |
| 4:35 PM | 0 | 0 | 0 | 0 | 20 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 5 | 34 | 0 | 63 | |
| 4:40 PM | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 3 | 41 | 0 | 71 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 27 | 0 | 1 | 1 | 0 | 7 | 0 | 0 | 0 | 4 | 23 | 0 | 63 | |
| 4:50 PM | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 4 | 39 | 0 | 70 | |
| 4:55 PM | 0 | 0 | 0 | 0 | 13 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 28 | 0 | 48 | 659 |
| 5:00 PM | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 40 | 0 | 63 | 664 |
| 5:05 PM | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 3 | 26 | 0 | 55 | 671 |
| 5:10 PM | 0 | 0 | 0 | 0 | 33 | 0 | 1 | 0 | 2 | 3 | 0 | 0 | 0 | 2 | 42 | 0 | 83 | 700 |
| 5:15 PM | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 39 | 0 | 61 | 706 |
| 5:20 PM | 0 | 0 | 0 | 0 | 20 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 39 | 0 | 66 | 727 |
| 5:25 PM | 0 | 0 | 0 | 0 | 23 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 37 | 0 | 65 | 752 |
| 5:30 PM | 0 | 0 | 0 | 0 | 15 | 0 | 1 | 1 | 1 | 4 | 0 | 0 | 0 | 5 | 45 | 0 | 72 | 780 |
| 5:35 PM | 0 | 0 | 0 | 0 | 13 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 41 | 0 | 62 | 779 |
| 5:40 PM | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 36 | 0 | 66 | 774 |
| 5:45 PM | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 5 | 37 | 0 | 72 | 783 |
| 5:50 PM | 0 | 0 | 0 | 0 | 13 | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 0 | 2 | 41 | 0 | 62 | 775 |
| 5:55 PM | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 4 | 34 | 0 | 59 | 786 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 288 | 0 | 12 | 0 | 12 | 28 | 0 | 0 | 0 | 20 | 480 | 0 | 840 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 2/23/2024 2:42 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

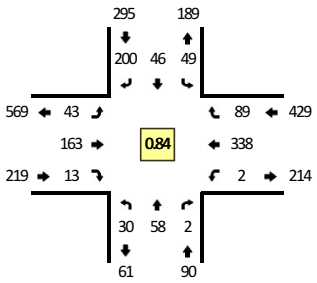
Type of peak hour being reported: Intersection Peak

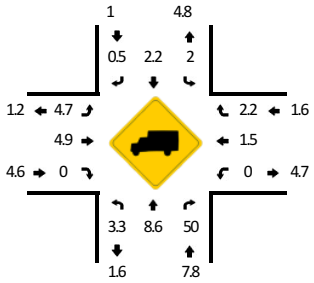
Method for determining peak hour: Total Entering Volume

**LOCATION:** 39. E Shepherd Ave -- SR 168
**CITY/STATE:** Clovis, CA

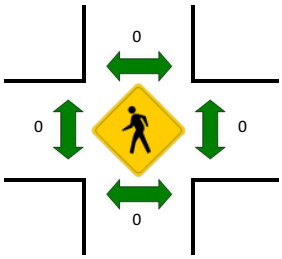
**QC JOB #:** 16475567
**DATE:** Thu, Feb 8 2024

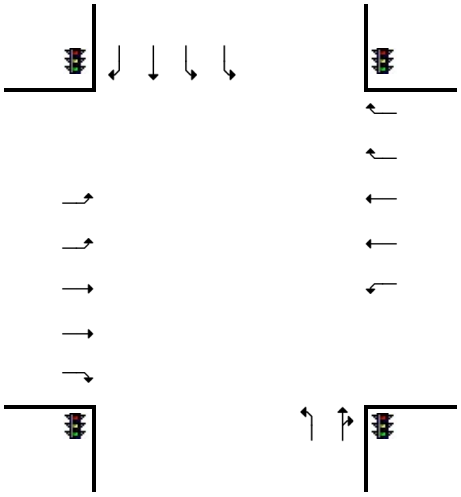
**Peak-Hour: 7:20 AM -- 8:20 AM**
**Peak 15-Min: 7:30 AM -- 7:45 AM**

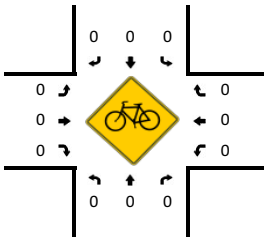


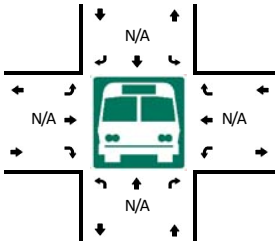



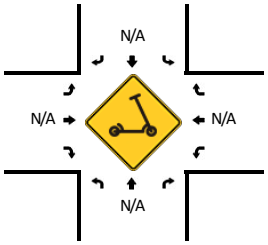

TRUE DATA TO IMPROVE MOBILITY






| 5-Min Count Period Beginning At | 39. E Shepherd Ave (Northbound) | | | | 39. E Shepherd Ave (Southbound) | | | | SR 168 (Eastbound) | | | | SR 168 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 1 | 1 | 0 | 0 | 4 | 1 | 6 | 0 | 2 | 11 | 3 | 0 | 0 | 21 | 2 | 0 | 52 | |
| 7:05 AM | 5 | 1 | 0 | 0 | 3 | 6 | 7 | 0 | 5 | 12 | 0 | 0 | 0 | 16 | 2 | 0 | 57 | |
| 7:10 AM | 0 | 2 | 0 | 0 | 9 | 6 | 17 | 0 | 2 | 9 | 1 | 0 | 1 | 22 | 2 | 0 | 71 | |
| 7:15 AM | 2 | 1 | 0 | 0 | 5 | 5 | 10 | 0 | 5 | 12 | 0 | 0 | 1 | 18 | 6 | 0 | 65 | |
| 7:20 AM | 2 | 0 | 0 | 0 | 1 | 2 | 21 | 0 | 1 | 21 | 2 | 1 | 0 | 40 | 5 | 0 | 96 | |
| 7:25 AM | 3 | 8 | 0 | 0 | 1 | 6 | 15 | 0 | 5 | 10 | 0 | 0 | 0 | 30 | 9 | 0 | 87 | |
| 7:30 AM | 3 | 7 | 0 | 0 | 6 | 5 | 13 | 0 | 3 | 21 | 1 | 0 | 0 | 29 | 10 | 0 | 98 | |
| 7:35 AM | 4 | 4 | 0 | 0 | 2 | 5 | 17 | 0 | 2 | 18 | 0 | 0 | 1 | 44 | 14 | 0 | 111 | |
| 7:40 AM | 5 | 6 | 1 | 0 | 6 | 5 | 25 | 0 | 2 | 11 | 2 | 0 | 0 | 20 | 14 | 0 | 97 | |
| 7:45 AM | 3 | 3 | 1 | 0 | 6 | 2 | 26 | 0 | 3 | 8 | 1 | 0 | 1 | 24 | 5 | 0 | 83 | |
| 7:50 AM | 4 | 5 | 0 | 0 | 8 | 9 | 16 | 0 | 3 | 12 | 2 | 0 | 0 | 27 | 6 | 0 | 92 | |
| 7:55 AM | 2 | 4 | 0 | 0 | 6 | 4 | 20 | 0 | 2 | 12 | 1 | 0 | 0 | 20 | 3 | 0 | 74 | 983 |
| 8:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 9 | 0 | 3 | 11 | 2 | 0 | 0 | 37 | 6 | 0 | 71 | 1002 |
| 8:05 AM | 1 | 4 | 0 | 0 | 3 | 4 | 10 | 0 | 3 | 15 | 0 | 0 | 0 | 24 | 5 | 0 | 69 | 1014 |
| 8:10 AM | 1 | 5 | 0 | 0 | 8 | 2 | 12 | 0 | 10 | 14 | 2 | 0 | 0 | 18 | 5 | 0 | 77 | 1020 |
| 8:15 AM | 2 | 9 | 0 | 0 | 2 | 2 | 16 | 0 | 5 | 10 | 0 | 0 | 0 | 25 | 7 | 0 | 78 | 1033 |
| 8:20 AM | 1 | 1 | 0 | 0 | 2 | 1 | 8 | 0 | 2 | 17 | 0 | 0 | 0 | 24 | 6 | 0 | 62 | 999 |
| 8:25 AM | 0 | 3 | 0 | 0 | 2 | 1 | 6 | 0 | 2 | 12 | 0 | 0 | 0 | 18 | 4 | 0 | 48 | 960 |
| 8:30 AM | 1 | 0 | 1 | 0 | 3 | 4 | 5 | 0 | 4 | 18 | 1 | 0 | 0 | 17 | 3 | 0 | 57 | 919 |
| 8:35 AM | 4 | 0 | 0 | 0 | 2 | 1 | 5 | 0 | 1 | 16 | 2 | 0 | 0 | 30 | 3 | 0 | 64 | 872 |
| 8:40 AM | 3 | 3 | 0 | 0 | 2 | 3 | 8 | 0 | 2 | 10 | 2 | 0 | 0 | 24 | 2 | 0 | 59 | 834 |
| 8:45 AM | 1 | 0 | 0 | 0 | 2 | 1 | 8 | 0 | 6 | 15 | 1 | 0 | 0 | 19 | 4 | 0 | 57 | 808 |
| 8:50 AM | 0 | 3 | 0 | 0 | 5 | 2 | 11 | 0 | 5 | 8 | 0 | 1 | 0 | 22 | 1 | 0 | 58 | 774 |
| 8:55 AM | 2 | 1 | 0 | 0 | 3 | 4 | 10 | 0 | 8 | 5 | 0 | 0 | 0 | 15 | 6 | 0 | 54 | 754 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 48 | 68 | 4 | 0 | 56 | 60 | 220 | 0 | 28 | 200 | 12 | 0 | 4 | 372 | 152 | 0 | 1224 |
| Heavy Trucks | 4 | 4 | 4 | | 0 | 0 | 4 | | 0 | 12 | 0 | | 0 | 12 | 0 | | 40 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 3/11/2024 8:27 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

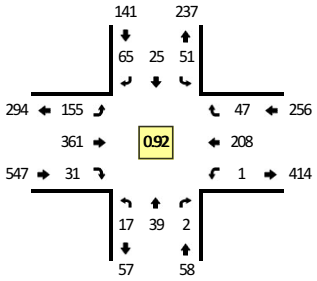
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** 39. E Shepherd Ave -- SR 168
**CITY/STATE:** Clovis, CA

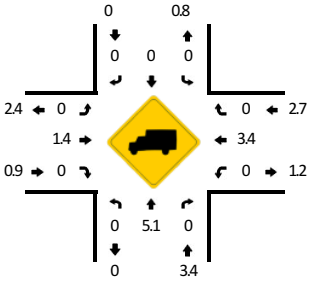
**QC JOB #:** 16475568
**DATE:** Thu, Feb 8 2024

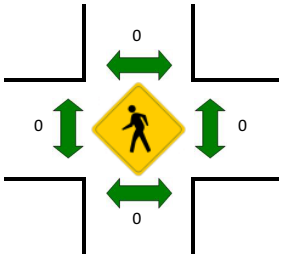
**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

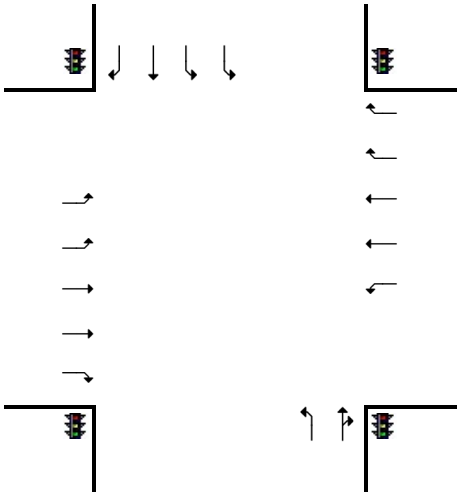


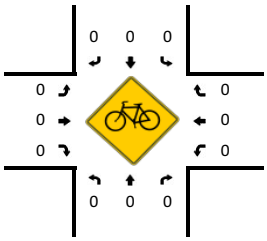


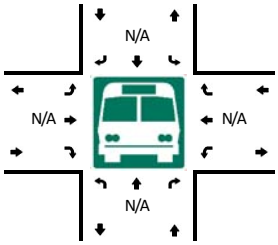

TRUE DATA TO IMPROVE MOBILITY

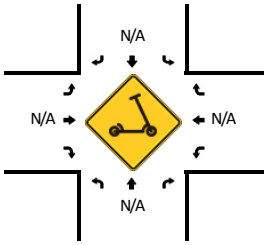





| 5-Min Count Period Beginning At | 39. E Shepherd Ave (Northbound) | | | | 39. E Shepherd Ave (Southbound) | | | | SR 168 (Eastbound) | | | | SR 168 (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 3 | 0 | 0 | 7 | 5 | 2 | 0 | 6 | 16 | 1 | 0 | 0 | 12 | 8 | 0 | 60 | |
| 4:05 PM | 0 | 2 | 0 | 0 | 3 | 3 | 2 | 0 | 6 | 28 | 6 | 0 | 0 | 9 | 4 | 0 | 63 | |
| 4:10 PM | 1 | 2 | 0 | 0 | 2 | 3 | 5 | 0 | 7 | 23 | 1 | 0 | 0 | 6 | 6 | 0 | 56 | |
| 4:15 PM | 3 | 6 | 0 | 0 | 4 | 2 | 5 | 0 | 8 | 28 | 2 | 0 | 0 | 11 | 6 | 0 | 75 | |
| 4:20 PM | 1 | 3 | 0 | 0 | 7 | 7 | 7 | 0 | 10 | 35 | 5 | 0 | 0 | 22 | 3 | 1 | 101 | |
| 4:25 PM | 2 | 2 | 0 | 0 | 5 | 2 | 3 | 0 | 11 | 33 | 0 | 0 | 0 | 23 | 4 | 0 | 85 | |
| 4:30 PM | 1 | 1 | 0 | 0 | 2 | 1 | 5 | 0 | 10 | 29 | 0 | 0 | 0 | 15 | 4 | 0 | 68 | |
| 4:35 PM | 0 | 2 | 0 | 0 | 1 | 2 | 10 | 0 | 5 | 28 | 2 | 0 | 1 | 21 | 3 | 0 | 75 | |
| 4:40 PM | 1 | 3 | 0 | 0 | 3 | 6 | 3 | 0 | 16 | 28 | 2 | 0 | 0 | 12 | 8 | 0 | 82 | |
| 4:45 PM | 0 | 5 | 1 | 0 | 5 | 4 | 7 | 0 | 12 | 32 | 3 | 0 | 0 | 22 | 10 | 0 | 101 | |
| 4:50 PM | 0 | 1 | 0 | 0 | 4 | 3 | 4 | 0 | 8 | 23 | 2 | 1 | 0 | 23 | 2 | 0 | 71 | |
| 4:55 PM | 2 | 3 | 0 | 0 | 2 | 4 | 0 | 0 | 12 | 40 | 4 | 0 | 0 | 10 | 3 | 0 | 80 | 917 |
| 5:00 PM | 3 | 3 | 1 | 0 | 8 | 3 | 10 | 0 | 5 | 21 | 3 | 0 | 0 | 15 | 6 | 0 | 78 | 935 |
| 5:05 PM | 0 | 4 | 1 | 0 | 10 | 0 | 4 | 0 | 8 | 30 | 1 | 0 | 0 | 16 | 8 | 0 | 82 | 954 |
| 5:10 PM | 2 | 1 | 0 | 0 | 3 | 2 | 3 | 0 | 15 | 28 | 4 | 1 | 0 | 16 | 2 | 0 | 77 | 975 |
| 5:15 PM | 2 | 0 | 0 | 0 | 3 | 2 | 8 | 0 | 6 | 31 | 2 | 1 | 0 | 15 | 2 | 0 | 72 | 972 |
| 5:20 PM | 0 | 4 | 0 | 0 | 3 | 1 | 5 | 0 | 15 | 28 | 4 | 1 | 0 | 25 | 0 | 0 | 86 | 957 |
| 5:25 PM | 2 | 6 | 0 | 0 | 2 | 3 | 4 | 0 | 14 | 35 | 1 | 0 | 0 | 29 | 4 | 0 | 100 | 972 |
| 5:30 PM | 0 | 2 | 0 | 0 | 3 | 1 | 4 | 0 | 12 | 37 | 3 | 1 | 0 | 18 | 5 | 0 | 86 | 990 |
| 5:35 PM | 1 | 6 | 0 | 0 | 4 | 0 | 6 | 0 | 16 | 25 | 4 | 0 | 0 | 8 | 6 | 0 | 76 | 991 |
| 5:40 PM | 1 | 3 | 0 | 0 | 4 | 4 | 11 | 0 | 8 | 22 | 3 | 0 | 1 | 23 | 2 | 0 | 82 | 991 |
| 5:45 PM | 2 | 4 | 0 | 0 | 2 | 3 | 4 | 0 | 18 | 31 | 1 | 0 | 0 | 13 | 2 | 0 | 80 | 970 |
| 5:50 PM | 2 | 3 | 0 | 0 | 7 | 2 | 6 | 0 | 22 | 33 | 1 | 0 | 0 | 20 | 7 | 0 | 103 | 1002 |
| 5:55 PM | 2 | 2 | 1 | 0 | 2 | 4 | 2 | 0 | 9 | 17 | 1 | 0 | 0 | 19 | 3 | 0 | 62 | 984 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 48 | 0 | 0 | 32 | 20 | 52 | 0 | 164 | 400 | 32 | 8 | 0 | 288 | 36 | 0 | 1088 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 0 | | 16 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 3/11/2024 8:27 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

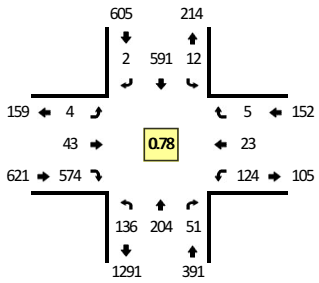
Type of peak hour being reported: Intersection Peak

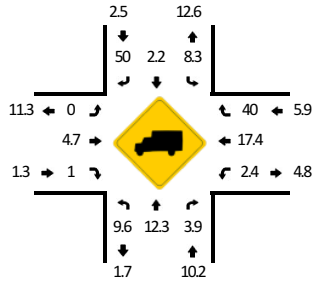
Method for determining peak hour: Total Entering Volume

**LOCATION:** 1. SR 168 -- Owens Mountain Pkwy
**CITY/STATE:** Clovis, CA

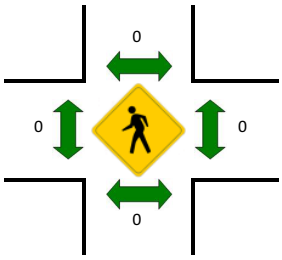
**QC JOB #:** 16504701
**DATE:** Thu, Feb 29 2024

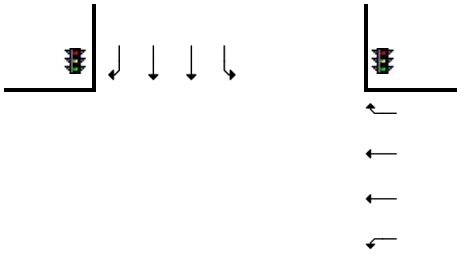
**Peak-Hour: 7:10 AM -- 8:10 AM**
**Peak 15-Min: 7:35 AM -- 7:50 AM**

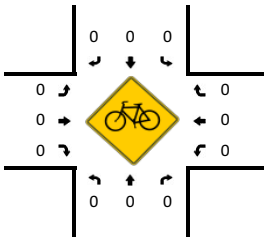


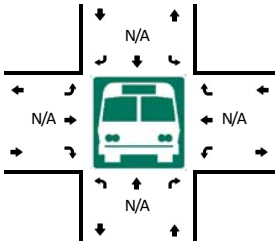



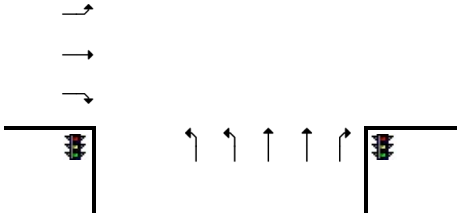

TRUE DATA TO IMPROVE MOBILITY

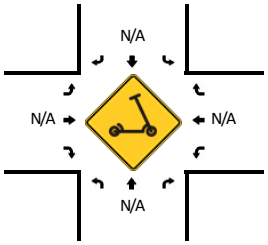







| 5-Min Count Period Beginning At | 1. SR 168 (Northbound) | | | | 1. SR 168 (Southbound) | | | | Owens Mountain Pkwy (Eastbound) | | | | Owens Mountain Pkwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 6 | 20 | 2 | 0 | 0 | 29 | 0 | 0 | 0 | 8 | 27 | 0 | 5 | 1 | 0 | 0 | 98 | |
| 7:05 AM | 4 | 17 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 2 | 44 | 0 | 4 | 2 | 0 | 0 | 107 | |
| 7:10 AM | 6 | 20 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 5 | 34 | 0 | 4 | 4 | 0 | 0 | 111 | |
| 7:15 AM | 2 | 21 | 1 | 0 | 0 | 48 | 0 | 0 | 1 | 3 | 37 | 0 | 7 | 0 | 3 | 0 | 123 | |
| 7:20 AM | 12 | 17 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 2 | 45 | 0 | 8 | 1 | 1 | 0 | 131 | |
| 7:25 AM | 6 | 16 | 3 | 0 | 0 | 66 | 0 | 0 | 0 | 1 | 44 | 0 | 15 | 1 | 0 | 0 | 152 | |
| 7:30 AM | 17 | 17 | 0 | 0 | 1 | 60 | 0 | 0 | 1 | 2 | 48 | 0 | 15 | 4 | 0 | 0 | 165 | |
| 7:35 AM | 11 | 17 | 9 | 0 | 0 | 53 | 0 | 0 | 0 | 2 | 73 | 0 | 11 | 3 | 0 | 0 | 179 | |
| 7:40 AM | 17 | 15 | 6 | 0 | 4 | 63 | 0 | 1 | 0 | 6 | 63 | 0 | 14 | 1 | 0 | 0 | 190 | |
| 7:45 AM | 13 | 16 | 7 | 0 | 2 | 76 | 1 | 0 | 1 | 3 | 53 | 0 | 20 | 3 | 1 | 0 | 196 | |
| 7:50 AM | 7 | 19 | 7 | 1 | 2 | 26 | 0 | 0 | 0 | 12 | 70 | 0 | 6 | 5 | 0 | 0 | 155 | |
| 7:55 AM | 14 | 18 | 8 | 0 | 2 | 42 | 1 | 0 | 0 | 2 | 43 | 0 | 10 | 0 | 0 | 0 | 140 | 1747 |
| 8:00 AM | 17 | 13 | 7 | 0 | 0 | 32 | 0 | 0 | 0 | 4 | 32 | 0 | 6 | 1 | 0 | 0 | 112 | 1761 |
| 8:05 AM | 12 | 15 | 3 | 1 | 0 | 42 | 0 | 0 | 1 | 1 | 32 | 0 | 8 | 0 | 0 | 0 | 115 | 1769 |
| 8:10 AM | 6 | 16 | 4 | 0 | 0 | 31 | 0 | 0 | 0 | 1 | 19 | 0 | 9 | 2 | 0 | 0 | 88 | 1746 |
| 8:15 AM | 10 | 23 | 3 | 0 | 0 | 33 | 0 | 0 | 0 | 3 | 36 | 0 | 11 | 4 | 1 | 0 | 124 | 1747 |
| 8:20 AM | 7 | 21 | 1 | 1 | 1 | 45 | 0 | 0 | 0 | 1 | 29 | 0 | 6 | 1 | 0 | 0 | 113 | 1729 |
| 8:25 AM | 12 | 16 | 2 | 0 | 1 | 35 | 0 | 0 | 0 | 1 | 37 | 0 | 4 | 1 | 0 | 0 | 109 | 1686 |
| 8:30 AM | 9 | 16 | 5 | 2 | 1 | 40 | 0 | 0 | 0 | 0 | 24 | 0 | 8 | 0 | 0 | 0 | 105 | 1626 |
| 8:35 AM | 11 | 32 | 5 | 0 | 2 | 38 | 0 | 0 | 1 | 4 | 28 | 0 | 5 | 0 | 0 | 0 | 126 | 1573 |
| 8:40 AM | 5 | 20 | 0 | 1 | 0 | 31 | 0 | 0 | 0 | 4 | 29 | 0 | 5 | 1 | 0 | 0 | 96 | 1479 |
| 8:45 AM | 9 | 15 | 2 | 0 | 0 | 30 | 1 | 0 | 0 | 1 | 23 | 0 | 5 | 2 | 0 | 0 | 88 | 1371 |
| 8:50 AM | 11 | 22 | 4 | 2 | 1 | 23 | 0 | 0 | 0 | 1 | 24 | 0 | 5 | 1 | 0 | 0 | 94 | 1310 |
| 8:55 AM | 11 | 26 | 6 | 2 | 0 | 19 | 0 | 0 | 0 | 0 | 16 | 0 | 8 | 0 | 0 | 0 | 88 | 1258 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 164 | 192 | 88 | 0 | 24 | 768 | 4 | 4 | 4 | 44 | 756 | 0 | 180 | 28 | 4 | 0 | 2260 |
| Heavy Trucks | 16 | 28 | 4 | | 4 | 32 | 4 | | 0 | 4 | 12 | | 4 | 0 | 0 | | 108 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 3/8/2024 3:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

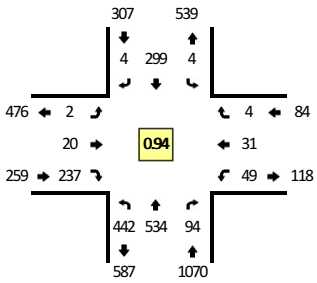
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

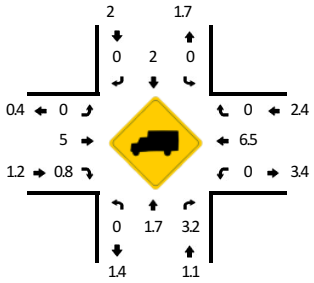
**LOCATION:** 1. SR 168 -- Owens Mountain Pkwy
**CITY/STATE:** Clovis, CA

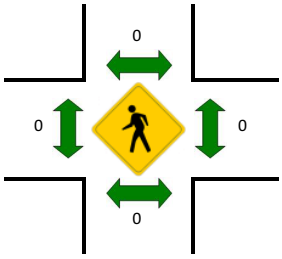
**QC JOB #:** 16504702
**DATE:** Wed, Feb 28 2024

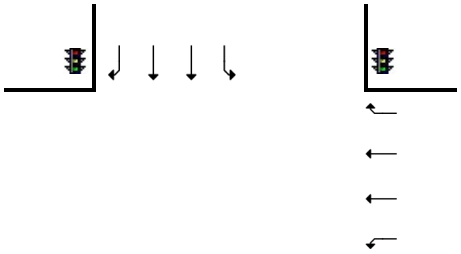
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

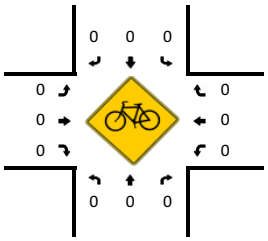


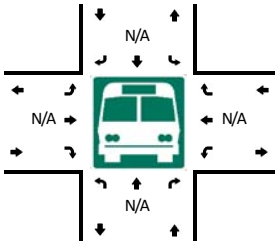

TRUE DATA TO IMPROVE MOBILITY

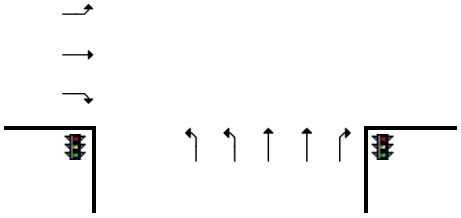


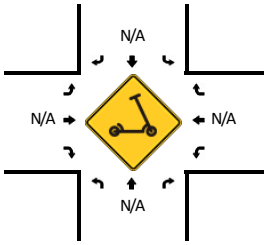








| 5-Min Count Period Beginning At | 1. SR 168 (Northbound) | | | | 1. SR 168 (Southbound) | | | | Owens Mountain Pkwy (Eastbound) | | | | Owens Mountain Pkwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 20 | 29 | 11 | 1 | 2 | 32 | 1 | 0 | 0 | 4 | 15 | 0 | 5 | 3 | 0 | 0 | 123 | |
| 4:05 PM | 29 | 47 | 9 | 1 | 0 | 26 | 1 | 0 | 0 | 0 | 13 | 0 | 6 | 3 | 1 | 0 | 136 | |
| 4:10 PM | 22 | 29 | 9 | 0 | 0 | 23 | 0 | 0 | 0 | 1 | 13 | 0 | 4 | 1 | 0 | 0 | 102 | |
| 4:15 PM | 25 | 31 | 11 | 2 | 0 | 18 | 1 | 0 | 0 | 1 | 17 | 0 | 3 | 4 | 2 | 0 | 115 | |
| 4:20 PM | 32 | 64 | 6 | 2 | 0 | 13 | 1 | 0 | 1 | 0 | 13 | 0 | 6 | 2 | 0 | 0 | 140 | |
| 4:25 PM | 32 | 36 | 3 | 2 | 0 | 26 | 0 | 0 | 0 | 1 | 22 | 0 | 3 | 2 | 0 | 0 | 127 | |
| 4:30 PM | 23 | 46 | 10 | 1 | 0 | 31 | 0 | 0 | 0 | 4 | 25 | 0 | 2 | 1 | 1 | 0 | 144 | |
| 4:35 PM | 36 | 32 | 2 | 0 | 0 | 28 | 2 | 0 | 0 | 2 | 11 | 0 | 9 | 5 | 0 | 0 | 127 | |
| 4:40 PM | 32 | 54 | 5 | 0 | 1 | 23 | 0 | 0 | 0 | 0 | 17 | 0 | 5 | 2 | 2 | 0 | 141 | |
| 4:45 PM | 29 | 41 | 5 | 1 | 0 | 30 | 0 | 0 | 0 | 2 | 15 | 0 | 9 | 5 | 2 | 0 | 139 | |
| 4:50 PM | 29 | 51 | 5 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 10 | 0 | 4 | 2 | 0 | 0 | 115 | |
| 4:55 PM | 28 | 39 | 3 | 0 | 0 | 25 | 0 | 0 | 1 | 4 | 13 | 0 | 3 | 4 | 2 | 0 | 122 | 1531 |
| 5:00 PM | 48 | 34 | 4 | 0 | 2 | 21 | 0 | 0 | 0 | 2 | 17 | 0 | 3 | 2 | 1 | 0 | 134 | 1542 |
| 5:05 PM | 38 | 38 | 7 | 0 | 0 | 11 | 0 | 0 | 0 | 3 | 22 | 0 | 10 | 4 | 0 | 0 | 133 | 1539 |
| 5:10 PM | 30 | 50 | 7 | 0 | 0 | 44 | 1 | 0 | 1 | 0 | 23 | 0 | 4 | 5 | 0 | 0 | 165 | 1602 |
| 5:15 PM | 48 | 57 | 9 | 0 | 1 | 10 | 0 | 0 | 0 | 1 | 24 | 1 | 6 | 1 | 0 | 0 | 158 | 1645 |
| 5:20 PM | 22 | 41 | 11 | 1 | 0 | 36 | 0 | 0 | 0 | 3 | 20 | 0 | 0 | 2 | 0 | 0 | 136 | 1641 |
| 5:25 PM | 42 | 45 | 8 | 0 | 0 | 19 | 0 | 0 | 0 | 2 | 20 | 0 | 6 | 0 | 1 | 0 | 143 | 1657 |
| 5:30 PM | 30 | 56 | 7 | 1 | 0 | 40 | 1 | 0 | 0 | 0 | 11 | 0 | 1 | 3 | 2 | 0 | 152 | 1665 |
| 5:35 PM | 37 | 37 | 11 | 0 | 0 | 14 | 0 | 0 | 0 | 2 | 22 | 0 | 5 | 3 | 0 | 0 | 131 | 1669 |
| 5:40 PM | 47 | 50 | 12 | 0 | 0 | 26 | 1 | 0 | 0 | 1 | 22 | 0 | 1 | 5 | 0 | 0 | 165 | 1693 |
| 5:45 PM | 29 | 40 | 6 | 0 | 0 | 34 | 0 | 0 | 0 | 2 | 24 | 0 | 6 | 2 | 0 | 0 | 143 | 1697 |
| 5:50 PM | 35 | 47 | 5 | 0 | 0 | 22 | 1 | 0 | 0 | 2 | 16 | 0 | 3 | 1 | 0 | 0 | 132 | 1714 |
| 5:55 PM | 34 | 39 | 7 | 0 | 1 | 22 | 0 | 0 | 0 | 2 | 16 | 0 | 4 | 3 | 0 | 0 | 128 | 1720 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 400 | 592 | 108 | 4 | 4 | 360 | 4 | 0 | 4 | 16 | 268 | 4 | 40 | 32 | 0 | 0 | 1836 |
| Heavy Trucks | 0 | 8 | 4 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 20 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 3/8/2024 3:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

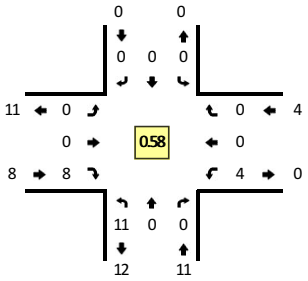
Type of peak hour being reported: Intersection Peak

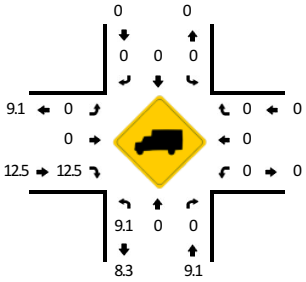
Method for determining peak hour: Total Entering Volume

**LOCATION:** 2. N Burgan Ave -- Perrin Rd
**CITY/STATE:** Fresno, CA

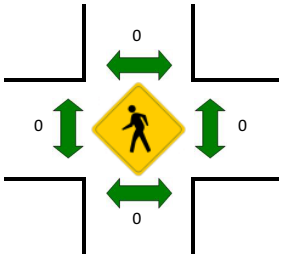
**QC JOB #:** 16504703
**DATE:** Thu, Feb 29 2024

**Peak-Hour: 7:55 AM -- 8:55 AM**
**Peak 15-Min: 8:15 AM -- 8:30 AM**



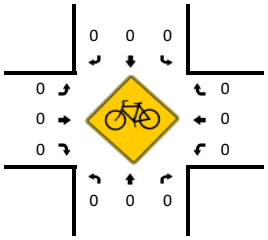



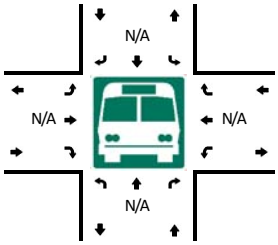

TRUE DATA TO IMPROVE MOBILITY





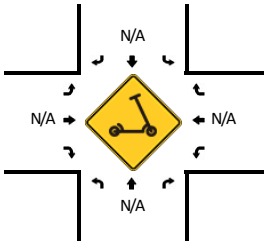











| 5-Min Count Period Beginning At | 2. N Burgan Ave (Northbound) | | | | 2. N Burgan Ave (Southbound) | | | | Perrin Rd (Eastbound) | | | | Perrin Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 7:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 7:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 8:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| 8:05 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 6 |
| 8:10 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 |
| 8:15 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 5 | 13 |
| 8:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 13 |
| 8:25 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 4 | 17 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 18 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 19 |
| 8:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 20 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 22 |
| 8:50 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 23 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 8 | 0 | 0 | 0 | 40 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 3/8/2024 3:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

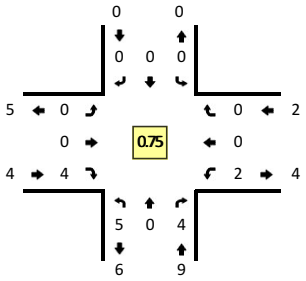
Type of peak hour being reported: Intersection Peak

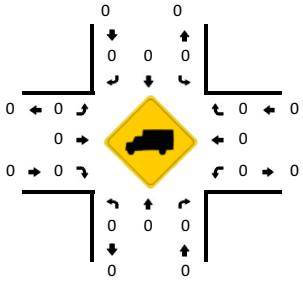
Method for determining peak hour: Total Entering Volume

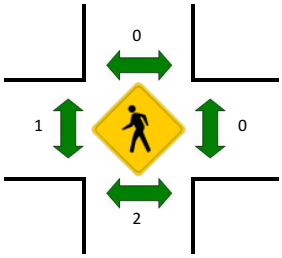
**LOCATION:** 2. N Burgan Ave -- Perrin Rd
**CITY/STATE:** Fresno, CA

**QC JOB #:** 16504704
**DATE:** Wed, Feb 28 2024

**Peak-Hour: 4:20 PM -- 5:20 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

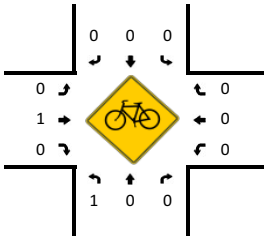


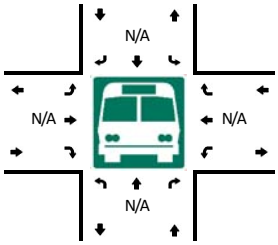





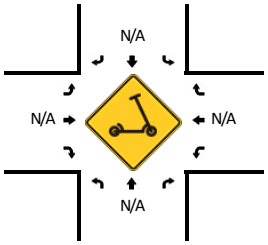











| 5-Min Count Period Beginning At | 2. N Burgan Ave (Northbound) | | | | 2. N Burgan Ave (Southbound) | | | | Perrin Rd (Eastbound) | | | | Perrin Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 4:20 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | |
| 4:25 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 4:35 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 4:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 4:50 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 5:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 |
| 5:05 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 |
| 5:10 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 |
| 5:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 15 |
| 5:20 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 15 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 13 |
| 5:45 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 14 |
| 5:50 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 14 |
| 5:55 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 15 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 20 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 3/8/2024 3:02 PM

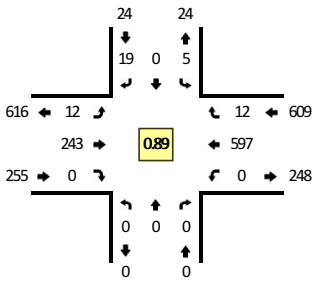
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

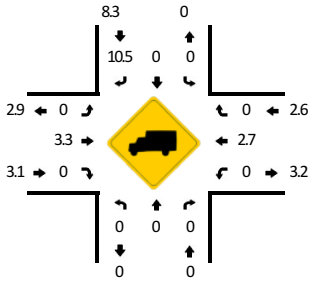
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

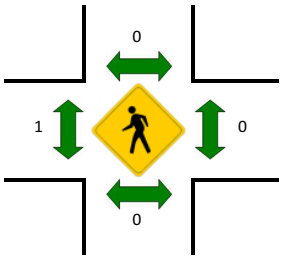
**LOCATION:** 3. N Burgan Ave -- E Shepherd Ave
**CITY/STATE:** Clovis, CA

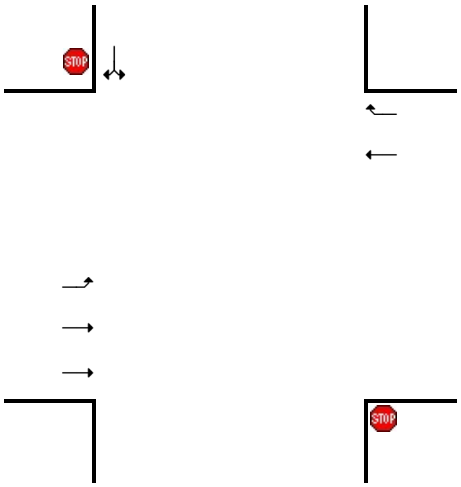
**QC JOB #:** 16504705
**DATE:** Thu, Feb 29 2024

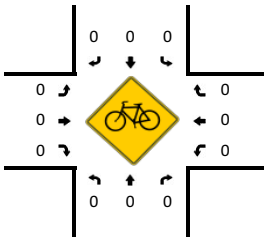
**Peak-Hour: 7:30 AM -- 8:30 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

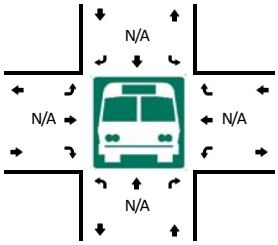


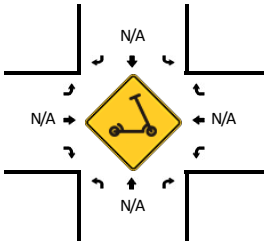




| 5-Min Count Period Beginning At | 3. N Burgan Ave (Northbound) | | | | 3. N Burgan Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 11 | 1 | 0 | 25 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 8 | 0 | 0 | 0 | 35 | 0 | 0 | 45 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 14 | 0 | 0 | 0 | 29 | 0 | 0 | 44 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 9 | 0 | 0 | 0 | 39 | 0 | 0 | 53 | |
| 7:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 40 | 0 | 0 | 57 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 22 | 0 | 0 | 0 | 35 | 0 | 0 | 60 | |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 66 | 3 | 0 | 89 | |
| 7:35 AM | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 1 | 13 | 0 | 0 | 0 | 55 | 0 | 0 | 74 | |
| 7:40 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 40 | 0 | 0 | 59 | |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 29 | 0 | 0 | 0 | 61 | 0 | 0 | 91 | |
| 7:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 35 | 0 | 0 | 0 | 51 | 1 | 0 | 92 | |
| 7:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 24 | 0 | 0 | 0 | 39 | 2 | 0 | 67 | 756 |
| 8:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 58 | 0 | 0 | 67 | 798 |
| 8:05 AM | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 2 | 21 | 0 | 0 | 0 | 57 | 1 | 0 | 85 | 838 |
| 8:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 11 | 0 | 0 | 0 | 50 | 0 | 0 | 64 | 858 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 19 | 0 | 0 | 0 | 55 | 3 | 0 | 81 | 886 |
| 8:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 20 | 0 | 0 | 0 | 34 | 1 | 0 | 57 | 886 |
| 8:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 27 | 0 | 0 | 0 | 31 | 1 | 0 | 62 | 888 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 15 | 0 | 0 | 0 | 21 | 0 | 0 | 38 | 837 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 22 | 0 | 0 | 0 | 31 | 1 | 0 | 57 | 820 |
| 8:40 AM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 13 | 0 | 0 | 0 | 29 | 1 | 0 | 46 | 807 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 24 | 0 | 0 | 0 | 21 | 1 | 0 | 48 | 764 |
| 8:50 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 19 | 0 | 0 | 35 | 707 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 | 22 | 1 | 0 | 35 | 675 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 12 | 352 | 0 | 0 | 0 | 604 | 12 | 0 | 1000 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 24 | 0 | | 32 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

*Comments:*

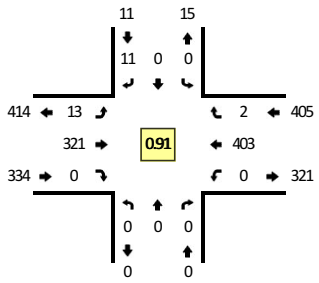
Report generated on 3/8/2024 3:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

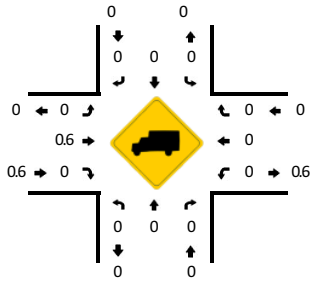
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

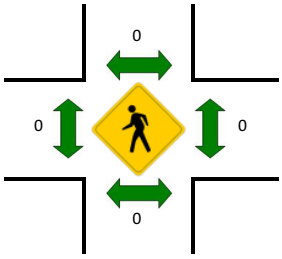
**LOCATION:** 3. N Burgan Ave -- E Shepherd Ave | **QC JOB #:** 16504706
**CITY/STATE:** Clovis, CA | **DATE:** Wed, Feb 28 2024

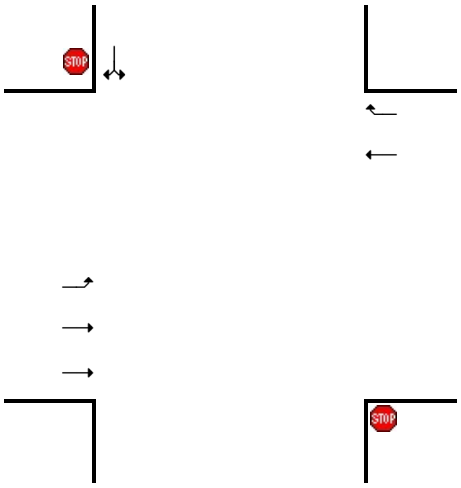
**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

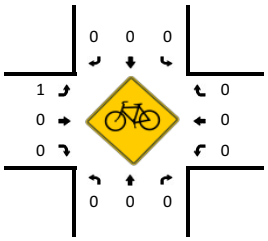


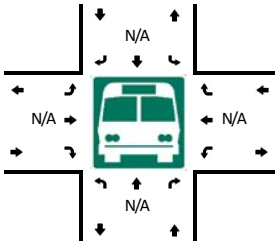

TRUE DATA TO IMPROVE MOBILITY



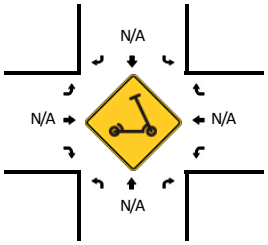










| 5-Min Count Period Beginning At | 3. N Burgan Ave (Northbound) | | | | 3. N Burgan Ave (Southbound) | | | | E Shepherd Ave (Eastbound) | | | | E Shepherd Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 34 | 1 | 0 | 53 | |
| 4:05 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 31 | 0 | 0 | 52 | |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 31 | 0 | 1 | 0 | 33 | 0 | 0 | 69 | |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 0 | 0 | 18 | 0 | 0 | 39 | |
| 4:20 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 22 | 0 | 0 | 55 | |
| 4:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 21 | 0 | 0 | 0 | 27 | 1 | 0 | 50 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 20 | 0 | 0 | 46 | |
| 4:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 26 | 0 | 0 | 0 | 22 | 1 | 0 | 51 | |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 24 | 0 | 0 | 0 | 33 | 1 | 0 | 60 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 23 | 0 | 0 | 0 | 26 | 0 | 0 | 51 | |
| 4:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 27 | 0 | 0 | 0 | 36 | 0 | 0 | 64 | |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 17 | 0 | 0 | 0 | 36 | 0 | 0 | 57 | 647 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 20 | 0 | 0 | 0 | 29 | 1 | 0 | 52 | 646 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 26 | 0 | 0 | 51 | 645 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 31 | 0 | 0 | 0 | 33 | 0 | 0 | 66 | 642 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 35 | 0 | 0 | 0 | 45 | 0 | 0 | 83 | 686 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 30 | 0 | 0 | 0 | 27 | 0 | 0 | 58 | 689 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 27 | 0 | 0 | 58 | 697 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 39 | 0 | 0 | 0 | 29 | 0 | 0 | 72 | 723 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 19 | 0 | 0 | 0 | 42 | 0 | 0 | 63 | 735 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 28 | 0 | 0 | 0 | 41 | 0 | 0 | 71 | 746 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 19 | 0 | 0 | 0 | 32 | 1 | 0 | 55 | 750 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 33 | 2 | 0 | 61 | 747 |
| 5:55 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 25 | 0 | 0 | 0 | 25 | 1 | 0 | 55 | 745 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 16 | 384 | 0 | 0 | 0 | 420 | 0 | 0 | 828 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 4 |
| Buses | | | | | | | | | | | | | | | | | |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Scooters | | | | | | | | | | | | | | | | | |

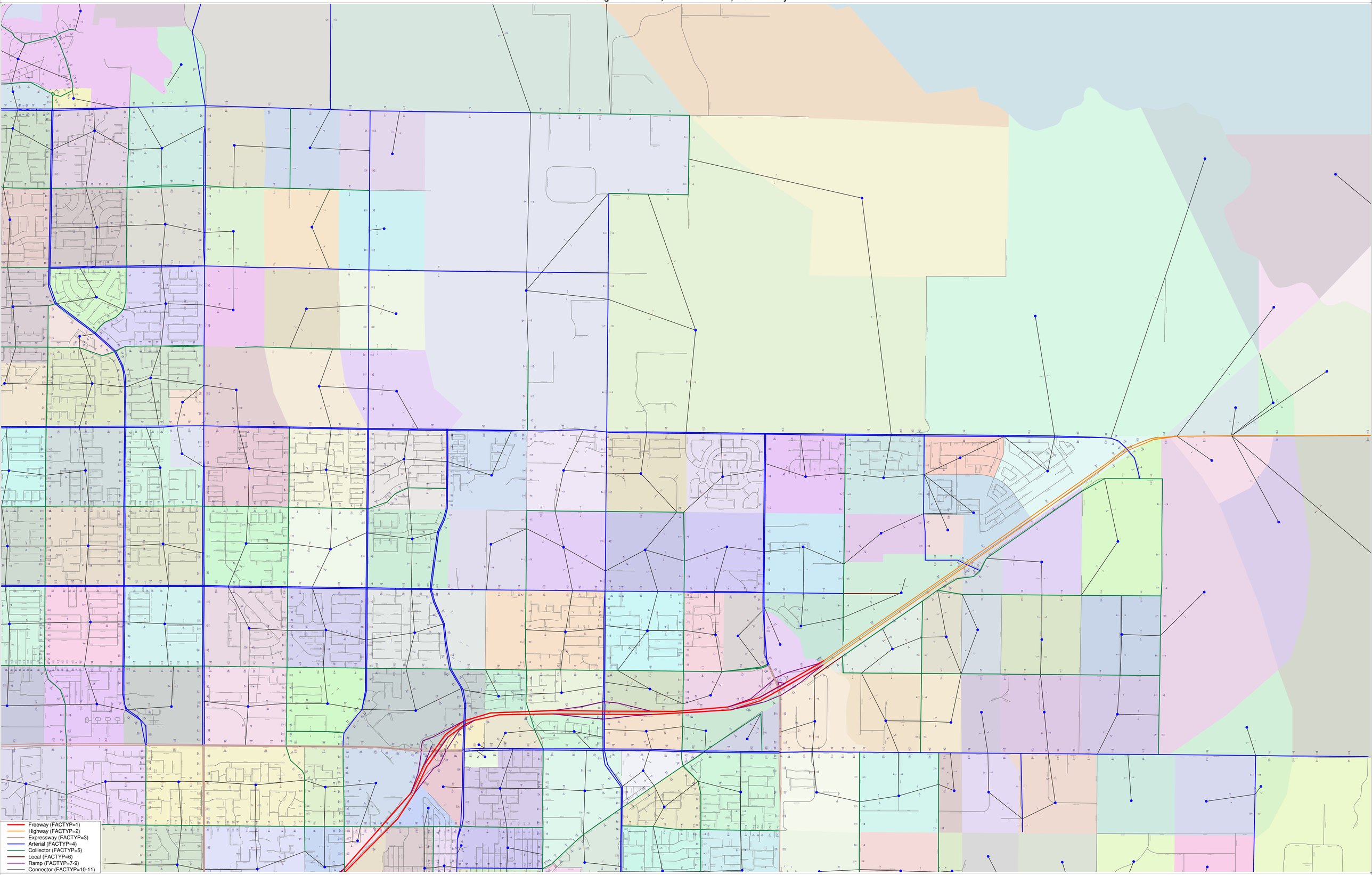
*Comments:*

Report generated on 3/8/2024 3:02 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

# Appendix C

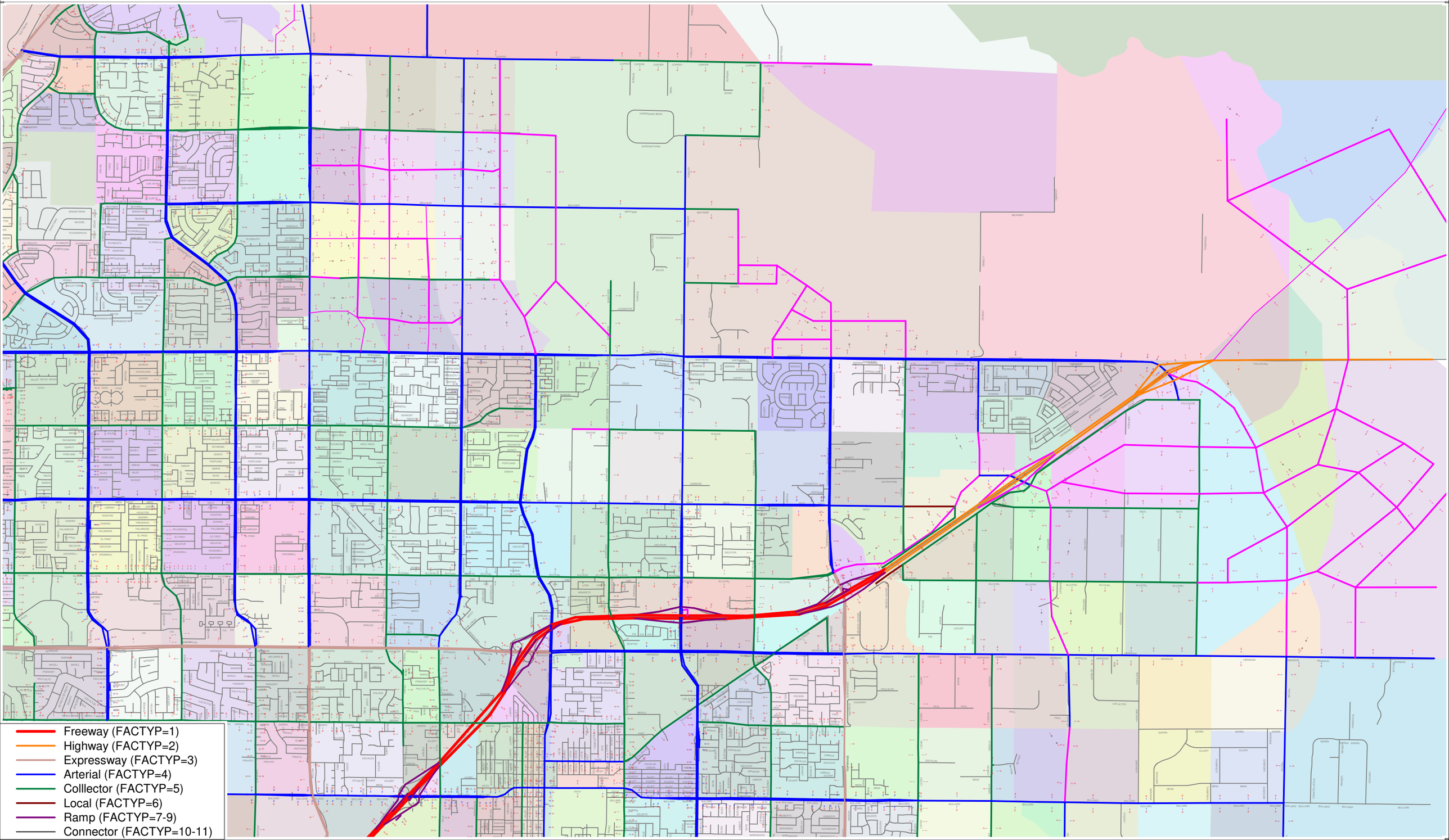
## Fresno COG Model Runs and Turning Movement Forecast Output

**Fresno COG Model**
**2019 No Project (from Selma Thompson Estates)**
**Orange = AM Pk Hr, Blue = PM Pk Hr, Black = Daily**




cube
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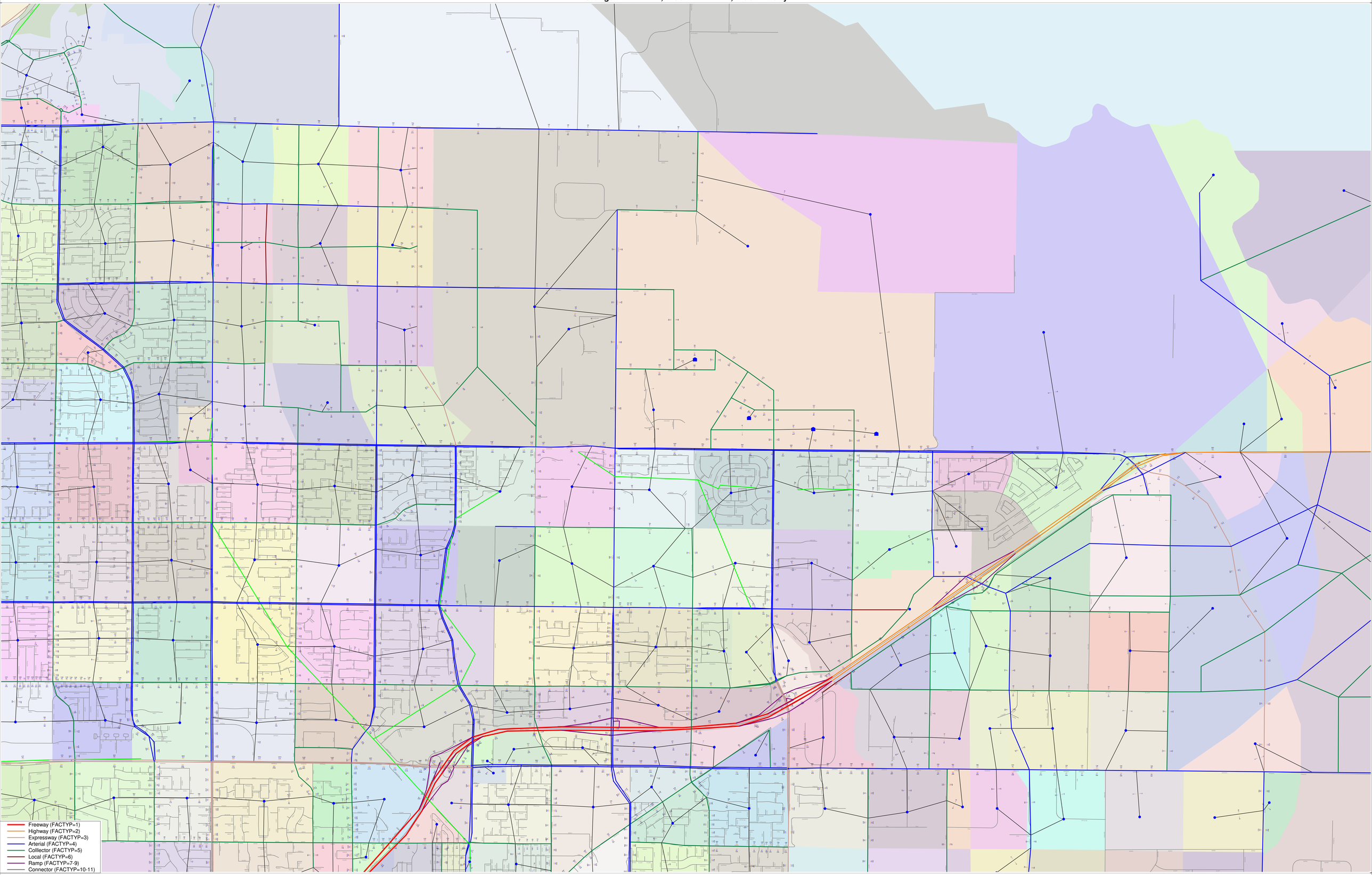
# Fresno COG Model
# Base Year and Future Year Through Lanes
# 0 Future Lanes = No Change from Base Year




cube

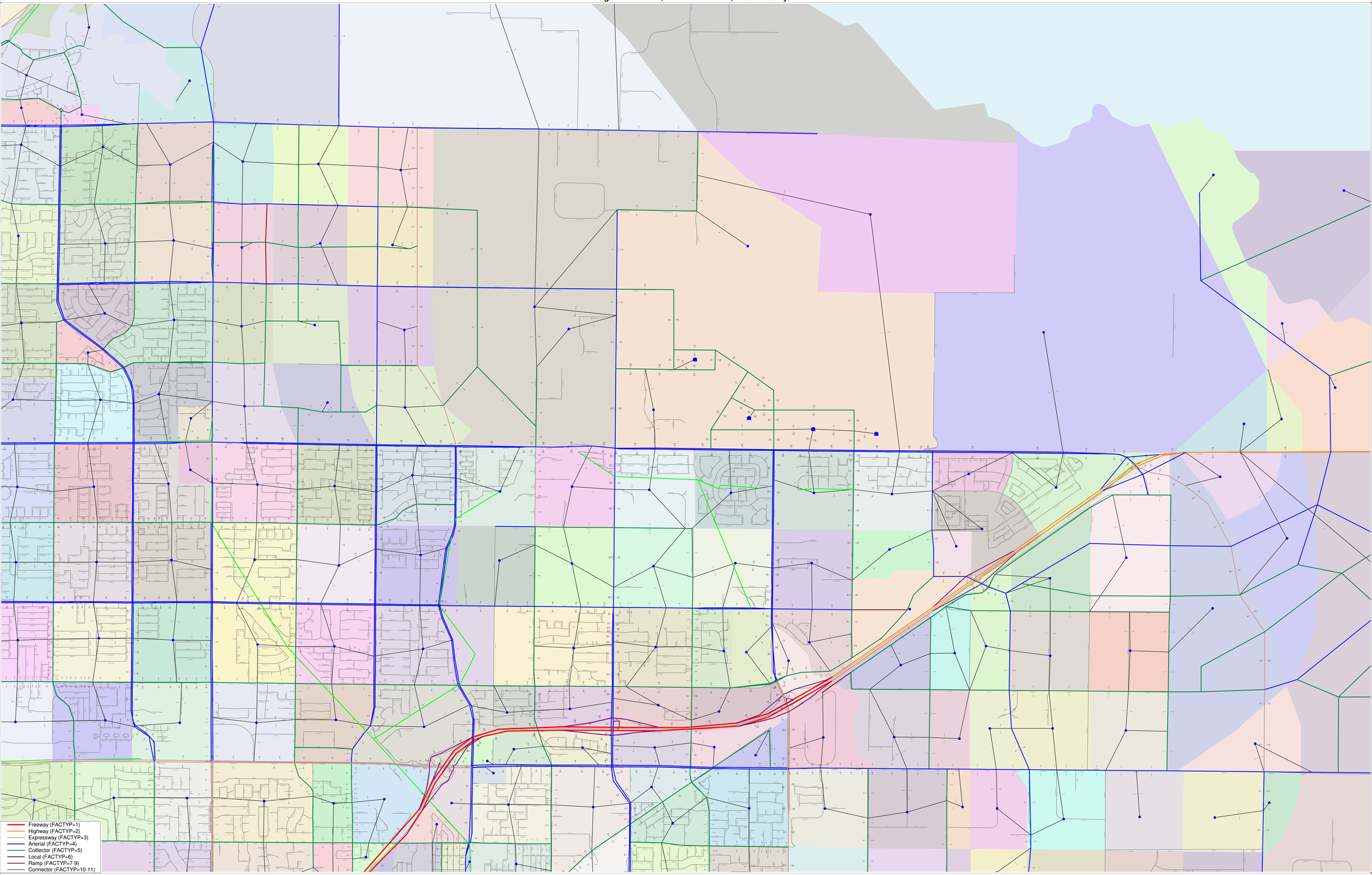
(Licensed to Kittelson and Associates Inc)

**Fresno COG Model**
**2046 Clovis Vista Ranch Total Volumes with Project**
**Orange = AM Pk Hr, Blue = PM Pk Hr, Black = Daily**




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**Fresno COG Model**
**2046 Clovis Vista Ranch Select Zone**
**Orange = AM Pk Hr, Blue = PM Pk Hr, Black = Daily**




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# Fresno COG Travel Model

**Intersection Traffic Counts**

2024 Counts

AM Peak Hour

| Intersection | | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Street (N-S) | Street (E-W) | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right | TOTAL |
| 1 | Willow Ave | International Ave | 357 | 354 | 18 | 57 | 445 | 123 | 20 | 65 | 238 | 11 | 227 | 53 | 1968 |
| 2 | Willow Ave | Behymer Ave | 113 | 774 | 26 | 72 | 585 | 66 | 77 | 130 | 237 | 28 | 155 | 139 | 2402 |
| 3 | Willow Ave | Shepherd Ave | 143 | 592 | 88 | 172 | 804 | 50 | 59 | 221 | 102 | 37 | 239 | 163 | 2670 |
| 4 | Minnewawa Ave | International Ave | 283 | 174 | 0 | 0 | 293 | 8 | 2 | 0 | 99 | 0 | 1 | 0 | 860 |
| 5 | Minnewawa Ave | Behymer Ave | 88 | 209 | 19 | 152 | 217 | 4 | 3 | 139 | 59 | 19 | 232 | 255 | 1396 |
| 6 | Minnewawa Ave | Shepherd Ave | 127 | 150 | 41 | 103 | 159 | 29 | 33 | 339 | 152 | 44 | 291 | 91 | 1559 |
| 7 | Clovis Ave | International Ave | | | | | | | | | | | | | 0 |
| 8 | Clovis Ave | Behymer Ave | | | | | | | | | | | | | 0 |
| 9 | Clovis Ave | Shepherd Ave | 80 | 59 | 86 | 19 | 71 | 67 | 32 | 337 | 118 | 109 | 294 | 48 | 1320 |
| 10 | Clovis Ave | Nees Ave | 70 | 294 | 20 | 70 | 416 | 42 | 30 | 306 | 194 | 35 | 363 | 180 | 2020 |
| 11 | Clovis Ave | Alluvial Ave | 127 | 282 | 61 | 126 | 576 | 34 | 13 | 269 | 153 | 44 | 407 | 89 | 2181 |
| 12 | Clovis Ave | Herndon Ave | 197 | 254 | 122 | 256 | 305 | 429 | 222 | 800 | 203 | 144 | 1166 | 230 | 4328 |
| 13 | SR 168 EB Ramps | Herndon Ave | 457 | 0 | 472 | 0 | 0 | 0 | 0 | 746 | 224 | 0 | 1679 | 67 | 3645 |
| 14 | SR 168 WB Ramps | Herndon Ave | 0 | 0 | 0 | 74 | 0 | 793 | 0 | 911 | 496 | 0 | 1560 | 615 | 4449 |
| 15 | Sunnyside Ave | Behymer Ave | | | | | | | | | | | | | 0 |
| 16 | Sunnyside Ave | Shepherd Ave | 54 | 11 | 27 | 2 | 14 | 9 | 8 | 325 | 106 | 31 | 371 | 3 | 961 |
| 17 | Sunnyside Ave | Nees Ave | 137 | 57 | 17 | 22 | 115 | 34 | 12 | 269 | 85 | 25 | 367 | 14 | 1154 |
| 18 | Sunnyside Ave | Alluvial Ave | 127 | 147 | 19 | 39 | 148 | 117 | 115 | 255 | 123 | 42 | 462 | 81 | 1675 |
| 19 | Sunnyside Ave | Herndon Ave | 271 | 141 | 77 | 105 | 193 | 103 | 39 | 696 | 344 | 95 | 1151 | 84 | 3299 |
| 20 | Fowler Ave | Behymer Ave | 491 | 125 | 2 | 0 | 59 | 16 | 12 | 1 | 292 | 2 | 6 | 1 | 1007 |
| 21 | Fowler Ave | Perrin Ave | | 482 | 10 | 10 | 353 | | | | | 10 | | 10 | 875 |
| 22 | Fowler Ave | Shepherd Ave | 141 | 92 | 34 | 185 | 125 | 18 | 20 | 281 | 51 | 36 | 279 | 370 | 1632 |
| 23 | Fowler Ave | Teague Ave | 3 | 164 | 7 | 19 | 238 | 10 | 4 | 6 | 6 | 17 | 8 | 30 | 512 |
| 24 | Fowler Ave | Nees Ave | 111 | 123 | 37 | 28 | 215 | 32 | 20 | 202 | 87 | 73 | 272 | 32 | 1232 |
| 25 | Fowler Ave | Alluvial Ave | 170 | 283 | 58 | 49 | 540 | 78 | 22 | 186 | 140 | 116 | 310 | 36 | 1988 |
| 26 | Fowler Ave | SR 168 WB Ramps | 587 | 465 | 0 | 0 | 325 | 540 | 0 | 0 | 0 | 170 | 0 | 29 | 2116 |
| 27 | Fowler Ave | SR 168 EB Ramps | 0 | 872 | 92 | 16 | 512 | 0 | 158 | 0 | 342 | 0 | 0 | 0 | 1992 |
| 28 | Burgan Ave | Perrin Ave | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 | 0 | 0 | 23 |
| 29 | Burgan Ave | Shepherd Ave | 0 | 0 | 0 | 5 | 0 | 19 | 12 | 243 | 0 | 0 | 597 | 12 | 888 |
| 30 | Armstrong Ave | Shepherd Ave | 81 | 0 | 20 | 0 | 0 | 0 | 0 | 254 | 37 | 5 | 505 | 0 | 902 |
| 31 | Temperance Ave | Shepherd Ave | 127 | 0 | 40 | 0 | 0 | 0 | 0 | 147 | 128 | 25 | 381 | 0 | 848 |
| 32 | Temperance Ave | Nees Ave | 98 | 217 | 59 | 0 | 457 | 198 | 79 | 80 | 119 | 180 | 181 | 6 | 1674 |
| 33 | Temperance Ave | Alluvial Ave | 150 | 299 | 269 | 89 | 655 | 77 | 20 | 35 | 108 | 231 | 37 | 79 | 2049 |
| 34 | Temperance Ave | SR 168 WB Ramps | 0 | 574 | 949 | 0 | 423 | 559 | 0 | 0 | 0 | 69 | 0 | 114 | 2688 |
| 35 | Temperance Ave | SR 168 EB Ramps | 0 | 1310 | 24 | 28 | 472 | 0 | 190 | 0 | 693 | 0 | 0 | 0 | 2717 |
| 36 | Locan Ave | Shepherd Ave | 64 | 0 | 19 | 0 | 0 | 0 | 0 | 152 | 32 | 9 | 333 | 0 | 609 |
| 37 | Locan Ave | Nees Ave | 7 | 3 | 1 | 1 | 3 | 325 | 117 | 2 | 2 | 0 | 4 | 1 | 466 |
| 38 | Locan Ave | Owens Mountain Pkwy | | | | | | | | | | | | | 0 |
| 39 | De Wolf Ave | Shepherd Ave | 134 | 0 | 11 | 0 | 0 | 0 | 0 | 120 | 48 | 5 | 206 | 0 | 524 |
| 40 | De Wolf Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 569 | 0 | 8 | 12 | 51 | 0 | 1 | 11 | 130 | 782 |
| 41 | Owens Mountain Pkwy | SR 168 | 124 | 23 | 5 | 4 | 43 | 574 | 136 | 204 | 51 | 12 | 591 | 12 | 1779 |
| 42 | Shepherd Ave | SR 168 | 30 | 58 | 2 | 49 | 46 | 200 | 43 | 163 | 13 | 2 | 338 | 89 | 1033 |
| 43 | Project Access South | Shepherd Ave | | | | | | | | 274 | | | 609 | | 883 |
| 44 | Project Access North | Behymer Ave | | | | | | | | | | | | | 0 |
| 45 | Project Access E. of Tmprnc | Shepherd Ave | | | | | | | | | | | | | |

# Fresno COG Travel Model

**Model Turn Movements (Reallocated)**
2019 Base Model Forecast
AM Peak Hour

| Intersection | | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Node | Street (N-S) | Street (E-W) | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right | TOTAL |
| 45254 | Willow Ave | International Ave | 128 | 223 | 0 | 1 | 676 | 81 | 12 | 1 | 176 | 51 | 88 | 88 | 1525 |
| 23821 | Willow Ave | Behymer Ave | 24 | 1017 | 3 | 0 | 922 | 6 | 8 | 1 | 86 | 8 | 3 | 31 | 2109 |
| 23799 | Willow Ave | Shepherd Ave | 138 | 826 | 133 | 406 | 902 | 11 | 28 | 341 | 147 | 66 | 307 | 220 | 3522 |
| 24100 | Minnewawa Ave | International Ave | 163 | 250 | 0 | 0 | 503 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 933 |
| 23994 | Minnewawa Ave | Behymer Ave | 35 | 413 | 0 | 4 | 503 | 0 | 0 | 0 | 10 | 1 | 9 | 9 | 985 |
| 45907 | Minnewawa Ave | Shepherd Ave | 146 | 250 | 17 | 110 | 418 | 22 | 27 | 469 | 208 | 51 | 396 | 187 | 2299 |
| 27582 | Clovis Ave | International Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54793 | Clovis Ave | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 18 | 0 | 23 |
| 45908 | Clovis Ave | Shepherd Ave | 172 | 0 | 29 | 0 | 0 | 0 | 0 | 547 | 30 | 205 | 504 | 0 | 1487 |
| 39915 | Clovis Ave | Nees Ave | 474 | 90 | 4 | 4 | 302 | 0 | 3 | 92 | 662 | 48 | 205 | 85 | 1968 |
| 27389 | Clovis Ave | Alluvial Ave | 327 | 153 | 52 | 261 | 893 | 22 | 3 | 56 | 38 | 221 | 150 | 412 | 2589 |
| 26235 | Clovis Ave | Herndon Ave | 193 | 112 | 33 | 361 | 397 | 458 | 208 | 978 | 129 | 187 | 1265 | 221 | 4542 |
| 28092 | SR 168 EB Ramps | Herndon Ave | 0 | 0 | 555 | 0 | 0 | 0 | 0 | 759 | 71 | 0 | 1895 | 21 | 3302 |
| 7476 | SR 168 WB Ramps | Herndon Ave | 0 | 0 | 0 | 46 | 0 | 336 | 0 | 784 | 605 | 0 | 1209 | 686 | 3667 |
| 0 | Sunnyside Ave | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27475 | Sunnyside Ave | Shepherd Ave | 20 | 26 | 1 | 22 | 89 | 51 | 30 | 496 | 50 | 1 | 638 | 9 | 1432 |
| 27421 | Sunnyside Ave | Nees Ave | 53 | 37 | 1 | 0 | 149 | 12 | 2 | 76 | 20 | 4 | 244 | 7 | 605 |
| 27417 | Sunnyside Ave | Alluvial Ave | 476 | 12 | 17 | 2 | 97 | 48 | 18 | 116 | 227 | 67 | 192 | 8 | 1282 |
| 26365 | Sunnyside Ave | Herndon Ave | 415 | 128 | 0 | 249 | 83 | 88 | 35 | 937 | 87 | 32 | 1233 | 380 | 3668 |
| 27576 | Fowler Ave | Behymer Ave | 18 | 14 | 0 | 0 | 35 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 72 |
| 27574 | Fowler Ave | Perrin Ave | 0 | 27 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 |
| 27566 | Fowler Ave | Shepherd Ave | 71 | 10 | 13 | 8 | 31 | 0 | 0 | 418 | 102 | 44 | 560 | 17 | 1274 |
| 27517 | Fowler Ave | Teague Ave | 0 | 61 | 28 | 2 | 316 | 1 | 1 | 1 | 0 | 180 | 1 | 20 | 611 |
| 27501 | Fowler Ave | Nees Ave | 107 | 83 | 10 | 35 | 447 | 56 | 7 | 76 | 0 | 17 | 82 | 5 | 925 |
| 45855 | Fowler Ave | Alluvial Ave | 105 | 133 | 45 | 12 | 578 | 30 | 12 | 53 | 11 | 318 | 84 | 12 | 1393 |
| 27951 | Fowler Ave | SR 168 WB Ramps | 337 | 241 | 0 | 0 | 303 | 676 | 0 | 0 | 0 | 273 | 0 | 58 | 1888 |
| 27950 | Fowler Ave | SR 168 EB Ramps | 0 | 502 | 33 | 14 | 562 | 0 | 76 | 14 | 221 | 0 | 0 | 0 | 1422 |
| 27577 | Burgan Ave | Perrin Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45918 | Burgan Ave | Shepherd Ave | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 439 | 0 | 6 | 621 | 0 | 1073 |
| 45919 | Armstrong Ave | Shepherd Ave | 0 | 0 | 0 | 18 | 0 | 54 | 25 | 420 | 0 | 0 | 573 | 11 | 1102 |
| 27659 | Temperance Ave | Shepherd Ave | 256 | 155 | 8 | 0 | 0 | 0 | 21 | 180 | 246 | 37 | 307 | 0 | 1211 |
| 39905 | Temperance Ave | Nees Ave | 54 | 289 | 41 | 2 | 603 | 19 | 10 | 7 | 62 | 328 | -19 | 17 | 1411 |
| 39903 | Temperance Ave | Alluvial Ave | 193 | 464 | 0 | 44 | 845 | 97 | 77 | -44 | 55 | 0 | 0 | 0 | 1731 |
| 27914 | Temperance Ave | SR 168 WB Ramps | 0 | 621 | 618 | 0 | 533 | 366 | 0 | 0 | 0 | 259 | 0 | 36 | 2433 |
| 27915 | Temperance Ave | SR 168 EB Ramps | 0 | 1094 | 65 | 8 | 784 | 0 | 145 | 0 | 209 | 0 | 0 | 0 | 2305 |
| 27662 | Locan Ave | Shepherd Ave | 46 | 0 | 19 | 0 | 0 | 0 | 0 | 171 | 10 | 12 | 298 | 0 | 556 |
| 27635 | Locan Ave | Nees Ave | 80 | 2 | 0 | 0 | 1 | 183 | 28 | 0 | 10 | 0 | 0 | 0 | 304 |
| 7322 | Locan Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40279 | De Wolf Ave | Shepherd Ave | 136 | 0 | 14 | 0 | 0 | 0 | 0 | 131 | 67 | 35 | 178 | 0 | 561 |
| 54774 | De Wolf Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 825 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 177 | 1002 |
| 27957 | Owens Mountain Pkwy | SR 168 | 88 | 41 | 18 | 13 | 97 | 715 | 127 | 250 | 44 | 79 | 1598 | 9 | 3078 |
| 7498 | Shepherd Ave | SR 168 | 0 | 0 | 0 | 98 | 59 | 312 | 35 | 246 | 0 | 2 | 1374 | 79 | 2205 |
| 37130 | Project Access South | Shepherd Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 584 | 0 | 584 |
| 27578 | Project Access North | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40245 | Project Access E. of Tmprnc | Shepherd Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 344 | 0 | 344 |

# Fresno COG Travel Model

**Model Turn Movements (Reallocated)**

2024 Near Term Development

AM Peak Hour

| Intersection | | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Node | Street (N-S) | Street (E-W) | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right | TOTAL |
| 45254 | Willow Ave | International Ave | 229 | 318 | 0 | 0 | 716 | 40 | 11 | 3 | 255 | 10 | 65 | 86 | 1734 |
| 23821 | Willow Ave | Behymer Ave | 45 | 905 | 3 | 1 | 1009 | 4 | 8 | 2 | 107 | 5 | 4 | 15 | 2109 |
| 23799 | Willow Ave | Shepherd Ave | 107 | 914 | 170 | 384 | 1454 | 141 | 93 | 396 | 114 | 175 | 365 | 172 | 4486 |
| 24100 | Minnewawa Ave | International Ave | 147 | 235 | 0 | 0 | 306 | 12 | 0 | 0 | 2 | 0 | 0 | 0 | 701 |
| 23994 | Minnewawa Ave | Behymer Ave | 14 | 386 | 0 | 5 | 306 | 1 | 0 | 2 | 8 | 1 | 14 | 5 | 741 |
| 45907 | Minnewawa Ave | Shepherd Ave | 116 | 299 | 13 | 160 | 666 | 34 | 22 | 626 | 364 | 26 | 398 | 206 | 2929 |
| 27582 | Clovis Ave | International Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54793 | Clovis Ave | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 20 | 0 | 27 |
| 45908 | Clovis Ave | Shepherd Ave | 247 | -4 | 38 | 0 | 0 | 0 | 4 | 766 | 332 | 316 | 442 | 0 | 2142 |
| 39915 | Clovis Ave | Nees Ave | 363 | 148 | 6 | 25 | 553 | 0 | 6 | 405 | 595 | 20 | 308 | 12 | 2442 |
| 27389 | Clovis Ave | Alluvial Ave | 182 | 343 | 43 | 339 | 980 | 3 | 3 | 156 | 118 | 184 | 392 | 172 | 2915 |
| 26235 | Clovis Ave | Herndon Ave | 183 | 122 | 39 | 182 | 543 | 672 | 212 | 1169 | 166 | 175 | 1359 | 244 | 5066 |
| 28092 | SR 168 EB Ramps | Herndon Ave | 0 | 0 | 569 | 0 | 0 | 0 | 0 | 979 | 86 | 0 | 2196 | 18 | 3848 |
| 7476 | SR 168 WB Ramps | Herndon Ave | 0 | 0 | 0 | 64 | 0 | 319 | 0 | 1001 | 655 | 0 | 1270 | 926 | 4235 |
| 0 | Sunnyside Ave | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27475 | Sunnyside Ave | Shepherd Ave | 13 | 65 | 0 | 0 | 297 | 161 | 50 | 657 | 97 | 1 | 584 | 40 | 1967 |
| 27421 | Sunnyside Ave | Nees Ave | 50 | 65 | 3 | 34 | 348 | 45 | 11 | 157 | 263 | 10 | 225 | 0 | 1210 |
| 27417 | Sunnyside Ave | Alluvial Ave | 52 | 31 | 23 | 107 | 392 | 97 | 36 | 212 | 282 | 59 | 532 | 0 | 1822 |
| 26365 | Sunnyside Ave | Herndon Ave | 249 | 96 | 1 | 377 | 194 | 171 | 59 | 936 | 54 | 36 | 1285 | 103 | 3561 |
| 27576 | Fowler Ave | Behymer Ave | 20 | 12 | 0 | 0 | 35 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 74 |
| 27574 | Fowler Ave | Perrin Ave | 0 | 12 | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 152 |
| 27566 | Fowler Ave | Shepherd Ave | 73 | 6 | 20 | 74 | 65 | 0 | 0 | 644 | 16 | 66 | 527 | 6 | 1496 |
| 27517 | Fowler Ave | Teague Ave | 0 | 60 | 29 | 4 | 307 | 1 | 0 | 0 | 0 | 179 | 0 | 35 | 616 |
| 27501 | Fowler Ave | Nees Ave | 40 | 81 | 10 | 24 | 438 | 84 | 14 | 158 | 23 | 40 | 82 | 4 | 998 |
| 45855 | Fowler Ave | Alluvial Ave | 430 | 80 | 45 | 21 | 615 | 25 | 11 | 97 | 189 | 260 | 111 | 1 | 1885 |
| 27951 | Fowler Ave | SR 168 WB Ramps | 353 | 527 | 0 | 0 | 452 | 679 | 0 | 0 | 0 | 212 | 353 | 44 | 2619 |
| 27950 | Fowler Ave | SR 168 EB Ramps | 0 | 787 | 36 | 14 | 651 | 0 | 92 | 14 | 273 | 0 | 0 | 0 | 1867 |
| 27577 | Burgan Ave | Perrin Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45918 | Burgan Ave | Shepherd Ave | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 738 | 0 | 3 | 599 | 0 | 1345 |
| 45919 | Armstrong Ave | Shepherd Ave | 0 | 0 | 0 | 16 | 0 | 48 | 25 | 719 | 0 | 0 | 553 | 10 | 1371 |
| 27659 | Temperance Ave | Shepherd Ave | 234 | 198 | 8 | 0 | 0 | 0 | 5 | 291 | 436 | 35 | 324 | 0 | 1530 |
| 39905 | Temperance Ave | Nees Ave | 46 | 274 | 46 | 2 | 799 | 14 | 10 | 12 | 112 | 352 | -3 | 17 | 1681 |
| 39903 | Temperance Ave | Alluvial Ave | 215 | 463 | 0 | 53 | 1097 | 94 | 87 | -53 | 96 | 0 | 0 | 0 | 2053 |
| 27914 | Temperance Ave | SR 168 WB Ramps | 0 | 627 | 425 | 0 | 871 | 322 | 0 | 0 | 0 | 234 | 0 | 51 | 2530 |
| 27915 | Temperance Ave | SR 168 EB Ramps | 0 | 906 | 68 | 8 | 1097 | 0 | 145 | 0 | 403 | 0 | 0 | 0 | 2628 |
| 27662 | Locan Ave | Shepherd Ave | 46 | 0 | 22 | 0 | 0 | 0 | 0 | 274 | 13 | 12 | 313 | 0 | 681 |
| 27635 | Locan Ave | Nees Ave | 71 | 3 | 0 | 0 | 3 | 239 | 41 | 0 | 10 | 0 | 0 | 0 | 367 |
| 7322 | Locan Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40279 | De Wolf Ave | Shepherd Ave | 130 | 0 | 12 | 0 | 0 | 0 | 0 | 228 | 80 | 27 | 197 | 0 | 675 |
| 54774 | De Wolf Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 813 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 171 | 984 |
| 27957 | Owens Mountain Pkwy | SR 168 | 74 | 40 | 29 | 15 | 149 | 650 | 120 | 263 | 42 | 120 | 1408 | 11 | 2920 |
| 7498 | Shepherd Ave | SR 168 | 0 | 0 | 0 | 130 | 119 | 286 | 43 | 264 | 0 | 1 | 1252 | 81 | 2178 |
| 37130 | Project Access South | Shepherd Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 563 | 0 | 563 |
| 27578 | Project Access North | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40245 | Project Access E. of Tmprnc | Shepherd Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 359 | 0 | 359 |

# Fresno COG Travel Model

**ADJUSTED TURN MOVEMENT FORECAST**

2024 Near Term Development

AM Peak Hour

| Intersection | | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Street (N-S) | Street (E-W) | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right | TOTAL |
| 1 | Willow Ave | International Ave | 458 | 449 | 18 | 56 | 485 | 82 | 20 | 67 | 317 | 2 | 204 | 52 | 2209 |
| 2 | Willow Ave | Behymer Ave | 134 | 662 | 26 | 73 | 672 | 64 | 77 | 131 | 258 | 25 | 156 | 124 | 2401 |
| 3 | Willow Ave | Shepherd Ave | 111 | 680 | 125 | 157 | 1356 | 181 | 125 | 276 | 69 | 146 | 297 | 116 | 3640 |
| 4 | Minnewawa Ave | International Ave | 267 | 158 | 0 | 0 | 95 | 4 | 2 | 0 | 101 | 0 | 1 | 0 | 628 |
| 5 | Minnewawa Ave | Behymer Ave | 66 | 182 | 19 | 152 | 76 | 4 | 3 | 140 | 56 | 19 | 237 | 251 | 1207 |
| 6 | Minnewawa Ave | Shepherd Ave | 97 | 199 | 37 | 153 | 330 | 42 | 29 | 496 | 309 | 20 | 292 | 105 | 2107 |
| 7 | Clovis Ave | International Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | Clovis Ave | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 20 | 0 | 27 |
| 9 | Clovis Ave | Shepherd Ave | 135 | 56 | 95 | 19 | 71 | 67 | 35 | 556 | 420 | 220 | 233 | 48 | 1955 |
| 10 | Clovis Ave | Nees Ave | 54 | 353 | 22 | 91 | 668 | 42 | 33 | 619 | 151 | 7 | 466 | 107 | 2611 |
| 11 | Clovis Ave | Alluvial Ave | 71 | 472 | 52 | 184 | 663 | 15 | 13 | 369 | 232 | 22 | 649 | 37 | 2778 |
| 12 | Clovis Ave | Herndon Ave | 187 | 264 | 128 | 77 | 451 | 643 | 227 | 991 | 240 | 132 | 1260 | 253 | 4852 |
| 13 | SR 168 EB Ramps | Herndon Ave | 457 | 0 | 485 | 0 | 0 | 0 | 0 | 966 | 239 | 0 | 1979 | 64 | 4191 |
| 14 | SR 168 WB Ramps | Herndon Ave | 0 | 0 | 0 | 92 | 0 | 776 | 0 | 1128 | 546 | 0 | 1621 | 855 | 5017 |
| 15 | Sunnyside Ave | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | Sunnyside Ave | Shepherd Ave | 48 | 39 | 26 | 2 | 135 | 74 | 21 | 486 | 153 | 32 | 317 | 24 | 1356 |
| 17 | Sunnyside Ave | Nees Ave | 134 | 85 | 19 | 56 | 314 | 67 | 21 | 349 | 328 | 31 | 348 | 7 | 1759 |
| 18 | Sunnyside Ave | Alluvial Ave | 14 | 166 | 24 | 144 | 442 | 166 | 132 | 351 | 178 | 34 | 803 | 73 | 2527 |
| 19 | Sunnyside Ave | Herndon Ave | 106 | 108 | 78 | 196 | 304 | 185 | 63 | 695 | 311 | 99 | 1202 | 23 | 3371 |
| 20 | Fowler Ave | Behymer Ave | 492 | 123 | 2 | 0 | 59 | 16 | 12 | 1 | 294 | 2 | 6 | 1 | 1009 |
| 21 | Fowler Ave | Perrin Ave | 0 | 467 | 10 | 10 | 453 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 961 |
| 22 | Fowler Ave | Shepherd Ave | 143 | 89 | 40 | 252 | 159 | 18 | 20 | 506 | 8 | 58 | 254 | 359 | 1905 |
| 23 | Fowler Ave | Teague Ave | 3 | 163 | 8 | 21 | 229 | 10 | 3 | 5 | 6 | 16 | 7 | 45 | 517 |
| 24 | Fowler Ave | Nees Ave | 44 | 121 | 37 | 18 | 208 | 60 | 26 | 283 | 110 | 97 | 272 | 30 | 1307 |
| 25 | Fowler Ave | Alluvial Ave | 495 | 231 | 57 | 58 | 577 | 73 | 21 | 230 | 318 | 77 | 337 | 25 | 2498 |
| 26 | Fowler Ave | SR 168 WB Ramps | 603 | 750 | 0 | 0 | 475 | 542 | 0 | 0 | 0 | 110 | 353 | 15 | 2848 |
| 27 | Fowler Ave | SR 168 EB Ramps | 0 | 1157 | 94 | 16 | 601 | 0 | 174 | 14 | 394 | 0 | 0 | 0 | 2450 |
| 28 | Burgan Ave | Perrin Ave | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 | 0 | 0 | 23 |
| 29 | Burgan Ave | Shepherd Ave | 0 | 0 | 6 | 5 | 0 | 19 | 12 | 541 | 0 | 3 | 574 | 12 | 1173 |
| 30 | Armstrong Ave | Shepherd Ave | 81 | 0 | 20 | 16 | 0 | 48 | 25 | 553 | 37 | 5 | 485 | 10 | 1280 |
| 31 | Temperance Ave | Shepherd Ave | 111 | 198 | 39 | 0 | 0 | 0 | 5 | 257 | 318 | 23 | 398 | 0 | 1349 |
| 32 | Temperance Ave | Nees Ave | 90 | 201 | 64 | 2 | 654 | 194 | 79 | 85 | 169 | 204 | 197 | 6 | 1945 |
| 33 | Temperance Ave | Alluvial Ave | 172 | 298 | 269 | 98 | 908 | 74 | 27 | 26 | 149 | 231 | 37 | 79 | 2367 |
| 34 | Temperance Ave | SR 168 WB Ramps | 0 | 579 | 756 | 0 | 761 | 515 | 0 | 0 | 0 | 53 | 0 | 129 | 2794 |
| 35 | Temperance Ave | SR 168 EB Ramps | 0 | 1122 | 26 | 28 | 785 | 0 | 190 | 0 | 887 | 0 | 0 | 0 | 3039 |
| 36 | Locan Ave | Shepherd Ave | 64 | 0 | 23 | 0 | 0 | 0 | 0 | 255 | 36 | 9 | 348 | 0 | 734 |
| 37 | Locan Ave | Nees Ave | 6 | 4 | 1 | 1 | 5 | 381 | 130 | 2 | 2 | 0 | 4 | 1 | 537 |
| 38 | Locan Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | De Wolf Ave | Shepherd Ave | 127 | 0 | 9 | 0 | 0 | 0 | 0 | 217 | 61 | 4 | 225 | 0 | 644 |
| 40 | De Wolf Ave | Owens Mountain Pkwy | 0 | 0 | 0 | 557 | 0 | 8 | 12 | 51 | 0 | 1 | 11 | 124 | 764 |
| 41 | Owens Mountain Pkwy | SR 168 | 110 | 21 | 12 | 5 | 80 | 509 | 129 | 216 | 50 | 35 | 461 | 14 | 1644 |
| 42 | Shepherd Ave | SR 168 | 30 | 58 | 2 | 82 | 106 | 174 | 50 | 181 | 13 | 1 | 263 | 91 | 1051 |
| 43 | Project Access South | Shepherd Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 274 | 0 | 0 | 588 | 0 | 862 |
| 44 | Project Access North | Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | Project Access E. of Tmprnc | Shepherd Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 359 | 0 | 359 |

# Appendix D

## Signal Warrants

# Signal Warrants Report For Intersection 4: Minnewawa Ave & International Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 246 | 483 | 1 | 116 |
| 2 | 239 | 469 | 1 | 113 |
| 3 | 234 | 459 | 1 | 110 |
| 4 | 219 | 430 | 1 | 103 |
| 5 | 194 | 382 | 1 | 92 |
| 6 | 192 | 377 | 1 | 90 |
| 7 | 189 | 372 | 1 | 89 |
| 8 | 172 | 338 | 1 | 81 |
| 9 | 170 | 333 | 1 | 80 |
| 10 | 167 | 328 | 1 | 79 |
| 11 | 145 | 285 | 1 | 68 |
| 12 | 135 | 266 | 1 | 64 |
| 13 | 133 | 261 | 1 | 63 |
| 14 | 98 | 193 | 0 | 46 |
| 15 | 98 | 193 | 0 | 46 |
| 16 | 69 | 135 | 0 | 32 |
| 17 | 39 | 77 | 0 | 19 |
| 18 | 39 | 77 | 0 | 19 |
| 19 | 22 | 43 | 0 | 10 |
| 20 | 12 | 24 | 0 | 6 |
| 21 | 7 | 14 | 0 | 3 |
| 22 | 2 | 5 | 0 | 1 |
| 23 | 2 | 5 | 0 | 1 |
| 24 | 2 | 5 | 0 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 729 | 1 | 116 | No | No | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 2 | 1 | 708 | 1 | 113 | No | No | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 3 | 1 | 693 | 1 | 110 | No | No | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 4 | 1 | 649 | 1 | 103 | No | No | No | Yes | No | Yes | Yes | Yes | No | No |
| 5 | 1 | 576 | 1 | 92 | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 6 | 1 | 569 | 1 | 90 | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 7 | 1 | 561 | 1 | 89 | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 8 | 1 | 510 | 1 | 81 | No | No | No | No | No | No | No | Yes | No | No |
| 9 | 1 | 503 | 1 | 80 | No | No | No | No | No | No | No | Yes | No | No |
| 10 | 1 | 495 | 1 | 79 | No | No | No | No | No | No | No | Yes | No | No |
| 11 | 1 | 430 | 1 | 68 | No | No | No | No | No | No | No | Yes | No | No |
| 12 | 1 | 401 | 1 | 64 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 394 | 1 | 63 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 291 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 291 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 204 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 116 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 116 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 65 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 36 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 21 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 3 | 7 | 0 | 4 | 7 | 11 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 45 | 11.9 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:00 | 0:22 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 1 | 116 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 846 | 846 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 5: Minnewawa Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 463 | 345 | 721 | 211 |
| 2 | 449 | 335 | 699 | 205 |
| 3 | 440 | 328 | 685 | 200 |
| 4 | 412 | 307 | 642 | 188 |
| 5 | 366 | 273 | 570 | 167 |
| 6 | 361 | 269 | 562 | 165 |
| 7 | 357 | 266 | 555 | 162 |
| 8 | 324 | 241 | 505 | 148 |
| 9 | 319 | 238 | 497 | 146 |
| 10 | 315 | 235 | 490 | 143 |
| 11 | 273 | 204 | 425 | 124 |
| 12 | 255 | 190 | 397 | 116 |
| 13 | 250 | 186 | 389 | 114 |
| 14 | 185 | 138 | 288 | 84 |
| 15 | 185 | 138 | 288 | 84 |
| 16 | 130 | 97 | 202 | 59 |
| 17 | 74 | 55 | 115 | 34 |
| 18 | 74 | 55 | 115 | 34 |
| 19 | 42 | 31 | 65 | 19 |
| 20 | 23 | 17 | 36 | 11 |
| 21 | 14 | 10 | 22 | 6 |
| 22 | 5 | 3 | 7 | 2 |
| 23 | 5 | 3 | 7 | 2 |
| 24 | 5 | 3 | 7 | 2 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 808 | 1 | 721 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 784 | 1 | 699 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 768 | 1 | 685 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 719 | 1 | 642 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 639 | 1 | 570 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 630 | 1 | 562 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 623 | 1 | 555 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 565 | 1 | 505 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 9 | 1 | 557 | 1 | 497 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 10 | 1 | 550 | 1 | 490 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 11 | 1 | 477 | 1 | 425 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 12 | 1 | 445 | 1 | 397 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 1 | 436 | 1 | 389 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 1 | 323 | 1 | 288 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 1 | 323 | 1 | 288 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 1 | 227 | 1 | 202 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 129 | 1 | 115 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 129 | 1 | 115 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 73 | 1 | 65 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 40 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 24 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 8 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 8 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 8 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 13 | 13 | 15 | 3 | 7 | 10 | 13 | 13 | 10 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 343.8 | 23.3 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 68:51 | 1:22 |
| Delay Condition Met | Yes | No |
| Volume on Minor Street Approach During Same Hour | 721 | 211 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1740 | 1740 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | No |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 16: Sunnyside Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 298 | 118 | 406 | 554 |
| 2 | 289 | 114 | 394 | 537 |
| 3 | 283 | 112 | 386 | 526 |
| 4 | 265 | 105 | 361 | 493 |
| 5 | 235 | 93 | 321 | 438 |
| 6 | 232 | 92 | 317 | 432 |
| 7 | 229 | 91 | 313 | 427 |
| 8 | 209 | 83 | 284 | 388 |
| 9 | 206 | 81 | 280 | 382 |
| 10 | 203 | 80 | 276 | 377 |
| 11 | 176 | 70 | 240 | 327 |
| 12 | 164 | 65 | 223 | 305 |
| 13 | 161 | 64 | 219 | 299 |
| 14 | 119 | 47 | 162 | 222 |
| 15 | 119 | 47 | 162 | 222 |
| 16 | 83 | 33 | 114 | 155 |
| 17 | 48 | 19 | 65 | 89 |
| 18 | 48 | 19 | 65 | 89 |
| 19 | 27 | 11 | 37 | 50 |
| 20 | 15 | 6 | 20 | 28 |
| 21 | 9 | 4 | 12 | 17 |
| 22 | 3 | 1 | 4 | 6 |
| 23 | 3 | 1 | 4 | 6 |
| 24 | 3 | 1 | 4 | 6 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 416 | 1 | 554 | No | Yes | Yes | Yes | No | No | No | No | Yes | Yes |
| 2 | 1 | 403 | 1 | 537 | No | Yes | Yes | Yes | No | No | No | No | Yes | Yes |
| 3 | 1 | 395 | 1 | 526 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 4 | 1 | 370 | 1 | 493 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 5 | 1 | 328 | 1 | 438 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 6 | 1 | 324 | 1 | 432 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 7 | 1 | 320 | 1 | 427 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 8 | 1 | 292 | 1 | 388 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 9 | 1 | 287 | 1 | 382 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 10 | 1 | 283 | 1 | 377 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 11 | 1 | 246 | 1 | 327 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 1 | 229 | 1 | 305 | No | No | No | No | No | No | No | No | Yes | No |
| 13 | 1 | 225 | 1 | 299 | No | No | No | No | No | No | No | No | Yes | No |
| 14 | 1 | 166 | 1 | 222 | No | No | No | No | No | No | No | No | Yes | No |
| 15 | 1 | 166 | 1 | 222 | No | No | No | No | No | No | No | No | Yes | No |
| 16 | 1 | 116 | 1 | 155 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 67 | 1 | 89 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 67 | 1 | 89 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 38 | 1 | 50 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 21 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 13 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 4 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 4 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 4 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 2 | 4 | 10 | 0 | 0 | 0 | 0 | 15 | 10 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 30.6 | 69.4 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 3:26 | 10:41 |
| Delay Condition Met | No | Yes |
| Volume on Minor Street Approach During Same Hour | 406 | 554 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1376 | 1376 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 17: Sunnyside Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 230 | 567 | 573 | 734 |
| 2 | 223 | 550 | 556 | 712 |
| 3 | 219 | 539 | 544 | 697 |
| 4 | 205 | 505 | 510 | 653 |
| 5 | 182 | 448 | 453 | 580 |
| 6 | 179 | 442 | 447 | 573 |
| 7 | 177 | 437 | 441 | 565 |
| 8 | 161 | 397 | 401 | 514 |
| 9 | 159 | 391 | 395 | 506 |
| 10 | 156 | 386 | 390 | 499 |
| 11 | 136 | 335 | 338 | 433 |
| 12 | 127 | 312 | 315 | 404 |
| 13 | 124 | 306 | 309 | 396 |
| 14 | 92 | 227 | 229 | 294 |
| 15 | 92 | 227 | 229 | 294 |
| 16 | 64 | 159 | 160 | 206 |
| 17 | 37 | 91 | 92 | 117 |
| 18 | 37 | 91 | 92 | 117 |
| 19 | 21 | 51 | 52 | 66 |
| 20 | 12 | 28 | 29 | 37 |
| 21 | 7 | 17 | 17 | 22 |
| 22 | 2 | 6 | 6 | 7 |
| 23 | 2 | 6 | 6 | 7 |
| 24 | 2 | 6 | 6 | 7 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 797 | 3 | 734 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 2 | 2 | 773 | 3 | 712 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 3 | 2 | 758 | 3 | 697 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 4 | 2 | 710 | 3 | 653 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 5 | 2 | 630 | 3 | 580 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 6 | 2 | 621 | 3 | 573 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 7 | 2 | 614 | 3 | 565 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 8 | 2 | 558 | 3 | 514 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 9 | 2 | 550 | 3 | 506 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 10 | 2 | 542 | 3 | 499 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 11 | 2 | 471 | 3 | 433 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 12 | 2 | 439 | 3 | 404 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 13 | 2 | 430 | 3 | 396 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 14 | 2 | 319 | 3 | 294 | No | No | No | No | No | No | No | No | Yes | No |
| 15 | 2 | 319 | 3 | 294 | No | No | No | No | No | No | No | No | Yes | No |
| 16 | 2 | 223 | 3 | 206 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 128 | 3 | 117 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 128 | 3 | 117 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 72 | 3 | 66 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 40 | 3 | 37 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 24 | 3 | 22 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 8 | 3 | 7 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 8 | 3 | 7 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 8 | 3 | 7 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 7 | 10 | 13 | 13 | 0 | 3 | 5 | 10 | 15 | 13 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 279.7 | 65.4 |
| Number of Lanes on Minor Street Approach | 2 | 3 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 44:30 | 13:20 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 573 | 734 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 2104 | 2104 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 20: Fowler Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 103 | 694 | 155 | 329 |
| 2 | 100 | 673 | 150 | 319 |
| 3 | 98 | 659 | 147 | 313 |
| 4 | 92 | 618 | 138 | 293 |
| 5 | 81 | 548 | 122 | 260 |
| 6 | 80 | 541 | 121 | 257 |
| 7 | 79 | 534 | 119 | 253 |
| 8 | 72 | 486 | 109 | 230 |
| 9 | 71 | 479 | 107 | 227 |
| 10 | 70 | 472 | 105 | 224 |
| 11 | 61 | 409 | 91 | 194 |
| 12 | 57 | 382 | 85 | 181 |
| 13 | 56 | 375 | 84 | 178 |
| 14 | 41 | 278 | 62 | 132 |
| 15 | 41 | 278 | 62 | 132 |
| 16 | 29 | 194 | 43 | 92 |
| 17 | 16 | 111 | 25 | 53 |
| 18 | 16 | 111 | 25 | 53 |
| 19 | 9 | 62 | 14 | 30 |
| 20 | 5 | 35 | 8 | 16 |
| 21 | 3 | 21 | 5 | 10 |
| 22 | 1 | 7 | 2 | 3 |
| 23 | 1 | 7 | 2 | 3 |
| 24 | 1 | 7 | 2 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 797 | 1 | 329 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 773 | 1 | 319 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 757 | 1 | 313 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 710 | 1 | 293 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 629 | 1 | 260 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 621 | 1 | 257 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 613 | 1 | 253 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 558 | 1 | 230 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 9 | 1 | 550 | 1 | 227 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 10 | 1 | 542 | 1 | 224 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 11 | 1 | 470 | 1 | 194 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 12 | 1 | 439 | 1 | 181 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 1 | 431 | 1 | 178 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 1 | 319 | 1 | 132 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 1 | 319 | 1 | 132 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 1 | 223 | 1 | 92 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 127 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 127 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 71 | 1 | 30 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 40 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 24 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 13 | 13 | 15 | 3 | 7 | 10 | 13 | 13 | 7 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.2 | 17.8 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:34 | 1:37 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 155 | 329 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1281 | 1281 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 21: Fowler Ave & Perrin Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | N | S | E |
| 1 | 385 | 684 | 454 |
| 2 | 373 | 663 | 440 |
| 3 | 366 | 650 | 431 |
| 4 | 343 | 609 | 404 |
| 5 | 304 | 540 | 359 |
| 6 | 300 | 534 | 354 |
| 7 | 296 | 527 | 350 |
| 8 | 270 | 479 | 318 |
| 9 | 266 | 472 | 313 |
| 10 | 262 | 465 | 309 |
| 11 | 227 | 404 | 268 |
| 12 | 212 | 376 | 250 |
| 13 | 208 | 369 | 245 |
| 14 | 154 | 274 | 182 |
| 15 | 154 | 274 | 182 |
| 16 | 108 | 192 | 127 |
| 17 | 62 | 109 | 73 |
| 18 | 62 | 109 | 73 |
| 19 | 35 | 62 | 41 |
| 20 | 19 | 34 | 23 |
| 21 | 12 | 21 | 14 |
| 22 | 4 | 7 | 5 |
| 23 | 4 | 7 | 5 |
| 24 | 4 | 7 | 5 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 1069 | 1 | 454 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 1036 | 1 | 440 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 1016 | 1 | 431 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 952 | 1 | 404 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 844 | 1 | 359 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 834 | 1 | 354 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 823 | 1 | 350 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 749 | 1 | 318 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 9 | 1 | 738 | 1 | 313 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 10 | 1 | 727 | 1 | 309 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 11 | 1 | 631 | 1 | 268 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 12 | 1 | 588 | 1 | 250 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 13 | 1 | 577 | 1 | 245 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 14 | 1 | 428 | 1 | 182 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 15 | 1 | 428 | 1 | 182 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 16 | 1 | 300 | 1 | 127 | No | No | No | Yes | No | No | No | No | No | No |
| 17 | 1 | 171 | 1 | 73 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 171 | 1 | 73 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 97 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 53 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 33 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 11 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 11 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 11 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 13 | 15 | 15 | 16 | 7 | 11 | 13 | 15 | 15 | 12 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | E |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 383.2 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 48:19 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 454 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1523 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 23: Fowler Ave & Teague Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 422 | 301 | 54 | 140 |
| 2 | 409 | 292 | 52 | 136 |
| 3 | 401 | 286 | 51 | 133 |
| 4 | 376 | 268 | 48 | 125 |
| 5 | 333 | 238 | 43 | 111 |
| 6 | 329 | 235 | 42 | 109 |
| 7 | 325 | 232 | 42 | 108 |
| 8 | 295 | 211 | 38 | 98 |
| 9 | 291 | 208 | 37 | 97 |
| 10 | 287 | 205 | 37 | 95 |
| 11 | 249 | 178 | 32 | 83 |
| 12 | 232 | 166 | 30 | 77 |
| 13 | 228 | 163 | 29 | 76 |
| 14 | 169 | 120 | 22 | 56 |
| 15 | 169 | 120 | 22 | 56 |
| 16 | 118 | 84 | 15 | 39 |
| 17 | 68 | 48 | 9 | 22 |
| 18 | 68 | 48 | 9 | 22 |
| 19 | 38 | 27 | 5 | 13 |
| 20 | 21 | 15 | 3 | 7 |
| 21 | 13 | 9 | 2 | 4 |
| 22 | 4 | 3 | 1 | 1 |
| 23 | 4 | 3 | 1 | 1 |
| 24 | 4 | 3 | 1 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 723 | 1 | 140 | No | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 2 | 3 | 701 | 1 | 136 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 3 | 3 | 687 | 1 | 133 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 4 | 3 | 644 | 1 | 125 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 5 | 3 | 571 | 1 | 111 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 6 | 3 | 564 | 1 | 109 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 7 | 3 | 557 | 1 | 108 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 8 | 3 | 506 | 1 | 98 | No | No | No | Yes | No | No | No | Yes | No | No |
| 9 | 3 | 499 | 1 | 97 | No | No | No | Yes | No | No | No | No | No | No |
| 10 | 3 | 492 | 1 | 95 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 3 | 427 | 1 | 83 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 398 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 391 | 1 | 76 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 289 | 1 | 56 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 289 | 1 | 56 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 202 | 1 | 39 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 116 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 116 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 65 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 36 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 22 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 4 | 7 | 10 | 0 | 1 | 4 | 8 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 17.2 | 15.5 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:15 | 0:36 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 54 | 140 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 917 | 917 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 28: Perrin Rd & Burgan Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 438 | 176 | 11 |
| 2 | 425 | 171 | 11 |
| 3 | 416 | 167 | 10 |
| 4 | 390 | 157 | 10 |
| 5 | 346 | 139 | 9 |
| 6 | 342 | 137 | 9 |
| 7 | 337 | 136 | 8 |
| 8 | 307 | 123 | 8 |
| 9 | 302 | 121 | 8 |
| 10 | 298 | 120 | 7 |
| 11 | 258 | 104 | 6 |
| 12 | 241 | 97 | 6 |
| 13 | 237 | 95 | 6 |
| 14 | 175 | 70 | 4 |
| 15 | 175 | 70 | 4 |
| 16 | 123 | 49 | 3 |
| 17 | 70 | 28 | 2 |
| 18 | 70 | 28 | 2 |
| 19 | 39 | 16 | 1 |
| 20 | 22 | 9 | 1 |
| 21 | 13 | 5 | 0 |
| 22 | 4 | 2 | 0 |
| 23 | 4 | 2 | 0 |
| 24 | 4 | 2 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 614 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 596 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 583 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 547 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 485 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 479 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 473 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 430 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 423 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 418 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 362 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 338 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 332 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 245 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 245 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 172 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 98 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 98 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 55 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 31 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 18 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 6 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 6 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 6 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 20.8 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:03 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 11 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 625 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 29: Burgan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 555 | 444 | 26 |
| 2 | 538 | 431 | 25 |
| 3 | 527 | 422 | 25 |
| 4 | 494 | 395 | 23 |
| 5 | 438 | 351 | 21 |
| 6 | 433 | 346 | 20 |
| 7 | 427 | 342 | 20 |
| 8 | 389 | 311 | 18 |
| 9 | 383 | 306 | 18 |
| 10 | 377 | 302 | 18 |
| 11 | 327 | 262 | 15 |
| 12 | 305 | 244 | 14 |
| 13 | 300 | 240 | 14 |
| 14 | 222 | 178 | 10 |
| 15 | 222 | 178 | 10 |
| 16 | 155 | 124 | 7 |
| 17 | 89 | 71 | 4 |
| 18 | 89 | 71 | 4 |
| 19 | 50 | 40 | 2 |
| 20 | 28 | 22 | 1 |
| 21 | 17 | 13 | 1 |
| 22 | 6 | 4 | 0 |
| 23 | 6 | 4 | 0 |
| 24 | 6 | 4 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 999 | 1 | 26 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 969 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 949 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 889 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 789 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 779 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 769 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 700 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 689 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 679 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 589 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 549 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 540 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 400 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 400 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 279 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 160 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 160 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 90 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 50 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 30 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 10 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 10 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 10 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 12.2 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:05 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 26 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 1025 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 30: Armstrong Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 509 | 506 | 101 |
| 2 | 494 | 491 | 98 |
| 3 | 484 | 481 | 96 |
| 4 | 453 | 450 | 90 |
| 5 | 402 | 400 | 80 |
| 6 | 397 | 395 | 79 |
| 7 | 392 | 390 | 78 |
| 8 | 356 | 354 | 71 |
| 9 | 351 | 349 | 70 |
| 10 | 346 | 344 | 69 |
| 11 | 300 | 299 | 60 |
| 12 | 280 | 278 | 56 |
| 13 | 275 | 273 | 55 |
| 14 | 204 | 202 | 40 |
| 15 | 204 | 202 | 40 |
| 16 | 143 | 142 | 28 |
| 17 | 81 | 81 | 16 |
| 18 | 81 | 81 | 16 |
| 19 | 46 | 46 | 9 |
| 20 | 25 | 25 | 5 |
| 21 | 15 | 15 | 3 |
| 22 | 5 | 5 | 1 |
| 23 | 5 | 5 | 1 |
| 24 | 5 | 5 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1015 | 1 | 101 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 2 | 3 | 985 | 1 | 98 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 3 | 3 | 965 | 1 | 96 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 4 | 3 | 903 | 1 | 90 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 5 | 3 | 802 | 1 | 80 | No | No | No | No | No | Yes | Yes | Yes | Yes | No |
| 6 | 3 | 792 | 1 | 79 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 7 | 3 | 782 | 1 | 78 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 8 | 3 | 710 | 1 | 71 | No | No | No | No | No | No | Yes | Yes | No | No |
| 9 | 3 | 700 | 1 | 70 | No | No | No | No | No | No | Yes | Yes | No | No |
| 10 | 3 | 690 | 1 | 69 | No | No | No | No | No | No | Yes | Yes | No | No |
| 11 | 3 | 599 | 1 | 60 | No | No | No | No | No | No | No | Yes | No | No |
| 12 | 3 | 558 | 1 | 56 | No | No | No | No | No | No | No | Yes | No | No |
| 13 | 3 | 548 | 1 | 55 | No | No | No | No | No | No | No | Yes | No | No |
| 14 | 3 | 406 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 406 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 285 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 162 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 162 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 92 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 50 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 30 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 4 | 4 | 7 | 10 | 13 | 5 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 28.1 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:47 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 101 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1116 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 36: Locan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N, S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | E | W | N | S |
| 1 | 337 | 315 | 207 | 100 |
| 2 | 327 | 306 | 201 | 97 |
| 3 | 320 | 299 | 197 | 95 |
| 4 | 300 | 280 | 184 | 89 |
| 5 | 266 | 249 | 164 | 79 |
| 6 | 263 | 246 | 161 | 78 |
| 7 | 259 | 243 | 159 | 77 |
| 8 | 236 | 221 | 145 | 70 |
| 9 | 233 | 217 | 143 | 69 |
| 10 | 229 | 214 | 141 | 68 |
| 11 | 199 | 186 | 122 | 59 |
| 12 | 185 | 173 | 114 | 55 |
| 13 | 182 | 170 | 112 | 54 |
| 14 | 135 | 126 | 83 | 40 |
| 15 | 135 | 126 | 83 | 40 |
| 16 | 94 | 88 | 58 | 28 |
| 17 | 54 | 50 | 33 | 16 |
| 18 | 54 | 50 | 33 | 16 |
| 19 | 30 | 28 | 19 | 9 |
| 20 | 17 | 16 | 10 | 5 |
| 21 | 10 | 9 | 6 | 3 |
| 22 | 3 | 3 | 2 | 1 |
| 23 | 3 | 3 | 2 | 1 |
| 24 | 3 | 3 | 2 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 652 | 2 | 207 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 2 | 3 | 633 | 2 | 201 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 3 | 3 | 619 | 2 | 197 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 4 | 3 | 580 | 2 | 184 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 5 | 3 | 515 | 2 | 164 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 6 | 3 | 509 | 2 | 161 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 7 | 3 | 502 | 2 | 159 | No | No | Yes | Yes | No | No | No | No | No | No |
| 8 | 3 | 457 | 2 | 145 | No | No | Yes | Yes | No | No | No | No | No | No |
| 9 | 3 | 450 | 2 | 143 | No | No | Yes | Yes | No | No | No | No | No | No |
| 10 | 3 | 443 | 2 | 141 | No | No | Yes | Yes | No | No | No | No | No | No |
| 11 | 3 | 385 | 2 | 122 | No | No | No | Yes | No | No | No | No | No | No |
| 12 | 3 | 358 | 2 | 114 | No | No | No | Yes | No | No | No | No | No | No |
| 13 | 3 | 352 | 2 | 112 | No | No | No | Yes | No | No | No | No | No | No |
| 14 | 3 | 261 | 2 | 83 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 261 | 2 | 83 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 182 | 2 | 58 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 104 | 2 | 33 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 104 | 2 | 33 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 58 | 2 | 19 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 33 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 19 | 2 | 6 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 6 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 6 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 6 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 2 | 6 | 10 | 13 | 0 | 0 | 2 | 6 | 3 | 0 |

## Warrant 3 Condition A

| Orientation | N | S |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 21.7 | 20.8 |
| Number of Lanes on Minor Street Approach | 2 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 1:14 | 0:34 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 207 | 100 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 959 | 959 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 37: Locan Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 516 | 13 | 5 | 130 |
| 2 | 501 | 13 | 5 | 126 |
| 3 | 490 | 12 | 5 | 124 |
| 4 | 459 | 12 | 4 | 116 |
| 5 | 408 | 10 | 4 | 103 |
| 6 | 402 | 10 | 4 | 101 |
| 7 | 397 | 10 | 4 | 100 |
| 8 | 361 | 9 | 4 | 91 |
| 9 | 356 | 9 | 3 | 90 |
| 10 | 351 | 9 | 3 | 88 |
| 11 | 304 | 8 | 3 | 77 |
| 12 | 284 | 7 | 3 | 72 |
| 13 | 279 | 7 | 3 | 70 |
| 14 | 206 | 5 | 2 | 52 |
| 15 | 206 | 5 | 2 | 52 |
| 16 | 144 | 4 | 1 | 36 |
| 17 | 83 | 2 | 1 | 21 |
| 18 | 83 | 2 | 1 | 21 |
| 19 | 46 | 1 | 0 | 12 |
| 20 | 26 | 1 | 0 | 7 |
| 21 | 15 | 0 | 0 | 4 |
| 22 | 5 | 0 | 0 | 1 |
| 23 | 5 | 0 | 0 | 1 |
| 24 | 5 | 0 | 0 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 529 | 1 | 130 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 2 | 1 | 514 | 1 | 126 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 3 | 1 | 502 | 1 | 124 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 4 | 1 | 471 | 1 | 116 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 5 | 1 | 418 | 1 | 103 | No | No | No | Yes | No | No | No | No | No | No |
| 6 | 1 | 412 | 1 | 101 | No | No | No | Yes | No | No | No | No | No | No |
| 7 | 1 | 407 | 1 | 100 | No | No | No | Yes | No | No | No | No | No | No |
| 8 | 1 | 370 | 1 | 91 | No | No | No | Yes | No | No | No | No | No | No |
| 9 | 1 | 365 | 1 | 90 | No | No | No | Yes | No | No | No | No | No | No |
| 10 | 1 | 360 | 1 | 88 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 1 | 312 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 291 | 1 | 72 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 286 | 1 | 70 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 211 | 1 | 52 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 211 | 1 | 52 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 148 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 85 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 85 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 47 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 27 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 15 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 3 | 4 | 10 | 0 | 0 | 1 | 4 | 3 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.5 | 10.2 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:00 | 0:22 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 5 | 130 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 664 | 664 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 40: De Wolf Ave & Owens Mountain Pkwy

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 151 | 63 | 737 |
| 2 | 146 | 61 | 715 |
| 3 | 143 | 60 | 700 |
| 4 | 134 | 56 | 656 |
| 5 | 119 | 50 | 582 |
| 6 | 118 | 49 | 575 |
| 7 | 116 | 49 | 567 |
| 8 | 106 | 44 | 516 |
| 9 | 104 | 43 | 509 |
| 10 | 103 | 43 | 501 |
| 11 | 89 | 37 | 435 |
| 12 | 83 | 35 | 405 |
| 13 | 82 | 34 | 398 |
| 14 | 60 | 25 | 295 |
| 15 | 60 | 25 | 295 |
| 16 | 42 | 18 | 206 |
| 17 | 24 | 10 | 118 |
| 18 | 24 | 10 | 118 |
| 19 | 14 | 6 | 66 |
| 20 | 8 | 3 | 37 |
| 21 | 5 | 2 | 22 |
| 22 | 2 | 1 | 7 |
| 23 | 2 | 1 | 7 |
| 24 | 2 | 1 | 7 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 214 | 2 | 737 | No | No | No | No | No | No | No | No | Yes | Yes |
| 2 | 2 | 207 | 2 | 715 | No | No | No | No | No | No | No | No | Yes | Yes |
| 3 | 2 | 203 | 2 | 700 | No | No | No | No | No | No | No | No | Yes | Yes |
| 4 | 2 | 190 | 2 | 656 | No | No | No | No | No | No | No | No | Yes | Yes |
| 5 | 2 | 169 | 2 | 582 | No | No | No | No | No | No | No | No | Yes | No |
| 6 | 2 | 167 | 2 | 575 | No | No | No | No | No | No | No | No | Yes | No |
| 7 | 2 | 165 | 2 | 567 | No | No | No | No | No | No | No | No | Yes | No |
| 8 | 2 | 150 | 2 | 516 | No | No | No | No | No | No | No | No | Yes | No |
| 9 | 2 | 147 | 2 | 509 | No | No | No | No | No | No | No | No | Yes | No |
| 10 | 2 | 146 | 2 | 501 | No | No | No | No | No | No | No | No | Yes | No |
| 11 | 2 | 126 | 2 | 435 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 118 | 2 | 405 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 116 | 2 | 398 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 85 | 2 | 295 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 85 | 2 | 295 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 60 | 2 | 206 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 34 | 2 | 118 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 34 | 2 | 118 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 20 | 2 | 66 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 11 | 2 | 37 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 7 | 2 | 22 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 3 | 2 | 7 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 3 | 2 | 7 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 3 | 2 | 7 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 4 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 229.2 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 46:55 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 737 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 951 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 43: Shephed Ave & Project Access South

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 56% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 492 | 274 | 131 |
| 2 | 477 | 266 | 127 |
| 3 | 467 | 260 | 124 |
| 4 | 438 | 244 | 117 |
| 5 | 389 | 216 | 103 |
| 6 | 384 | 214 | 102 |
| 7 | 379 | 211 | 101 |
| 8 | 344 | 192 | 92 |
| 9 | 339 | 189 | 90 |
| 10 | 335 | 186 | 89 |
| 11 | 290 | 162 | 77 |
| 12 | 271 | 151 | 72 |
| 13 | 266 | 148 | 71 |
| 14 | 197 | 110 | 52 |
| 15 | 197 | 110 | 52 |
| 16 | 138 | 77 | 37 |
| 17 | 79 | 44 | 21 |
| 18 | 79 | 44 | 21 |
| 19 | 44 | 25 | 12 |
| 20 | 25 | 14 | 7 |
| 21 | 15 | 8 | 4 |
| 22 | 5 | 3 | 1 |
| 23 | 5 | 3 | 1 |
| 24 | 5 | 3 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 766 | 1 | 131 | No | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 2 | 2 | 743 | 1 | 127 | No | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 3 | 2 | 727 | 1 | 124 | No | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 4 | 2 | 682 | 1 | 117 | No | No | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 5 | 2 | 605 | 1 | 103 | No | No | No | Yes | No | No | No | Yes | No | No |
| 6 | 2 | 598 | 1 | 102 | No | No | No | Yes | No | No | No | Yes | No | No |
| 7 | 2 | 590 | 1 | 101 | No | No | No | Yes | No | No | No | Yes | No | No |
| 8 | 2 | 536 | 1 | 92 | No | No | No | Yes | No | No | No | Yes | No | No |
| 9 | 2 | 528 | 1 | 90 | No | No | No | Yes | No | No | No | Yes | No | No |
| 10 | 2 | 521 | 1 | 89 | No | No | No | Yes | No | No | No | Yes | No | No |
| 11 | 2 | 452 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 422 | 1 | 72 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 414 | 1 | 71 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 307 | 1 | 52 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 307 | 1 | 52 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 215 | 1 | 37 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 123 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 123 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 69 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 39 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 23 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 3 | 4 | 10 | 0 | 3 | 4 | 10 | 4 | 0 |

## Warrant 3 Condition A

| Orientation | N |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.8 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:23 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 131 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 897 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 44: Behymer Ave & Project Access North

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 0 | 26 | 145 |
| 2 | 0 | 25 | 141 |
| 3 | 0 | 25 | 138 |
| 4 | 0 | 23 | 129 |
| 5 | 0 | 21 | 115 |
| 6 | 0 | 20 | 113 |
| 7 | 0 | 20 | 112 |
| 8 | 0 | 18 | 102 |
| 9 | 0 | 18 | 100 |
| 10 | 0 | 18 | 99 |
| 11 | 0 | 15 | 86 |
| 12 | 0 | 14 | 80 |
| 13 | 0 | 14 | 78 |
| 14 | 0 | 10 | 58 |
| 15 | 0 | 10 | 58 |
| 16 | 0 | 7 | 41 |
| 17 | 0 | 4 | 23 |
| 18 | 0 | 4 | 23 |
| 19 | 0 | 2 | 13 |
| 20 | 0 | 1 | 7 |
| 21 | 0 | 1 | 4 |
| 22 | 0 | 0 | 1 |
| 23 | 0 | 0 | 1 |
| 24 | 0 | 0 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 26 | 1 | 145 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 25 | 1 | 141 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 25 | 1 | 138 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 23 | 1 | 129 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 21 | 1 | 115 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 20 | 1 | 113 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 20 | 1 | 112 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 18 | 1 | 102 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 18 | 1 | 100 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 18 | 1 | 99 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 15 | 1 | 86 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 14 | 1 | 80 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 14 | 1 | 78 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 10 | 1 | 58 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 10 | 1 | 58 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 7 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 4 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 4 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 2 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 1 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 1 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.2 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:22 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 145 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 171 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 4: Minnewawa Ave & International Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 276 | 445 | 2 | 297 |
| 2 | 268 | 432 | 2 | 288 |
| 3 | 262 | 423 | 2 | 282 |
| 4 | 246 | 396 | 2 | 264 |
| 5 | 218 | 352 | 2 | 235 |
| 6 | 215 | 347 | 2 | 232 |
| 7 | 213 | 343 | 2 | 229 |
| 8 | 193 | 312 | 1 | 208 |
| 9 | 190 | 307 | 1 | 205 |
| 10 | 188 | 303 | 1 | 202 |
| 11 | 163 | 263 | 1 | 175 |
| 12 | 152 | 245 | 1 | 163 |
| 13 | 149 | 240 | 1 | 160 |
| 14 | 110 | 178 | 1 | 119 |
| 15 | 110 | 178 | 1 | 119 |
| 16 | 77 | 125 | 1 | 83 |
| 17 | 44 | 71 | 0 | 48 |
| 18 | 44 | 71 | 0 | 48 |
| 19 | 25 | 40 | 0 | 27 |
| 20 | 14 | 22 | 0 | 15 |
| 21 | 8 | 13 | 0 | 9 |
| 22 | 3 | 4 | 0 | 3 |
| 23 | 3 | 4 | 0 | 3 |
| 24 | 3 | 4 | 0 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 721 | 1 | 297 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 2 | 1 | 700 | 1 | 288 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 3 | 1 | 685 | 1 | 282 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 4 | 1 | 642 | 1 | 264 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 5 | 1 | 570 | 1 | 235 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 6 | 1 | 562 | 1 | 232 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 7 | 1 | 556 | 1 | 229 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 8 | 1 | 505 | 1 | 208 | Yes | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 9 | 1 | 497 | 1 | 205 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 10 | 1 | 491 | 1 | 202 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 11 | 1 | 426 | 1 | 175 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 12 | 1 | 397 | 1 | 163 | No | No | Yes | Yes | No | No | No | No | No | No |
| 13 | 1 | 389 | 1 | 160 | No | No | Yes | Yes | No | No | No | No | No | No |
| 14 | 1 | 288 | 1 | 119 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 1 | 288 | 1 | 119 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 1 | 202 | 1 | 83 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 115 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 115 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 65 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 36 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 21 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 8 | 11 | 13 | 15 | 0 | 4 | 7 | 11 | 5 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 47.1 | 15.5 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:01 | 1:16 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 2 | 297 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1020 | 1020 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 5: Minnewawa Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 333 | 551 | 550 | 294 |
| 2 | 323 | 534 | 534 | 285 |
| 3 | 316 | 523 | 523 | 279 |
| 4 | 296 | 490 | 490 | 262 |
| 5 | 263 | 435 | 435 | 232 |
| 6 | 260 | 430 | 429 | 229 |
| 7 | 256 | 424 | 424 | 226 |
| 8 | 233 | 386 | 385 | 206 |
| 9 | 230 | 380 | 379 | 203 |
| 10 | 226 | 375 | 374 | 200 |
| 11 | 196 | 325 | 325 | 173 |
| 12 | 183 | 303 | 303 | 162 |
| 13 | 180 | 298 | 297 | 159 |
| 14 | 133 | 220 | 220 | 118 |
| 15 | 133 | 220 | 220 | 118 |
| 16 | 93 | 154 | 154 | 82 |
| 17 | 53 | 88 | 88 | 47 |
| 18 | 53 | 88 | 88 | 47 |
| 19 | 30 | 50 | 50 | 26 |
| 20 | 17 | 28 | 28 | 15 |
| 21 | 10 | 17 | 17 | 9 |
| 22 | 3 | 6 | 6 | 3 |
| 23 | 3 | 6 | 6 | 3 |
| 24 | 3 | 6 | 6 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 884 | 1 | 550 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 857 | 1 | 534 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 839 | 1 | 523 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 786 | 1 | 490 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 698 | 1 | 435 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 690 | 1 | 429 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 680 | 1 | 424 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 619 | 1 | 385 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 9 | 1 | 610 | 1 | 379 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 10 | 1 | 601 | 1 | 374 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 11 | 1 | 521 | 1 | 325 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 12 | 1 | 486 | 1 | 303 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 1 | 478 | 1 | 297 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 1 | 353 | 1 | 220 | No | No | Yes | Yes | No | No | No | No | No | No |
| 15 | 1 | 353 | 1 | 220 | No | No | Yes | Yes | No | No | No | No | No | No |
| 16 | 1 | 247 | 1 | 154 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 141 | 1 | 88 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 141 | 1 | 88 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 80 | 1 | 50 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 45 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 27 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 9 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 9 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 9 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 11 | 13 | 15 | 15 | 4 | 10 | 10 | 13 | 13 | 7 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 232 | 43.3 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 35:26 | 3:32 |
| Delay Condition Met | Yes | No |
| Volume on Minor Street Approach During Same Hour | 550 | 294 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1728 | 1728 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | No |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 16: Sunnyside Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 127 | 293 | 222 | 427 |
| 2 | 123 | 284 | 215 | 414 |
| 3 | 121 | 278 | 211 | 406 |
| 4 | 113 | 261 | 198 | 380 |
| 5 | 100 | 231 | 175 | 337 |
| 6 | 99 | 229 | 173 | 333 |
| 7 | 98 | 226 | 171 | 329 |
| 8 | 89 | 205 | 155 | 299 |
| 9 | 88 | 202 | 153 | 295 |
| 10 | 86 | 199 | 151 | 290 |
| 11 | 75 | 173 | 131 | 252 |
| 12 | 70 | 161 | 122 | 235 |
| 13 | 69 | 158 | 120 | 231 |
| 14 | 51 | 117 | 89 | 171 |
| 15 | 51 | 117 | 89 | 171 |
| 16 | 36 | 82 | 62 | 120 |
| 17 | 20 | 47 | 36 | 68 |
| 18 | 20 | 47 | 36 | 68 |
| 19 | 11 | 26 | 20 | 38 |
| 20 | 6 | 15 | 11 | 21 |
| 21 | 4 | 9 | 7 | 13 |
| 22 | 1 | 3 | 2 | 4 |
| 23 | 1 | 3 | 2 | 4 |
| 24 | 1 | 3 | 2 | 4 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 420 | 1 | 427 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 2 | 1 | 407 | 1 | 414 | No | Yes | Yes | Yes | No | No | No | No | Yes | Yes |
| 3 | 1 | 399 | 1 | 406 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 4 | 1 | 374 | 1 | 380 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 5 | 1 | 331 | 1 | 337 | No | No | No | Yes | No | No | No | No | Yes | No |
| 6 | 1 | 328 | 1 | 333 | No | No | No | Yes | No | No | No | No | Yes | No |
| 7 | 1 | 324 | 1 | 329 | No | No | No | Yes | No | No | No | No | Yes | No |
| 8 | 1 | 294 | 1 | 299 | No | No | No | Yes | No | No | No | No | Yes | No |
| 9 | 1 | 290 | 1 | 295 | No | No | No | Yes | No | No | No | No | Yes | No |
| 10 | 1 | 285 | 1 | 290 | No | No | No | Yes | No | No | No | No | Yes | No |
| 11 | 1 | 248 | 1 | 252 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 1 | 231 | 1 | 235 | No | No | No | No | No | No | No | No | Yes | No |
| 13 | 1 | 227 | 1 | 231 | No | No | No | No | No | No | No | No | Yes | No |
| 14 | 1 | 168 | 1 | 171 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 168 | 1 | 171 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 118 | 1 | 120 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 67 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 67 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 37 | 1 | 38 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 21 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 13 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 4 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 4 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 4 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 2 | 4 | 10 | 0 | 0 | 0 | 1 | 13 | 4 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.7 | 23.2 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:50 | 2:45 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 222 | 427 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1069 | 1069 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 17: Sunnyside Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 757 | 250 | 622 | 785 |
| 2 | 734 | 243 | 603 | 761 |
| 3 | 719 | 238 | 591 | 746 |
| 4 | 674 | 223 | 554 | 699 |
| 5 | 598 | 198 | 491 | 620 |
| 6 | 590 | 195 | 485 | 612 |
| 7 | 583 | 193 | 479 | 604 |
| 8 | 530 | 175 | 435 | 550 |
| 9 | 522 | 173 | 429 | 542 |
| 10 | 515 | 170 | 423 | 534 |
| 11 | 447 | 148 | 367 | 463 |
| 12 | 416 | 138 | 342 | 432 |
| 13 | 409 | 135 | 336 | 424 |
| 14 | 303 | 100 | 249 | 314 |
| 15 | 303 | 100 | 249 | 314 |
| 16 | 212 | 70 | 174 | 220 |
| 17 | 121 | 40 | 100 | 126 |
| 18 | 121 | 40 | 100 | 126 |
| 19 | 68 | 23 | 56 | 71 |
| 20 | 38 | 13 | 31 | 39 |
| 21 | 23 | 8 | 19 | 24 |
| 22 | 8 | 3 | 6 | 8 |
| 23 | 8 | 3 | 6 | 8 |
| 24 | 8 | 3 | 6 | 8 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 1007 | 3 | 785 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 2 | 977 | 3 | 761 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 2 | 957 | 3 | 746 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 2 | 897 | 3 | 699 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 2 | 796 | 3 | 620 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 2 | 785 | 3 | 612 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 2 | 776 | 3 | 604 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 2 | 705 | 3 | 550 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 9 | 2 | 695 | 3 | 542 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 10 | 2 | 685 | 3 | 534 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 11 | 2 | 595 | 3 | 463 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 12 | 2 | 554 | 3 | 432 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 13 | 2 | 544 | 3 | 424 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 14 | 2 | 403 | 3 | 314 | No | No | No | Yes | No | No | No | No | Yes | No |
| 15 | 2 | 403 | 3 | 314 | No | No | No | Yes | No | No | No | No | Yes | No |
| 16 | 2 | 282 | 3 | 220 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 161 | 3 | 126 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 161 | 3 | 126 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 91 | 3 | 71 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 51 | 3 | 39 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 31 | 3 | 24 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 11 | 3 | 8 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 11 | 3 | 8 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 11 | 3 | 8 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 13 | 13 | 15 | 3 | 7 | 10 | 13 | 15 | 13 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 461.9 | 103.2 |
| Number of Lanes on Minor Street Approach | 2 | 3 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 79:48 | 22:29 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 622 | 785 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 2414 | 2414 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 20: Fowler Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 112 | 535 | 113 | 474 |
| 2 | 109 | 519 | 110 | 460 |
| 3 | 106 | 508 | 107 | 450 |
| 4 | 100 | 476 | 101 | 422 |
| 5 | 88 | 423 | 89 | 374 |
| 6 | 87 | 417 | 88 | 370 |
| 7 | 86 | 412 | 87 | 365 |
| 8 | 78 | 375 | 79 | 332 |
| 9 | 77 | 369 | 78 | 327 |
| 10 | 76 | 364 | 77 | 322 |
| 11 | 66 | 316 | 67 | 280 |
| 12 | 62 | 294 | 62 | 261 |
| 13 | 60 | 289 | 61 | 256 |
| 14 | 45 | 214 | 45 | 190 |
| 15 | 45 | 214 | 45 | 190 |
| 16 | 31 | 150 | 32 | 133 |
| 17 | 18 | 86 | 18 | 76 |
| 18 | 18 | 86 | 18 | 76 |
| 19 | 10 | 48 | 10 | 43 |
| 20 | 6 | 27 | 6 | 24 |
| 21 | 3 | 16 | 3 | 14 |
| 22 | 1 | 5 | 1 | 5 |
| 23 | 1 | 5 | 1 | 5 |
| 24 | 1 | 5 | 1 | 5 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 647 | 1 | 474 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 628 | 1 | 460 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 614 | 1 | 450 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 576 | 1 | 422 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 5 | 1 | 511 | 1 | 374 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 6 | 1 | 504 | 1 | 370 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 7 | 1 | 498 | 1 | 365 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 8 | 1 | 453 | 1 | 332 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 9 | 1 | 446 | 1 | 327 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 10 | 1 | 440 | 1 | 322 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 11 | 1 | 382 | 1 | 280 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 12 | 1 | 356 | 1 | 261 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 13 | 1 | 349 | 1 | 256 | No | No | No | Yes | No | No | No | No | Yes | No |
| 14 | 1 | 259 | 1 | 190 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 259 | 1 | 190 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 181 | 1 | 133 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 104 | 1 | 76 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 104 | 1 | 76 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 58 | 1 | 43 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 33 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 19 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 6 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 6 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 6 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 6 | 10 | 12 | 13 | 0 | 3 | 4 | 10 | 13 | 10 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.2 | 48.1 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:24 | 6:19 |
| Delay Condition Met | No | Yes |
| Volume on Minor Street Approach During Same Hour | 113 | 474 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1234 | 1234 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 21: Fowler Ave & Perrin Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | N | S | E |
| 1 | 467 | 741 | 332 |
| 2 | 453 | 719 | 322 |
| 3 | 444 | 704 | 315 |
| 4 | 416 | 659 | 295 |
| 5 | 369 | 585 | 262 |
| 6 | 364 | 578 | 259 |
| 7 | 360 | 571 | 256 |
| 8 | 327 | 519 | 232 |
| 9 | 322 | 511 | 229 |
| 10 | 318 | 504 | 226 |
| 11 | 276 | 437 | 196 |
| 12 | 257 | 408 | 183 |
| 13 | 252 | 400 | 179 |
| 14 | 187 | 296 | 133 |
| 15 | 187 | 296 | 133 |
| 16 | 131 | 207 | 93 |
| 17 | 75 | 119 | 53 |
| 18 | 75 | 119 | 53 |
| 19 | 42 | 67 | 30 |
| 20 | 23 | 37 | 17 |
| 21 | 14 | 22 | 10 |
| 22 | 5 | 7 | 3 |
| 23 | 5 | 7 | 3 |
| 24 | 5 | 7 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 1208 | 1 | 332 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 1172 | 1 | 322 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 1148 | 1 | 315 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 1075 | 1 | 295 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 954 | 1 | 262 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 942 | 1 | 259 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 931 | 1 | 256 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 846 | 1 | 232 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 9 | 1 | 833 | 1 | 229 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10 | 1 | 822 | 1 | 226 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 11 | 1 | 713 | 1 | 196 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 12 | 1 | 665 | 1 | 183 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 13 | 1 | 652 | 1 | 179 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 14 | 1 | 483 | 1 | 133 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 15 | 1 | 483 | 1 | 133 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 16 | 1 | 338 | 1 | 93 | No | No | No | Yes | No | No | No | No | No | No |
| 17 | 1 | 194 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 194 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 109 | 1 | 30 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 60 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 36 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 12 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 12 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 12 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 13 | 15 | 15 | 16 | 10 | 13 | 13 | 15 | 15 | 10 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | E |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 145.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 13:24 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 332 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1540 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 23: Fowler Ave & Teague Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 506 | 469 | 63 | 35 |
| 2 | 491 | 455 | 61 | 34 |
| 3 | 481 | 446 | 60 | 33 |
| 4 | 450 | 417 | 56 | 31 |
| 5 | 400 | 371 | 50 | 28 |
| 6 | 395 | 366 | 49 | 27 |
| 7 | 390 | 361 | 49 | 27 |
| 8 | 354 | 328 | 44 | 25 |
| 9 | 349 | 324 | 43 | 24 |
| 10 | 344 | 319 | 43 | 24 |
| 11 | 299 | 277 | 37 | 21 |
| 12 | 278 | 258 | 35 | 19 |
| 13 | 273 | 253 | 34 | 19 |
| 14 | 202 | 188 | 25 | 14 |
| 15 | 202 | 188 | 25 | 14 |
| 16 | 142 | 131 | 18 | 10 |
| 17 | 81 | 75 | 10 | 6 |
| 18 | 81 | 75 | 10 | 6 |
| 19 | 46 | 42 | 6 | 3 |
| 20 | 25 | 23 | 3 | 2 |
| 21 | 15 | 14 | 2 | 1 |
| 22 | 5 | 5 | 1 | 0 |
| 23 | 5 | 5 | 1 | 0 |
| 24 | 5 | 5 | 1 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 975 | 1 | 63 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 2 | 3 | 946 | 1 | 61 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 3 | 3 | 927 | 1 | 60 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 4 | 3 | 867 | 1 | 56 | No | No | No | No | No | No | Yes | Yes | No | No |
| 5 | 3 | 771 | 1 | 50 | No | No | No | No | No | No | No | Yes | No | No |
| 6 | 3 | 761 | 1 | 49 | No | No | No | No | No | No | No | Yes | No | No |
| 7 | 3 | 751 | 1 | 49 | No | No | No | No | No | No | No | Yes | No | No |
| 8 | 3 | 682 | 1 | 44 | No | No | No | No | No | No | No | Yes | No | No |
| 9 | 3 | 673 | 1 | 43 | No | No | No | No | No | No | No | Yes | No | No |
| 10 | 3 | 663 | 1 | 43 | No | No | No | No | No | No | No | Yes | No | No |
| 11 | 3 | 576 | 1 | 37 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 536 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 526 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 390 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 390 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 273 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 156 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 156 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 88 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 48 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 29 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 10 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 24.6 | 26.8 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:25 | 0:15 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 63 | 35 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 1073 | 1073 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 28: Perrin Rd & Burgan Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 313 | 473 | 10 |
| 2 | 304 | 459 | 10 |
| 3 | 297 | 449 | 10 |
| 4 | 279 | 421 | 9 |
| 5 | 247 | 374 | 8 |
| 6 | 244 | 369 | 8 |
| 7 | 241 | 364 | 8 |
| 8 | 219 | 331 | 7 |
| 9 | 216 | 326 | 7 |
| 10 | 213 | 322 | 7 |
| 11 | 185 | 279 | 6 |
| 12 | 172 | 260 | 6 |
| 13 | 169 | 255 | 5 |
| 14 | 125 | 189 | 4 |
| 15 | 125 | 189 | 4 |
| 16 | 88 | 132 | 3 |
| 17 | 50 | 76 | 2 |
| 18 | 50 | 76 | 2 |
| 19 | 28 | 43 | 1 |
| 20 | 16 | 24 | 1 |
| 21 | 9 | 14 | 0 |
| 22 | 3 | 5 | 0 |
| 23 | 3 | 5 | 0 |
| 24 | 3 | 5 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 786 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 763 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 746 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 700 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 621 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 613 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 605 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 550 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 542 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 535 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 464 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 432 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 424 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 314 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 314 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 220 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 126 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 126 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 71 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 40 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 23 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 8 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 8 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 8 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 17.3 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 10 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 796 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 29: Burgan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 300 | 245 | 14 |
| 2 | 291 | 238 | 14 |
| 3 | 285 | 233 | 13 |
| 4 | 267 | 218 | 12 |
| 5 | 237 | 194 | 11 |
| 6 | 234 | 191 | 11 |
| 7 | 231 | 189 | 11 |
| 8 | 210 | 172 | 10 |
| 9 | 207 | 169 | 10 |
| 10 | 204 | 167 | 10 |
| 11 | 177 | 145 | 8 |
| 12 | 165 | 135 | 8 |
| 13 | 162 | 132 | 8 |
| 14 | 120 | 98 | 6 |
| 15 | 120 | 98 | 6 |
| 16 | 84 | 69 | 4 |
| 17 | 48 | 39 | 2 |
| 18 | 48 | 39 | 2 |
| 19 | 27 | 22 | 1 |
| 20 | 15 | 12 | 1 |
| 21 | 9 | 7 | 0 |
| 22 | 3 | 2 | 0 |
| 23 | 3 | 2 | 0 |
| 24 | 3 | 2 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 545 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 529 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 518 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 485 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 431 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 425 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 420 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 382 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 376 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 371 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 322 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 300 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 294 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 218 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 218 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 153 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 87 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 87 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 49 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 27 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 16 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 14 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 559 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 30: Armstrong Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 291 | 287 | 59 |
| 2 | 282 | 278 | 57 |
| 3 | 276 | 273 | 56 |
| 4 | 259 | 255 | 53 |
| 5 | 230 | 227 | 47 |
| 6 | 227 | 224 | 46 |
| 7 | 224 | 221 | 45 |
| 8 | 204 | 201 | 41 |
| 9 | 201 | 198 | 41 |
| 10 | 198 | 195 | 40 |
| 11 | 172 | 169 | 35 |
| 12 | 160 | 158 | 32 |
| 13 | 157 | 155 | 32 |
| 14 | 116 | 115 | 24 |
| 15 | 116 | 115 | 24 |
| 16 | 81 | 80 | 17 |
| 17 | 47 | 46 | 9 |
| 18 | 47 | 46 | 9 |
| 19 | 26 | 26 | 5 |
| 20 | 15 | 14 | 3 |
| 21 | 9 | 9 | 2 |
| 22 | 3 | 3 | 1 |
| 23 | 3 | 3 | 1 |
| 24 | 3 | 3 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 578 | 1 | 59 | No | No | No | No | No | No | No | Yes | No | No |
| 2 | 3 | 560 | 1 | 57 | No | No | No | No | No | No | No | Yes | No | No |
| 3 | 3 | 549 | 1 | 56 | No | No | No | No | No | No | No | Yes | No | No |
| 4 | 3 | 514 | 1 | 53 | No | No | No | No | No | No | No | Yes | No | No |
| 5 | 3 | 457 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 451 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 445 | 1 | 45 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 405 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 399 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 393 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 341 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 318 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 312 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 231 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 231 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 161 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 93 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 93 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 52 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 29 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 18 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 11.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:11 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 59 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 637 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 36: Locan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N, S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | E | W | N | S |
| 1 | 421 | 258 | 119 | 274 |
| 2 | 408 | 250 | 115 | 266 |
| 3 | 400 | 245 | 113 | 260 |
| 4 | 375 | 230 | 106 | 244 |
| 5 | 333 | 204 | 94 | 216 |
| 6 | 328 | 201 | 93 | 214 |
| 7 | 324 | 199 | 92 | 211 |
| 8 | 295 | 181 | 83 | 192 |
| 9 | 290 | 178 | 82 | 189 |
| 10 | 286 | 175 | 81 | 186 |
| 11 | 248 | 152 | 70 | 162 |
| 12 | 232 | 142 | 65 | 151 |
| 13 | 227 | 139 | 64 | 148 |
| 14 | 168 | 103 | 48 | 110 |
| 15 | 168 | 103 | 48 | 110 |
| 16 | 118 | 72 | 33 | 77 |
| 17 | 67 | 41 | 19 | 44 |
| 18 | 67 | 41 | 19 | 44 |
| 19 | 38 | 23 | 11 | 25 |
| 20 | 21 | 13 | 6 | 14 |
| 21 | 13 | 8 | 4 | 8 |
| 22 | 4 | 3 | 1 | 3 |
| 23 | 4 | 3 | 1 | 3 |
| 24 | 4 | 3 | 1 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 679 | 1 | 274 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 2 | 3 | 658 | 1 | 266 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 3 | 3 | 645 | 1 | 260 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 4 | 3 | 605 | 1 | 244 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 5 | 3 | 537 | 1 | 216 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 6 | 3 | 529 | 1 | 214 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 7 | 3 | 523 | 1 | 211 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 8 | 3 | 476 | 1 | 192 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 9 | 3 | 468 | 1 | 189 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 10 | 3 | 461 | 1 | 186 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 11 | 3 | 400 | 1 | 162 | No | No | No | Yes | No | No | No | No | No | No |
| 12 | 3 | 374 | 1 | 151 | No | No | No | Yes | No | No | No | No | No | No |
| 13 | 3 | 366 | 1 | 148 | No | No | No | Yes | No | No | No | No | No | No |
| 14 | 3 | 271 | 1 | 110 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 271 | 1 | 110 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 190 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 108 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 108 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 61 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 34 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 21 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 4 | 7 | 10 | 13 | 0 | 0 | 3 | 7 | 10 | 4 |

## Warrant 3 Condition A

| Orientation | N | S |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 15.2 | 36 |
| Number of Lanes on Minor Street Approach | 2 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:30 | 2:44 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 119 | 274 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1072 | 1072 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 37: Locan Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 161 | 6 | 3 | 404 |
| 2 | 156 | 6 | 3 | 392 |
| 3 | 153 | 6 | 3 | 384 |
| 4 | 143 | 5 | 3 | 360 |
| 5 | 127 | 5 | 2 | 319 |
| 6 | 126 | 5 | 2 | 315 |
| 7 | 124 | 5 | 2 | 311 |
| 8 | 113 | 4 | 2 | 283 |
| 9 | 111 | 4 | 2 | 279 |
| 10 | 109 | 4 | 2 | 275 |
| 11 | 95 | 4 | 2 | 238 |
| 12 | 89 | 3 | 2 | 222 |
| 13 | 87 | 3 | 2 | 218 |
| 14 | 64 | 2 | 1 | 162 |
| 15 | 64 | 2 | 1 | 162 |
| 16 | 45 | 2 | 1 | 113 |
| 17 | 26 | 1 | 0 | 65 |
| 18 | 26 | 1 | 0 | 65 |
| 19 | 14 | 1 | 0 | 36 |
| 20 | 8 | 0 | 0 | 20 |
| 21 | 5 | 0 | 0 | 12 |
| 22 | 2 | 0 | 0 | 4 |
| 23 | 2 | 0 | 0 | 4 |
| 24 | 2 | 0 | 0 | 4 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 167 | 1 | 404 | No | No | No | No | No | No | No | No | Yes | Yes |
| 2 | 1 | 162 | 1 | 392 | No | No | No | No | No | No | No | No | Yes | Yes |
| 3 | 1 | 159 | 1 | 384 | No | No | No | No | No | No | No | No | Yes | Yes |
| 4 | 1 | 148 | 1 | 360 | No | No | No | No | No | No | No | No | Yes | Yes |
| 5 | 1 | 132 | 1 | 319 | No | No | No | No | No | No | No | No | Yes | No |
| 6 | 1 | 131 | 1 | 315 | No | No | No | No | No | No | No | No | Yes | No |
| 7 | 1 | 129 | 1 | 311 | No | No | No | No | No | No | No | No | Yes | No |
| 8 | 1 | 117 | 1 | 283 | No | No | No | No | No | No | No | No | Yes | No |
| 9 | 1 | 115 | 1 | 279 | No | No | No | No | No | No | No | No | Yes | No |
| 10 | 1 | 113 | 1 | 275 | No | No | No | No | No | No | No | No | Yes | No |
| 11 | 1 | 99 | 1 | 238 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 1 | 92 | 1 | 222 | No | No | No | No | No | No | No | No | Yes | No |
| 13 | 1 | 90 | 1 | 218 | No | No | No | No | No | No | No | No | Yes | No |
| 14 | 1 | 66 | 1 | 162 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 66 | 1 | 162 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 47 | 1 | 113 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 27 | 1 | 65 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 27 | 1 | 65 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 15 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 8 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 5 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 2 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 2 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 2 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 4 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8 | 13.7 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:00 | 1:32 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 3 | 404 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 574 | 574 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 40: De Wolf Ave & Owens Mountain Pkwy

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 706 | 41 | 271 |
| 2 | 685 | 40 | 263 |
| 3 | 671 | 39 | 257 |
| 4 | 628 | 36 | 241 |
| 5 | 558 | 32 | 214 |
| 6 | 551 | 32 | 211 |
| 7 | 544 | 32 | 209 |
| 8 | 494 | 29 | 190 |
| 9 | 487 | 28 | 187 |
| 10 | 480 | 28 | 184 |
| 11 | 417 | 24 | 160 |
| 12 | 388 | 23 | 149 |
| 13 | 381 | 22 | 146 |
| 14 | 282 | 16 | 108 |
| 15 | 282 | 16 | 108 |
| 16 | 198 | 11 | 76 |
| 17 | 113 | 7 | 43 |
| 18 | 113 | 7 | 43 |
| 19 | 64 | 4 | 24 |
| 20 | 35 | 2 | 14 |
| 21 | 21 | 1 | 8 |
| 22 | 7 | 0 | 3 |
| 23 | 7 | 0 | 3 |
| 24 | 7 | 0 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 747 | 2 | 271 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 2 | 2 | 725 | 2 | 263 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 3 | 2 | 710 | 2 | 257 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 4 | 2 | 664 | 2 | 241 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 5 | 2 | 590 | 2 | 214 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 6 | 2 | 583 | 2 | 211 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 7 | 2 | 576 | 2 | 209 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 8 | 2 | 523 | 2 | 190 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 9 | 2 | 515 | 2 | 187 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 10 | 2 | 508 | 2 | 184 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 11 | 2 | 441 | 2 | 160 | No | No | Yes | Yes | No | No | No | No | No | No |
| 12 | 2 | 411 | 2 | 149 | No | No | No | Yes | No | No | No | No | No | No |
| 13 | 2 | 403 | 2 | 146 | No | No | No | Yes | No | No | No | No | No | No |
| 14 | 2 | 298 | 2 | 108 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 298 | 2 | 108 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 209 | 2 | 76 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 120 | 2 | 43 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 120 | 2 | 43 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 68 | 2 | 24 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 37 | 2 | 14 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 22 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 7 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 7 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 7 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 4 | 10 | 11 | 13 | 0 | 2 | 4 | 10 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 17.3 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 1:18 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 271 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1018 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 43: Shephed Ave & Project Access South

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 426 | 277 | 128 |
| 2 | 413 | 269 | 124 |
| 3 | 405 | 263 | 122 |
| 4 | 379 | 247 | 114 |
| 5 | 337 | 219 | 101 |
| 6 | 332 | 216 | 100 |
| 7 | 328 | 213 | 99 |
| 8 | 298 | 194 | 90 |
| 9 | 294 | 191 | 88 |
| 10 | 290 | 188 | 87 |
| 11 | 251 | 163 | 76 |
| 12 | 234 | 152 | 70 |
| 13 | 230 | 150 | 69 |
| 14 | 170 | 111 | 51 |
| 15 | 170 | 111 | 51 |
| 16 | 119 | 78 | 36 |
| 17 | 68 | 44 | 20 |
| 18 | 68 | 44 | 20 |
| 19 | 38 | 25 | 12 |
| 20 | 21 | 14 | 6 |
| 21 | 13 | 8 | 4 |
| 22 | 4 | 3 | 1 |
| 23 | 4 | 3 | 1 |
| 24 | 4 | 3 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 703 | 1 | 128 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 2 | 2 | 682 | 1 | 124 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 3 | 2 | 668 | 1 | 122 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 4 | 2 | 626 | 1 | 114 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 5 | 2 | 556 | 1 | 101 | No | No | No | Yes | No | No | No | Yes | No | No |
| 6 | 2 | 548 | 1 | 100 | No | No | No | Yes | No | No | No | Yes | No | No |
| 7 | 2 | 541 | 1 | 99 | No | No | No | Yes | No | No | No | Yes | No | No |
| 8 | 2 | 492 | 1 | 90 | No | No | No | Yes | No | No | No | No | No | No |
| 9 | 2 | 485 | 1 | 88 | No | No | No | Yes | No | No | No | No | No | No |
| 10 | 2 | 478 | 1 | 87 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 2 | 414 | 1 | 76 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 386 | 1 | 70 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 380 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 281 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 281 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 197 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 112 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 112 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 63 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 35 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 21 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 3 | 4 | 10 | 0 | 0 | 3 | 7 | 3 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.4 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:22 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 128 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 831 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 44: Behymer Ave & Project Access North

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 0 | 121 | 111 |
| 2 | 0 | 117 | 108 |
| 3 | 0 | 115 | 105 |
| 4 | 0 | 108 | 99 |
| 5 | 0 | 96 | 88 |
| 6 | 0 | 94 | 87 |
| 7 | 0 | 93 | 85 |
| 8 | 0 | 85 | 78 |
| 9 | 0 | 83 | 77 |
| 10 | 0 | 82 | 75 |
| 11 | 0 | 71 | 65 |
| 12 | 0 | 67 | 61 |
| 13 | 0 | 65 | 60 |
| 14 | 0 | 48 | 44 |
| 15 | 0 | 48 | 44 |
| 16 | 0 | 34 | 31 |
| 17 | 0 | 19 | 18 |
| 18 | 0 | 19 | 18 |
| 19 | 0 | 11 | 10 |
| 20 | 0 | 6 | 6 |
| 21 | 0 | 4 | 3 |
| 22 | 0 | 1 | 1 |
| 23 | 0 | 1 | 1 |
| 24 | 0 | 1 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 121 | 1 | 111 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 117 | 1 | 108 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 115 | 1 | 105 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 108 | 1 | 99 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 96 | 1 | 88 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 94 | 1 | 87 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 93 | 1 | 85 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 85 | 1 | 78 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 83 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 82 | 1 | 75 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 71 | 1 | 65 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 67 | 1 | 61 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 65 | 1 | 60 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 48 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 48 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 34 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 19 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 19 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 11 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 6 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 4 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.3 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:17 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 111 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 232 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 4: Minnewawa Ave & International Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 308 | 524 | 1 | 114 |
| 2 | 299 | 508 | 1 | 111 |
| 3 | 293 | 498 | 1 | 108 |
| 4 | 274 | 466 | 1 | 101 |
| 5 | 243 | 414 | 1 | 90 |
| 6 | 240 | 409 | 1 | 89 |
| 7 | 237 | 403 | 1 | 88 |
| 8 | 216 | 367 | 1 | 80 |
| 9 | 213 | 362 | 1 | 79 |
| 10 | 209 | 356 | 1 | 78 |
| 11 | 182 | 309 | 1 | 67 |
| 12 | 169 | 288 | 1 | 63 |
| 13 | 166 | 283 | 1 | 62 |
| 14 | 123 | 210 | 0 | 46 |
| 15 | 123 | 210 | 0 | 46 |
| 16 | 86 | 147 | 0 | 32 |
| 17 | 49 | 84 | 0 | 18 |
| 18 | 49 | 84 | 0 | 18 |
| 19 | 28 | 47 | 0 | 10 |
| 20 | 15 | 26 | 0 | 6 |
| 21 | 9 | 16 | 0 | 3 |
| 22 | 3 | 5 | 0 | 1 |
| 23 | 3 | 5 | 0 | 1 |
| 24 | 3 | 5 | 0 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 832 | 1 | 114 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| 2 | 1 | 807 | 1 | 111 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| 3 | 1 | 791 | 1 | 108 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| 4 | 1 | 740 | 1 | 101 | No | No | No | Yes | No | Yes | Yes | Yes | No | No |
| 5 | 1 | 657 | 1 | 90 | No | No | No | Yes | No | Yes | Yes | Yes | No | No |
| 6 | 1 | 649 | 1 | 89 | No | No | No | Yes | No | Yes | Yes | Yes | No | No |
| 7 | 1 | 640 | 1 | 88 | No | No | No | Yes | No | Yes | Yes | Yes | No | No |
| 8 | 1 | 583 | 1 | 80 | No | No | No | No | No | No | Yes | Yes | No | No |
| 9 | 1 | 575 | 1 | 79 | No | No | No | No | No | No | Yes | Yes | No | No |
| 10 | 1 | 565 | 1 | 78 | No | No | No | No | No | No | Yes | Yes | No | No |
| 11 | 1 | 491 | 1 | 67 | No | No | No | No | No | No | No | Yes | No | No |
| 12 | 1 | 457 | 1 | 63 | No | No | No | No | No | No | No | Yes | No | No |
| 13 | 1 | 449 | 1 | 62 | No | No | No | No | No | No | No | Yes | No | No |
| 14 | 1 | 333 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 333 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 233 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 133 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 133 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 75 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 41 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 25 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 3 | 7 | 3 | 7 | 10 | 13 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 61.7 | 14.8 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:01 | 0:28 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 1 | 114 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 947 | 947 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 5: Minnewawa Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 408 | 388 | 791 | 211 |
| 2 | 396 | 376 | 767 | 205 |
| 3 | 388 | 369 | 751 | 200 |
| 4 | 363 | 345 | 704 | 188 |
| 5 | 322 | 307 | 625 | 167 |
| 6 | 318 | 303 | 617 | 165 |
| 7 | 314 | 299 | 609 | 162 |
| 8 | 286 | 272 | 554 | 148 |
| 9 | 282 | 268 | 546 | 146 |
| 10 | 277 | 264 | 538 | 143 |
| 11 | 241 | 229 | 467 | 124 |
| 12 | 224 | 213 | 435 | 116 |
| 13 | 220 | 210 | 427 | 114 |
| 14 | 163 | 155 | 316 | 84 |
| 15 | 163 | 155 | 316 | 84 |
| 16 | 114 | 109 | 221 | 59 |
| 17 | 65 | 62 | 127 | 34 |
| 18 | 65 | 62 | 127 | 34 |
| 19 | 37 | 35 | 71 | 19 |
| 20 | 20 | 19 | 40 | 11 |
| 21 | 12 | 12 | 24 | 6 |
| 22 | 4 | 4 | 8 | 2 |
| 23 | 4 | 4 | 8 | 2 |
| 24 | 4 | 4 | 8 | 2 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 796 | 1 | 791 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 772 | 1 | 767 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 757 | 1 | 751 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 708 | 1 | 704 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 629 | 1 | 625 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 621 | 1 | 617 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 613 | 1 | 609 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 558 | 1 | 554 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 9 | 1 | 550 | 1 | 546 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 10 | 1 | 541 | 1 | 538 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 11 | 1 | 470 | 1 | 467 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 12 | 1 | 437 | 1 | 435 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 1 | 430 | 1 | 427 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 1 | 318 | 1 | 316 | No | No | No | Yes | No | No | No | No | Yes | No |
| 15 | 1 | 318 | 1 | 316 | No | No | No | Yes | No | No | No | No | Yes | No |
| 16 | 1 | 223 | 1 | 221 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 127 | 1 | 127 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 127 | 1 | 127 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 72 | 1 | 71 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 39 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 24 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 8 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 8 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 8 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 13 | 13 | 15 | 3 | 7 | 10 | 13 | 15 | 11 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 449.5 | 25 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 98:46 | 1:27 |
| Delay Condition Met | Yes | No |
| Volume on Minor Street Approach During Same Hour | 791 | 211 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1798 | 1798 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | No |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 16: Sunnyside Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 288 | 158 | 259 | 450 |
| 2 | 279 | 153 | 251 | 437 |
| 3 | 274 | 150 | 246 | 428 |
| 4 | 256 | 141 | 231 | 401 |
| 5 | 228 | 125 | 205 | 356 |
| 6 | 225 | 123 | 202 | 351 |
| 7 | 222 | 122 | 199 | 347 |
| 8 | 202 | 111 | 181 | 315 |
| 9 | 199 | 109 | 179 | 311 |
| 10 | 196 | 107 | 176 | 306 |
| 11 | 170 | 93 | 153 | 266 |
| 12 | 158 | 87 | 142 | 248 |
| 13 | 156 | 85 | 140 | 243 |
| 14 | 115 | 63 | 104 | 180 |
| 15 | 115 | 63 | 104 | 180 |
| 16 | 81 | 44 | 73 | 126 |
| 17 | 46 | 25 | 41 | 72 |
| 18 | 46 | 25 | 41 | 72 |
| 19 | 26 | 14 | 23 | 41 |
| 20 | 14 | 8 | 13 | 23 |
| 21 | 9 | 5 | 8 | 14 |
| 22 | 3 | 2 | 3 | 5 |
| 23 | 3 | 2 | 3 | 5 |
| 24 | 3 | 2 | 3 | 5 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 446 | 1 | 450 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 2 | 1 | 432 | 1 | 437 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 3 | 1 | 424 | 1 | 428 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 4 | 1 | 397 | 1 | 401 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 5 | 1 | 353 | 1 | 356 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 6 | 1 | 348 | 1 | 351 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 7 | 1 | 344 | 1 | 347 | No | No | No | Yes | No | No | No | No | Yes | Yes |
| 8 | 1 | 313 | 1 | 315 | No | No | No | Yes | No | No | No | No | Yes | No |
| 9 | 1 | 308 | 1 | 311 | No | No | No | Yes | No | No | No | No | Yes | No |
| 10 | 1 | 303 | 1 | 306 | No | No | No | Yes | No | No | No | No | Yes | No |
| 11 | 1 | 263 | 1 | 266 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 1 | 245 | 1 | 248 | No | No | No | No | No | No | No | No | Yes | No |
| 13 | 1 | 241 | 1 | 243 | No | No | No | No | No | No | No | No | Yes | No |
| 14 | 1 | 178 | 1 | 180 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 178 | 1 | 180 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 125 | 1 | 126 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 71 | 1 | 72 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 71 | 1 | 72 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 40 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 22 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 14 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 5 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 5 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 5 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 3 | 5 | 10 | 0 | 0 | 0 | 3 | 13 | 7 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 15.5 | 24.8 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 1:06 | 3:06 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 259 | 450 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1155 | 1155 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 17: Sunnyside Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 244 | 641 | 558 | 865 |
| 2 | 237 | 622 | 541 | 839 |
| 3 | 232 | 609 | 530 | 822 |
| 4 | 217 | 570 | 497 | 770 |
| 5 | 193 | 506 | 441 | 683 |
| 6 | 190 | 500 | 435 | 675 |
| 7 | 188 | 494 | 430 | 666 |
| 8 | 171 | 449 | 391 | 606 |
| 9 | 168 | 442 | 385 | 597 |
| 10 | 166 | 436 | 379 | 588 |
| 11 | 144 | 378 | 329 | 510 |
| 12 | 134 | 353 | 307 | 476 |
| 13 | 132 | 346 | 301 | 467 |
| 14 | 98 | 256 | 223 | 346 |
| 15 | 98 | 256 | 223 | 346 |
| 16 | 68 | 179 | 156 | 242 |
| 17 | 39 | 103 | 89 | 138 |
| 18 | 39 | 103 | 89 | 138 |
| 19 | 22 | 58 | 50 | 78 |
| 20 | 12 | 32 | 28 | 43 |
| 21 | 7 | 19 | 17 | 26 |
| 22 | 2 | 6 | 6 | 9 |
| 23 | 2 | 6 | 6 | 9 |
| 24 | 2 | 6 | 6 | 9 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 885 | 3 | 865 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 2 | 2 | 859 | 3 | 839 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 3 | 2 | 841 | 3 | 822 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 4 | 2 | 787 | 3 | 770 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 2 | 699 | 3 | 683 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 6 | 2 | 690 | 3 | 675 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 7 | 2 | 682 | 3 | 666 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 8 | 2 | 620 | 3 | 606 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 9 | 2 | 610 | 3 | 597 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 10 | 2 | 602 | 3 | 588 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 11 | 2 | 522 | 3 | 510 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 12 | 2 | 487 | 3 | 476 | No | Yes | Yes | Yes | No | No | No | No | Yes | Yes |
| 13 | 2 | 478 | 3 | 467 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 14 | 2 | 354 | 3 | 346 | No | No | No | Yes | No | No | No | No | Yes | No |
| 15 | 2 | 354 | 3 | 346 | No | No | No | Yes | No | No | No | No | Yes | No |
| 16 | 2 | 247 | 3 | 242 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 142 | 3 | 138 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 142 | 3 | 138 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 80 | 3 | 78 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 44 | 3 | 43 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 26 | 3 | 26 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 8 | 3 | 9 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 8 | 3 | 9 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 8 | 3 | 9 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 12 | 13 | 15 | 0 | 4 | 7 | 11 | 15 | 13 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 247.5 | 132 |
| Number of Lanes on Minor Street Approach | 2 | 3 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 38:22 | 31:43 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 558 | 865 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 2308 | 2308 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 20: Fowler Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 109 | 679 | 238 | 332 |
| 2 | 106 | 659 | 231 | 322 |
| 3 | 104 | 645 | 226 | 315 |
| 4 | 97 | 604 | 212 | 295 |
| 5 | 86 | 536 | 188 | 262 |
| 6 | 85 | 530 | 186 | 259 |
| 7 | 84 | 523 | 183 | 256 |
| 8 | 76 | 475 | 167 | 232 |
| 9 | 75 | 469 | 164 | 229 |
| 10 | 74 | 462 | 162 | 226 |
| 11 | 64 | 401 | 140 | 196 |
| 12 | 60 | 373 | 131 | 183 |
| 13 | 59 | 367 | 129 | 179 |
| 14 | 44 | 272 | 95 | 133 |
| 15 | 44 | 272 | 95 | 133 |
| 16 | 31 | 190 | 67 | 93 |
| 17 | 17 | 109 | 38 | 53 |
| 18 | 17 | 109 | 38 | 53 |
| 19 | 10 | 61 | 21 | 30 |
| 20 | 5 | 34 | 12 | 17 |
| 21 | 3 | 20 | 7 | 10 |
| 22 | 1 | 7 | 2 | 3 |
| 23 | 1 | 7 | 2 | 3 |
| 24 | 1 | 7 | 2 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 788 | 1 | 332 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 765 | 1 | 322 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 749 | 1 | 315 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 701 | 1 | 295 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 622 | 1 | 262 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 615 | 1 | 259 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 607 | 1 | 256 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 551 | 1 | 232 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 9 | 1 | 544 | 1 | 229 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 10 | 1 | 536 | 1 | 226 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 11 | 1 | 465 | 1 | 196 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 12 | 1 | 433 | 1 | 183 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 1 | 426 | 1 | 179 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 1 | 316 | 1 | 133 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 1 | 316 | 1 | 133 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 1 | 221 | 1 | 93 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 126 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 126 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 71 | 1 | 30 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 39 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 23 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 13 | 13 | 15 | 2 | 7 | 10 | 13 | 13 | 7 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 17.2 | 20.1 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 1:08 | 1:51 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 238 | 332 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1358 | 1358 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 21: Fowler Ave & Perrin Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | N | S | E |
| 1 | 400 | 684 | 466 |
| 2 | 388 | 663 | 452 |
| 3 | 380 | 650 | 443 |
| 4 | 356 | 609 | 415 |
| 5 | 316 | 540 | 368 |
| 6 | 312 | 534 | 363 |
| 7 | 308 | 527 | 359 |
| 8 | 280 | 479 | 326 |
| 9 | 276 | 472 | 322 |
| 10 | 272 | 465 | 317 |
| 11 | 236 | 404 | 275 |
| 12 | 220 | 376 | 256 |
| 13 | 216 | 369 | 252 |
| 14 | 160 | 274 | 186 |
| 15 | 160 | 274 | 186 |
| 16 | 112 | 192 | 130 |
| 17 | 64 | 109 | 75 |
| 18 | 64 | 109 | 75 |
| 19 | 36 | 62 | 42 |
| 20 | 20 | 34 | 23 |
| 21 | 12 | 21 | 14 |
| 22 | 4 | 7 | 5 |
| 23 | 4 | 7 | 5 |
| 24 | 4 | 7 | 5 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 1084 | 1 | 466 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 1051 | 1 | 452 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 1030 | 1 | 443 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 965 | 1 | 415 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 856 | 1 | 368 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 846 | 1 | 363 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 835 | 1 | 359 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 759 | 1 | 326 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 9 | 1 | 748 | 1 | 322 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 10 | 1 | 737 | 1 | 317 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 11 | 1 | 640 | 1 | 275 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 12 | 1 | 596 | 1 | 256 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 13 | 1 | 585 | 1 | 252 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 14 | 1 | 434 | 1 | 186 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 15 | 1 | 434 | 1 | 186 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 16 | 1 | 304 | 1 | 130 | No | No | No | Yes | No | No | No | No | No | No |
| 17 | 1 | 173 | 1 | 75 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 173 | 1 | 75 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 98 | 1 | 42 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 54 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 33 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 11 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 11 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 11 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 13 | 15 | 15 | 16 | 8 | 11 | 13 | 15 | 15 | 13 |

## Warrant 3 Condition A

| Orientation | E |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 430.9 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 55:46 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 466 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1550 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 23: Fowler Ave & Teague Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 415 | 332 | 66 | 122 |
| 2 | 403 | 322 | 64 | 118 |
| 3 | 394 | 315 | 63 | 116 |
| 4 | 369 | 295 | 59 | 109 |
| 5 | 328 | 262 | 52 | 96 |
| 6 | 324 | 259 | 51 | 95 |
| 7 | 320 | 256 | 51 | 94 |
| 8 | 291 | 232 | 46 | 85 |
| 9 | 286 | 229 | 46 | 84 |
| 10 | 282 | 226 | 45 | 83 |
| 11 | 245 | 196 | 39 | 72 |
| 12 | 228 | 183 | 36 | 67 |
| 13 | 224 | 179 | 36 | 66 |
| 14 | 166 | 133 | 26 | 49 |
| 15 | 166 | 133 | 26 | 49 |
| 16 | 116 | 93 | 18 | 34 |
| 17 | 66 | 53 | 11 | 20 |
| 18 | 66 | 53 | 11 | 20 |
| 19 | 37 | 30 | 6 | 11 |
| 20 | 21 | 17 | 3 | 6 |
| 21 | 12 | 10 | 2 | 4 |
| 22 | 4 | 3 | 1 | 1 |
| 23 | 4 | 3 | 1 | 1 |
| 24 | 4 | 3 | 1 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 747 | 1 | 122 | No | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 2 | 3 | 725 | 1 | 118 | No | No | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 3 | 3 | 709 | 1 | 116 | No | No | Yes | Yes | No | No | Yes | Yes | No | No |
| 4 | 3 | 664 | 1 | 109 | No | No | Yes | Yes | No | No | Yes | Yes | No | No |
| 5 | 3 | 590 | 1 | 96 | No | No | No | Yes | No | No | No | Yes | No | No |
| 6 | 3 | 583 | 1 | 95 | No | No | No | Yes | No | No | No | Yes | No | No |
| 7 | 3 | 576 | 1 | 94 | No | No | No | Yes | No | No | No | Yes | No | No |
| 8 | 3 | 523 | 1 | 85 | No | No | No | Yes | No | No | No | Yes | No | No |
| 9 | 3 | 515 | 1 | 84 | No | No | No | Yes | No | No | No | Yes | No | No |
| 10 | 3 | 508 | 1 | 83 | No | No | No | No | No | No | No | Yes | No | No |
| 11 | 3 | 441 | 1 | 72 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 411 | 1 | 67 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 403 | 1 | 66 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 299 | 1 | 49 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 299 | 1 | 49 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 209 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 119 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 119 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 67 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 38 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 22 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 7 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 1 | 4 | 9 | 0 | 2 | 4 | 10 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 18.6 | 18.5 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:20 | 0:37 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 66 | 122 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 935 | 935 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 28: Perrin Rd & Burgan Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 450 | 198 | 12 |
| 2 | 437 | 192 | 12 |
| 3 | 428 | 188 | 11 |
| 4 | 401 | 176 | 11 |
| 5 | 356 | 156 | 9 |
| 6 | 351 | 154 | 9 |
| 7 | 347 | 152 | 9 |
| 8 | 315 | 139 | 8 |
| 9 | 311 | 137 | 8 |
| 10 | 306 | 135 | 8 |
| 11 | 266 | 117 | 7 |
| 12 | 248 | 109 | 7 |
| 13 | 243 | 107 | 6 |
| 14 | 180 | 79 | 5 |
| 15 | 180 | 79 | 5 |
| 16 | 126 | 55 | 3 |
| 17 | 72 | 32 | 2 |
| 18 | 72 | 32 | 2 |
| 19 | 41 | 18 | 1 |
| 20 | 23 | 10 | 1 |
| 21 | 14 | 6 | 0 |
| 22 | 5 | 2 | 0 |
| 23 | 5 | 2 | 0 |
| 24 | 5 | 2 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 648 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 629 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 616 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 577 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 512 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 505 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 499 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 454 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 448 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 441 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 383 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 357 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 350 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 259 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 259 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 181 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 104 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 104 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 59 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 33 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 20 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 7 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 7 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 7 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 22.6 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:04 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 12 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 660 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 29: Burgan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 411 | 351 | 27 |
| 2 | 399 | 340 | 26 |
| 3 | 390 | 333 | 26 |
| 4 | 366 | 312 | 24 |
| 5 | 325 | 277 | 21 |
| 6 | 321 | 274 | 21 |
| 7 | 316 | 270 | 21 |
| 8 | 288 | 246 | 19 |
| 9 | 284 | 242 | 19 |
| 10 | 279 | 239 | 18 |
| 11 | 242 | 207 | 16 |
| 12 | 226 | 193 | 15 |
| 13 | 222 | 190 | 15 |
| 14 | 164 | 140 | 11 |
| 15 | 164 | 140 | 11 |
| 16 | 115 | 98 | 8 |
| 17 | 66 | 56 | 4 |
| 18 | 66 | 56 | 4 |
| 19 | 37 | 32 | 2 |
| 20 | 21 | 18 | 1 |
| 21 | 12 | 11 | 1 |
| 22 | 4 | 4 | 0 |
| 23 | 4 | 4 | 0 |
| 24 | 4 | 4 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 762 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 739 | 1 | 26 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 723 | 1 | 26 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 678 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 602 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 595 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 586 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 534 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 526 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 518 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 449 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 419 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 412 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 304 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 304 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 213 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 122 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 122 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 69 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 39 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 23 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 8 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 8 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 8 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 11 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:04 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 27 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 789 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 30: Armstrong Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 367 | 415 | 101 |
| 2 | 356 | 403 | 98 |
| 3 | 349 | 394 | 96 |
| 4 | 327 | 369 | 90 |
| 5 | 290 | 328 | 80 |
| 6 | 286 | 324 | 79 |
| 7 | 283 | 320 | 78 |
| 8 | 257 | 291 | 71 |
| 9 | 253 | 286 | 70 |
| 10 | 250 | 282 | 69 |
| 11 | 217 | 245 | 60 |
| 12 | 202 | 228 | 56 |
| 13 | 198 | 224 | 55 |
| 14 | 147 | 166 | 40 |
| 15 | 147 | 166 | 40 |
| 16 | 103 | 116 | 28 |
| 17 | 59 | 66 | 16 |
| 18 | 59 | 66 | 16 |
| 19 | 33 | 37 | 9 |
| 20 | 18 | 21 | 5 |
| 21 | 11 | 12 | 3 |
| 22 | 4 | 4 | 1 |
| 23 | 4 | 4 | 1 |
| 24 | 4 | 4 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 782 | 1 | 101 | No | No | No | Yes | No | Yes | Yes | Yes | Yes | No |
| 2 | 3 | 759 | 1 | 98 | No | No | No | Yes | No | Yes | Yes | Yes | Yes | No |
| 3 | 3 | 743 | 1 | 96 | No | No | No | Yes | No | Yes | Yes | Yes | Yes | No |
| 4 | 3 | 696 | 1 | 90 | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 5 | 3 | 618 | 1 | 80 | No | No | No | No | No | No | No | Yes | No | No |
| 6 | 3 | 610 | 1 | 79 | No | No | No | No | No | No | No | Yes | No | No |
| 7 | 3 | 603 | 1 | 78 | No | No | No | No | No | No | No | Yes | No | No |
| 8 | 3 | 548 | 1 | 71 | No | No | No | No | No | No | No | Yes | No | No |
| 9 | 3 | 539 | 1 | 70 | No | No | No | No | No | No | No | Yes | No | No |
| 10 | 3 | 532 | 1 | 69 | No | No | No | No | No | No | No | Yes | No | No |
| 11 | 3 | 462 | 1 | 60 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 430 | 1 | 56 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 422 | 1 | 55 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 313 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 313 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 219 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 125 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 125 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 70 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 39 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 23 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 8 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 4 | 0 | 3 | 4 | 10 | 3 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 19.2 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:32 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 101 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 883 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 36: Locan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N, S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | E | W | N | S |
| 1 | 415 | 539 | 451 | 361 |
| 2 | 403 | 523 | 437 | 350 |
| 3 | 394 | 512 | 428 | 343 |
| 4 | 369 | 480 | 401 | 321 |
| 5 | 328 | 426 | 356 | 285 |
| 6 | 324 | 420 | 352 | 282 |
| 7 | 320 | 415 | 347 | 278 |
| 8 | 291 | 377 | 316 | 253 |
| 9 | 286 | 372 | 311 | 249 |
| 10 | 282 | 367 | 307 | 245 |
| 11 | 245 | 318 | 266 | 213 |
| 12 | 228 | 296 | 248 | 199 |
| 13 | 224 | 291 | 244 | 195 |
| 14 | 166 | 216 | 180 | 144 |
| 15 | 166 | 216 | 180 | 144 |
| 16 | 116 | 151 | 126 | 101 |
| 17 | 66 | 86 | 72 | 58 |
| 18 | 66 | 86 | 72 | 58 |
| 19 | 37 | 49 | 41 | 32 |
| 20 | 21 | 27 | 23 | 18 |
| 21 | 12 | 16 | 14 | 11 |
| 22 | 4 | 5 | 5 | 4 |
| 23 | 4 | 5 | 5 | 4 |
| 24 | 4 | 5 | 5 | 4 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 954 | 2 | 451 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 3 | 926 | 2 | 437 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 3 | 906 | 2 | 428 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 3 | 849 | 2 | 401 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 3 | 754 | 2 | 356 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 3 | 744 | 2 | 352 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 3 | 735 | 2 | 347 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 3 | 668 | 2 | 316 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 9 | 3 | 658 | 2 | 311 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 10 | 3 | 649 | 2 | 307 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 11 | 3 | 563 | 2 | 266 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 12 | 3 | 524 | 2 | 248 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 3 | 515 | 2 | 244 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 3 | 382 | 2 | 180 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 3 | 382 | 2 | 180 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 3 | 267 | 2 | 126 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 152 | 2 | 72 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 152 | 2 | 72 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 86 | 2 | 41 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 48 | 2 | 23 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 28 | 2 | 14 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 9 | 2 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 9 | 2 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 9 | 2 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 10 | 13 | 13 | 15 | 3 | 7 | 10 | 13 | 13 | 10 |

## Warrant 3 Condition A

| Orientation | N | S |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 3294.7 | 1116.1 |
| Number of Lanes on Minor Street Approach | 2 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 412:45 | 111:55 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 451 | 361 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1766 | 1766 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 37: Locan Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 568 | 16 | 5 | 125 |
| 2 | 551 | 16 | 5 | 121 |
| 3 | 540 | 15 | 5 | 119 |
| 4 | 506 | 14 | 4 | 111 |
| 5 | 449 | 13 | 4 | 99 |
| 6 | 443 | 12 | 4 | 98 |
| 7 | 437 | 12 | 4 | 96 |
| 8 | 398 | 11 | 4 | 88 |
| 9 | 392 | 11 | 3 | 86 |
| 10 | 386 | 11 | 3 | 85 |
| 11 | 335 | 9 | 3 | 74 |
| 12 | 312 | 9 | 3 | 69 |
| 13 | 307 | 9 | 3 | 68 |
| 14 | 227 | 6 | 2 | 50 |
| 15 | 227 | 6 | 2 | 50 |
| 16 | 159 | 4 | 1 | 35 |
| 17 | 91 | 3 | 1 | 20 |
| 18 | 91 | 3 | 1 | 20 |
| 19 | 51 | 1 | 0 | 11 |
| 20 | 28 | 1 | 0 | 6 |
| 21 | 17 | 0 | 0 | 4 |
| 22 | 6 | 0 | 0 | 1 |
| 23 | 6 | 0 | 0 | 1 |
| 24 | 6 | 0 | 0 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 584 | 1 | 125 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 2 | 1 | 567 | 1 | 121 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 3 | 1 | 555 | 1 | 119 | No | No | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 4 | 1 | 520 | 1 | 111 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 5 | 1 | 462 | 1 | 99 | No | No | No | Yes | No | No | No | Yes | No | No |
| 6 | 1 | 455 | 1 | 98 | No | No | No | Yes | No | No | No | Yes | No | No |
| 7 | 1 | 449 | 1 | 96 | No | No | No | Yes | No | No | No | Yes | No | No |
| 8 | 1 | 409 | 1 | 88 | No | No | No | Yes | No | No | No | No | No | No |
| 9 | 1 | 403 | 1 | 86 | No | No | No | Yes | No | No | No | No | No | No |
| 10 | 1 | 397 | 1 | 85 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 1 | 344 | 1 | 74 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 321 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 316 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 233 | 1 | 50 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 233 | 1 | 50 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 163 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 94 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 94 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 52 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 29 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 17 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 2 | 4 | 10 | 0 | 0 | 3 | 7 | 3 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.6 | 10.4 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:00 | 0:21 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 5 | 125 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 714 | 714 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 40: De Wolf Ave & Owens Mountain Pkwy

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 156 | 63 | 799 |
| 2 | 151 | 61 | 775 |
| 3 | 148 | 60 | 759 |
| 4 | 139 | 56 | 711 |
| 5 | 123 | 50 | 631 |
| 6 | 122 | 49 | 623 |
| 7 | 120 | 49 | 615 |
| 8 | 109 | 44 | 559 |
| 9 | 108 | 43 | 551 |
| 10 | 106 | 43 | 543 |
| 11 | 92 | 37 | 471 |
| 12 | 86 | 35 | 439 |
| 13 | 84 | 34 | 431 |
| 14 | 62 | 25 | 320 |
| 15 | 62 | 25 | 320 |
| 16 | 44 | 18 | 224 |
| 17 | 25 | 10 | 128 |
| 18 | 25 | 10 | 128 |
| 19 | 14 | 6 | 72 |
| 20 | 8 | 3 | 40 |
| 21 | 5 | 2 | 24 |
| 22 | 2 | 1 | 8 |
| 23 | 2 | 1 | 8 |
| 24 | 2 | 1 | 8 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 219 | 2 | 799 | No | No | No | No | No | No | No | No | Yes | Yes |
| 2 | 2 | 212 | 2 | 775 | No | No | No | No | No | No | No | No | Yes | Yes |
| 3 | 2 | 208 | 2 | 759 | No | No | No | No | No | No | No | No | Yes | Yes |
| 4 | 2 | 195 | 2 | 711 | No | No | No | No | No | No | No | No | Yes | Yes |
| 5 | 2 | 173 | 2 | 631 | No | No | No | No | No | No | No | No | Yes | Yes |
| 6 | 2 | 171 | 2 | 623 | No | No | No | No | No | No | No | No | Yes | Yes |
| 7 | 2 | 169 | 2 | 615 | No | No | No | No | No | No | No | No | Yes | Yes |
| 8 | 2 | 153 | 2 | 559 | No | No | No | No | No | No | No | No | Yes | No |
| 9 | 2 | 151 | 2 | 551 | No | No | No | No | No | No | No | No | Yes | No |
| 10 | 2 | 149 | 2 | 543 | No | No | No | No | No | No | No | No | Yes | No |
| 11 | 2 | 129 | 2 | 471 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 2 | 121 | 2 | 439 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 118 | 2 | 431 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 87 | 2 | 320 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 87 | 2 | 320 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 62 | 2 | 224 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 35 | 2 | 128 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 35 | 2 | 128 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 20 | 2 | 72 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 11 | 2 | 40 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 7 | 2 | 24 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 3 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 3 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 3 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 7 |

## Warrant 3 Condition A

| Orientation | N |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 285 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 63:15 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 799 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1018 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 43: Shephed Ave & Project Access South

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 347 | 274 | 125 |
| 2 | 337 | 266 | 121 |
| 3 | 330 | 260 | 119 |
| 4 | 309 | 244 | 111 |
| 5 | 274 | 216 | 99 |
| 6 | 271 | 214 | 98 |
| 7 | 267 | 211 | 96 |
| 8 | 243 | 192 | 88 |
| 9 | 239 | 189 | 86 |
| 10 | 236 | 186 | 85 |
| 11 | 205 | 162 | 74 |
| 12 | 191 | 151 | 69 |
| 13 | 187 | 148 | 68 |
| 14 | 139 | 110 | 50 |
| 15 | 139 | 110 | 50 |
| 16 | 97 | 77 | 35 |
| 17 | 56 | 44 | 20 |
| 18 | 56 | 44 | 20 |
| 19 | 31 | 25 | 11 |
| 20 | 17 | 14 | 6 |
| 21 | 10 | 8 | 4 |
| 22 | 3 | 3 | 1 |
| 23 | 3 | 3 | 1 |
| 24 | 3 | 3 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 621 | 1 | 125 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 2 | 2 | 603 | 1 | 121 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 3 | 2 | 590 | 1 | 119 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 4 | 2 | 553 | 1 | 111 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 5 | 2 | 490 | 1 | 99 | No | No | No | Yes | No | No | No | No | No | No |
| 6 | 2 | 485 | 1 | 98 | No | No | No | Yes | No | No | No | No | No | No |
| 7 | 2 | 478 | 1 | 96 | No | No | No | Yes | No | No | No | No | No | No |
| 8 | 2 | 435 | 1 | 88 | No | No | No | Yes | No | No | No | No | No | No |
| 9 | 2 | 428 | 1 | 86 | No | No | No | Yes | No | No | No | No | No | No |
| 10 | 2 | 422 | 1 | 85 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 2 | 367 | 1 | 74 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 342 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 335 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 249 | 1 | 50 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 249 | 1 | 50 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 174 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 100 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 100 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 56 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 31 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 18 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 2 | 4 | 10 | 0 | 0 | 0 | 4 | 1 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:20 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 125 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 746 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 44: Behymer Ave & Project Access North

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 0 | 26 | 229 |
| 2 | 0 | 25 | 222 |
| 3 | 0 | 25 | 218 |
| 4 | 0 | 23 | 204 |
| 5 | 0 | 21 | 181 |
| 6 | 0 | 20 | 179 |
| 7 | 0 | 20 | 176 |
| 8 | 0 | 18 | 160 |
| 9 | 0 | 18 | 158 |
| 10 | 0 | 18 | 156 |
| 11 | 0 | 15 | 135 |
| 12 | 0 | 14 | 126 |
| 13 | 0 | 14 | 124 |
| 14 | 0 | 10 | 92 |
| 15 | 0 | 10 | 92 |
| 16 | 0 | 7 | 64 |
| 17 | 0 | 4 | 37 |
| 18 | 0 | 4 | 37 |
| 19 | 0 | 2 | 21 |
| 20 | 0 | 1 | 11 |
| 21 | 0 | 1 | 7 |
| 22 | 0 | 0 | 2 |
| 23 | 0 | 0 | 2 |
| 24 | 0 | 0 | 2 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 26 | 1 | 229 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 25 | 1 | 222 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 25 | 1 | 218 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 23 | 1 | 204 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 21 | 1 | 181 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 20 | 1 | 179 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 20 | 1 | 176 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 18 | 1 | 160 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 18 | 1 | 158 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 18 | 1 | 156 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 15 | 1 | 135 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 14 | 1 | 126 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 14 | 1 | 124 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 10 | 1 | 92 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 10 | 1 | 92 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 7 | 1 | 64 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 4 | 1 | 37 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 4 | 1 | 37 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 2 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 1 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 1 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.6 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:36 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 229 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 255 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 4: Minnewawa Ave & International Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 281 | 418 | 2 | 306 |
| 2 | 273 | 405 | 2 | 297 |
| 3 | 267 | 397 | 2 | 291 |
| 4 | 250 | 372 | 2 | 272 |
| 5 | 222 | 330 | 2 | 242 |
| 6 | 219 | 326 | 2 | 239 |
| 7 | 216 | 322 | 2 | 236 |
| 8 | 197 | 293 | 1 | 214 |
| 9 | 194 | 288 | 1 | 211 |
| 10 | 191 | 284 | 1 | 208 |
| 11 | 166 | 247 | 1 | 181 |
| 12 | 155 | 230 | 1 | 168 |
| 13 | 152 | 226 | 1 | 165 |
| 14 | 112 | 167 | 1 | 122 |
| 15 | 112 | 167 | 1 | 122 |
| 16 | 79 | 117 | 1 | 86 |
| 17 | 45 | 67 | 0 | 49 |
| 18 | 45 | 67 | 0 | 49 |
| 19 | 25 | 38 | 0 | 28 |
| 20 | 14 | 21 | 0 | 15 |
| 21 | 8 | 13 | 0 | 9 |
| 22 | 3 | 4 | 0 | 3 |
| 23 | 3 | 4 | 0 | 3 |
| 24 | 3 | 4 | 0 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 699 | 1 | 306 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 2 | 1 | 678 | 1 | 297 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 3 | 1 | 664 | 1 | 291 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 4 | 1 | 622 | 1 | 272 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 5 | 1 | 552 | 1 | 242 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 6 | 1 | 545 | 1 | 239 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 7 | 1 | 538 | 1 | 236 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 8 | 1 | 490 | 1 | 214 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 9 | 1 | 482 | 1 | 211 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 10 | 1 | 475 | 1 | 208 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 11 | 1 | 413 | 1 | 181 | No | Yes | Yes | Yes | No | No | No | No | No | No |
| 12 | 1 | 385 | 1 | 168 | No | No | Yes | Yes | No | No | No | No | No | No |
| 13 | 1 | 378 | 1 | 165 | No | No | Yes | Yes | No | No | No | No | No | No |
| 14 | 1 | 279 | 1 | 122 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 279 | 1 | 122 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 196 | 1 | 86 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 112 | 1 | 49 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 112 | 1 | 49 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 63 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 35 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 21 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 7 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 7 | 11 | 13 | 13 | 0 | 4 | 7 | 10 | 5 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 47.8 | 17.2 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:01 | 1:27 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 2 | 306 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1007 | 1007 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 5: Minnewawa Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 353 | 558 | 563 | 360 |
| 2 | 342 | 541 | 546 | 349 |
| 3 | 335 | 530 | 535 | 342 |
| 4 | 314 | 497 | 501 | 320 |
| 5 | 279 | 441 | 445 | 284 |
| 6 | 275 | 435 | 439 | 281 |
| 7 | 272 | 430 | 434 | 277 |
| 8 | 247 | 391 | 394 | 252 |
| 9 | 244 | 385 | 388 | 248 |
| 10 | 240 | 379 | 383 | 245 |
| 11 | 208 | 329 | 332 | 212 |
| 12 | 194 | 307 | 310 | 198 |
| 13 | 191 | 301 | 304 | 194 |
| 14 | 141 | 223 | 225 | 144 |
| 15 | 141 | 223 | 225 | 144 |
| 16 | 99 | 156 | 158 | 101 |
| 17 | 56 | 89 | 90 | 58 |
| 18 | 56 | 89 | 90 | 58 |
| 19 | 32 | 50 | 51 | 32 |
| 20 | 18 | 28 | 28 | 18 |
| 21 | 11 | 17 | 17 | 11 |
| 22 | 4 | 6 | 6 | 4 |
| 23 | 4 | 6 | 6 | 4 |
| 24 | 4 | 6 | 6 | 4 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 911 | 1 | 563 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 883 | 1 | 546 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 865 | 1 | 535 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 811 | 1 | 501 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 720 | 1 | 445 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 710 | 1 | 439 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 702 | 1 | 434 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 638 | 1 | 394 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 9 | 1 | 629 | 1 | 388 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 10 | 1 | 619 | 1 | 383 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 11 | 1 | 537 | 1 | 332 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 12 | 1 | 501 | 1 | 310 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 13 | 1 | 492 | 1 | 304 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 14 | 1 | 364 | 1 | 225 | No | No | Yes | Yes | No | No | No | No | No | No |
| 15 | 1 | 364 | 1 | 225 | No | No | Yes | Yes | No | No | No | No | No | No |
| 16 | 1 | 255 | 1 | 158 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 145 | 1 | 90 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 145 | 1 | 90 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 82 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 46 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 28 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 10 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 10 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 10 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 12 | 13 | 15 | 15 | 4 | 10 | 11 | 13 | 13 | 7 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 297.6 | 86.5 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 46:32 | 8:39 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 563 | 360 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1834 | 1834 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 16: Sunnyside Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 147 | 313 | 223 | 415 |
| 2 | 143 | 304 | 216 | 403 |
| 3 | 140 | 297 | 212 | 394 |
| 4 | 131 | 279 | 198 | 369 |
| 5 | 116 | 247 | 176 | 328 |
| 6 | 115 | 244 | 174 | 324 |
| 7 | 113 | 241 | 172 | 320 |
| 8 | 103 | 219 | 156 | 291 |
| 9 | 101 | 216 | 154 | 286 |
| 10 | 100 | 213 | 152 | 282 |
| 11 | 87 | 185 | 132 | 245 |
| 12 | 81 | 172 | 123 | 228 |
| 13 | 79 | 169 | 120 | 224 |
| 14 | 59 | 125 | 89 | 166 |
| 15 | 59 | 125 | 89 | 166 |
| 16 | 41 | 88 | 62 | 116 |
| 17 | 24 | 50 | 36 | 66 |
| 18 | 24 | 50 | 36 | 66 |
| 19 | 13 | 28 | 20 | 37 |
| 20 | 7 | 16 | 11 | 21 |
| 21 | 4 | 9 | 7 | 12 |
| 22 | 1 | 3 | 2 | 4 |
| 23 | 1 | 3 | 2 | 4 |
| 24 | 1 | 3 | 2 | 4 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 460 | 1 | 415 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 2 | 1 | 447 | 1 | 403 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 3 | 1 | 437 | 1 | 394 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 4 | 1 | 410 | 1 | 369 | No | Yes | Yes | Yes | No | No | No | No | Yes | Yes |
| 5 | 1 | 363 | 1 | 328 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 6 | 1 | 359 | 1 | 324 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 7 | 1 | 354 | 1 | 320 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 8 | 1 | 322 | 1 | 291 | No | No | No | Yes | No | No | No | No | Yes | No |
| 9 | 1 | 317 | 1 | 286 | No | No | No | Yes | No | No | No | No | Yes | No |
| 10 | 1 | 313 | 1 | 282 | No | No | No | Yes | No | No | No | No | Yes | No |
| 11 | 1 | 272 | 1 | 245 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 1 | 253 | 1 | 228 | No | No | No | No | No | No | No | No | Yes | No |
| 13 | 1 | 248 | 1 | 224 | No | No | No | No | No | No | No | No | Yes | No |
| 14 | 1 | 184 | 1 | 166 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 184 | 1 | 166 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 129 | 1 | 116 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 74 | 1 | 66 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 74 | 1 | 66 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 41 | 1 | 37 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 23 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 13 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 4 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 4 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 4 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 4 | 7 | 10 | 0 | 0 | 0 | 3 | 13 | 4 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 14.5 | 23.8 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:53 | 2:44 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 223 | 415 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1098 | 1098 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 17: Sunnyside Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | S | N | E | W |
| 1 | 821 | 323 | 551 | 709 |
| 2 | 796 | 313 | 534 | 688 |
| 3 | 780 | 307 | 523 | 674 |
| 4 | 731 | 287 | 490 | 631 |
| 5 | 649 | 255 | 435 | 560 |
| 6 | 640 | 252 | 430 | 553 |
| 7 | 632 | 249 | 424 | 546 |
| 8 | 575 | 226 | 386 | 496 |
| 9 | 566 | 223 | 380 | 489 |
| 10 | 558 | 220 | 375 | 482 |
| 11 | 484 | 191 | 325 | 418 |
| 12 | 452 | 178 | 303 | 390 |
| 13 | 443 | 174 | 298 | 383 |
| 14 | 328 | 129 | 220 | 284 |
| 15 | 328 | 129 | 220 | 284 |
| 16 | 230 | 90 | 154 | 199 |
| 17 | 131 | 52 | 88 | 113 |
| 18 | 131 | 52 | 88 | 113 |
| 19 | 74 | 29 | 50 | 64 |
| 20 | 41 | 16 | 28 | 35 |
| 21 | 25 | 10 | 17 | 21 |
| 22 | 8 | 3 | 6 | 7 |
| 23 | 8 | 3 | 6 | 7 |
| 24 | 8 | 3 | 6 | 7 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 1144 | 3 | 709 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 2 | 1109 | 3 | 688 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 2 | 1087 | 3 | 674 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 2 | 1018 | 3 | 631 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 2 | 904 | 3 | 560 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 2 | 892 | 3 | 553 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 7 | 2 | 881 | 3 | 546 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 8 | 2 | 801 | 3 | 496 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 9 | 2 | 789 | 3 | 489 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 10 | 2 | 778 | 3 | 482 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 11 | 2 | 675 | 3 | 418 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 12 | 2 | 630 | 3 | 390 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 13 | 2 | 617 | 3 | 383 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 14 | 2 | 457 | 3 | 284 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 15 | 2 | 457 | 3 | 284 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 16 | 2 | 320 | 3 | 199 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 183 | 3 | 113 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 183 | 3 | 113 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 103 | 3 | 64 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 57 | 3 | 35 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 35 | 3 | 21 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 11 | 3 | 7 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 11 | 3 | 7 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 11 | 3 | 7 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 13 | 13 | 15 | 15 | 5 | 10 | 12 | 13 | 15 | 13 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 394.1 | 76.3 |
| Number of Lanes on Minor Street Approach | 2 | 3 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 60:19 | 15:01 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 551 | 709 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 2404 | 2404 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 20: Fowler Ave & Behymer Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 111 | 551 | 102 | 589 |
| 2 | 108 | 534 | 99 | 571 |
| 3 | 105 | 523 | 97 | 560 |
| 4 | 99 | 490 | 91 | 524 |
| 5 | 88 | 435 | 81 | 465 |
| 6 | 87 | 430 | 80 | 459 |
| 7 | 85 | 424 | 79 | 454 |
| 8 | 78 | 386 | 71 | 412 |
| 9 | 77 | 380 | 70 | 406 |
| 10 | 75 | 375 | 69 | 401 |
| 11 | 65 | 325 | 60 | 348 |
| 12 | 61 | 303 | 56 | 324 |
| 13 | 60 | 298 | 55 | 318 |
| 14 | 44 | 220 | 41 | 236 |
| 15 | 44 | 220 | 41 | 236 |
| 16 | 31 | 154 | 29 | 165 |
| 17 | 18 | 88 | 16 | 94 |
| 18 | 18 | 88 | 16 | 94 |
| 19 | 10 | 50 | 9 | 53 |
| 20 | 6 | 28 | 5 | 29 |
| 21 | 3 | 17 | 3 | 18 |
| 22 | 1 | 6 | 1 | 6 |
| 23 | 1 | 6 | 1 | 6 |
| 24 | 1 | 6 | 1 | 6 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 662 | 1 | 589 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 642 | 1 | 571 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 628 | 1 | 560 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 589 | 1 | 524 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 5 | 1 | 523 | 1 | 465 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 6 | 1 | 517 | 1 | 459 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 7 | 1 | 509 | 1 | 454 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 8 | 1 | 464 | 1 | 412 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 9 | 1 | 457 | 1 | 406 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 10 | 1 | 450 | 1 | 401 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 11 | 1 | 390 | 1 | 348 | No | No | Yes | Yes | No | No | No | No | Yes | Yes |
| 12 | 1 | 364 | 1 | 324 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 13 | 1 | 358 | 1 | 318 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 14 | 1 | 264 | 1 | 236 | No | No | No | No | No | No | No | No | Yes | No |
| 15 | 1 | 264 | 1 | 236 | No | No | No | No | No | No | No | No | Yes | No |
| 16 | 1 | 185 | 1 | 165 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 106 | 1 | 94 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 106 | 1 | 94 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 60 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 34 | 1 | 29 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 20 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 7 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 7 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 7 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 7 | 10 | 13 | 13 | 0 | 3 | 4 | 10 | 15 | 11 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.1 | 116 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:22 | 18:58 |
| Delay Condition Met | No | Yes |
| Volume on Minor Street Approach During Same Hour | 102 | 589 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1353 | 1353 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 21: Fowler Ave & Perrin Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | N | S | E |
| 1 | 459 | 735 | 387 |
| 2 | 445 | 713 | 375 |
| 3 | 436 | 698 | 368 |
| 4 | 409 | 654 | 344 |
| 5 | 363 | 581 | 306 |
| 6 | 358 | 573 | 302 |
| 7 | 353 | 566 | 298 |
| 8 | 321 | 515 | 271 |
| 9 | 317 | 507 | 267 |
| 10 | 312 | 500 | 263 |
| 11 | 271 | 434 | 228 |
| 12 | 252 | 404 | 213 |
| 13 | 248 | 397 | 209 |
| 14 | 184 | 294 | 155 |
| 15 | 184 | 294 | 155 |
| 16 | 129 | 206 | 108 |
| 17 | 73 | 118 | 62 |
| 18 | 73 | 118 | 62 |
| 19 | 41 | 66 | 35 |
| 20 | 23 | 37 | 19 |
| 21 | 14 | 22 | 12 |
| 22 | 5 | 7 | 4 |
| 23 | 5 | 7 | 4 |
| 24 | 5 | 7 | 4 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 1194 | 1 | 387 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 1158 | 1 | 375 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 1134 | 1 | 368 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 1063 | 1 | 344 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 944 | 1 | 306 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 931 | 1 | 302 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 919 | 1 | 298 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 836 | 1 | 271 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 9 | 1 | 824 | 1 | 267 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10 | 1 | 812 | 1 | 263 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 11 | 1 | 705 | 1 | 228 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 12 | 1 | 656 | 1 | 213 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 13 | 1 | 645 | 1 | 209 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 14 | 1 | 478 | 1 | 155 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 15 | 1 | 478 | 1 | 155 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 16 | 1 | 335 | 1 | 108 | No | No | No | Yes | No | No | No | No | No | No |
| 17 | 1 | 191 | 1 | 62 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 191 | 1 | 62 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 107 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 60 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 36 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 12 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 12 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 12 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 13 | 15 | 15 | 16 | 10 | 13 | 13 | 15 | 15 | 11 |

## Warrant 3 Condition A

| Orientation | E |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 200.9 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 21:35 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 387 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1581 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 23: Fowler Ave & Teague Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 537 | 458 | 78 | 77 |
| 2 | 521 | 444 | 76 | 75 |
| 3 | 510 | 435 | 74 | 73 |
| 4 | 478 | 408 | 69 | 69 |
| 5 | 424 | 362 | 62 | 61 |
| 6 | 419 | 357 | 61 | 60 |
| 7 | 413 | 353 | 60 | 59 |
| 8 | 376 | 321 | 55 | 54 |
| 9 | 371 | 316 | 54 | 53 |
| 10 | 365 | 311 | 53 | 52 |
| 11 | 317 | 270 | 46 | 45 |
| 12 | 295 | 252 | 43 | 42 |
| 13 | 290 | 247 | 42 | 42 |
| 14 | 215 | 183 | 31 | 31 |
| 15 | 215 | 183 | 31 | 31 |
| 16 | 150 | 128 | 22 | 22 |
| 17 | 86 | 73 | 12 | 12 |
| 18 | 86 | 73 | 12 | 12 |
| 19 | 48 | 41 | 7 | 7 |
| 20 | 27 | 23 | 4 | 4 |
| 21 | 16 | 14 | 2 | 2 |
| 22 | 5 | 5 | 1 | 1 |
| 23 | 5 | 5 | 1 | 1 |
| 24 | 5 | 5 | 1 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 995 | 1 | 78 | No | No | No | No | Yes | Yes | Yes | Yes | No | No |
| 2 | 3 | 965 | 1 | 76 | No | No | No | No | Yes | Yes | Yes | Yes | No | No |
| 3 | 3 | 945 | 1 | 74 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 4 | 3 | 886 | 1 | 69 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 5 | 3 | 786 | 1 | 62 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 6 | 3 | 776 | 1 | 61 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 7 | 3 | 766 | 1 | 60 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 8 | 3 | 697 | 1 | 55 | No | No | No | No | No | No | Yes | Yes | No | No |
| 9 | 3 | 687 | 1 | 54 | No | No | No | No | No | No | Yes | Yes | No | No |
| 10 | 3 | 676 | 1 | 53 | No | No | No | No | No | No | Yes | Yes | No | No |
| 11 | 3 | 587 | 1 | 46 | No | No | No | No | No | No | No | Yes | No | No |
| 12 | 3 | 547 | 1 | 43 | No | No | No | No | No | No | No | Yes | No | No |
| 13 | 3 | 537 | 1 | 42 | No | No | No | No | No | No | No | Yes | No | No |
| 14 | 3 | 398 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 398 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 278 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 159 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 159 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 89 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 50 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 30 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 2 | 7 | 10 | 13 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 26.4 | 60 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:34 | 1:16 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 78 | 77 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 1150 | 1150 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 28: Perrin Rd & Burgan Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 369 | 467 | 9 |
| 2 | 358 | 453 | 9 |
| 3 | 351 | 444 | 9 |
| 4 | 328 | 416 | 8 |
| 5 | 292 | 369 | 7 |
| 6 | 288 | 364 | 7 |
| 7 | 284 | 360 | 7 |
| 8 | 258 | 327 | 6 |
| 9 | 255 | 322 | 6 |
| 10 | 251 | 318 | 6 |
| 11 | 218 | 276 | 5 |
| 12 | 203 | 257 | 5 |
| 13 | 199 | 252 | 5 |
| 14 | 148 | 187 | 4 |
| 15 | 148 | 187 | 4 |
| 16 | 103 | 131 | 3 |
| 17 | 59 | 75 | 1 |
| 18 | 59 | 75 | 1 |
| 19 | 33 | 42 | 1 |
| 20 | 18 | 23 | 0 |
| 21 | 11 | 14 | 0 |
| 22 | 4 | 5 | 0 |
| 23 | 4 | 5 | 0 |
| 24 | 4 | 5 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 836 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 811 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 795 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 744 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 661 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 652 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 644 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 585 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 577 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 569 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 494 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 460 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 451 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 335 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 335 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 234 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 134 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 134 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 75 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 41 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 25 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 9 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 9 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 9 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 17.8 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 9 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 845 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 29: Burgan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 299 | 248 | 16 |
| 2 | 290 | 241 | 16 |
| 3 | 284 | 236 | 15 |
| 4 | 266 | 221 | 14 |
| 5 | 236 | 196 | 13 |
| 6 | 233 | 193 | 12 |
| 7 | 230 | 191 | 12 |
| 8 | 209 | 174 | 11 |
| 9 | 206 | 171 | 11 |
| 10 | 203 | 169 | 11 |
| 11 | 176 | 146 | 9 |
| 12 | 164 | 136 | 9 |
| 13 | 161 | 134 | 9 |
| 14 | 120 | 99 | 6 |
| 15 | 120 | 99 | 6 |
| 16 | 84 | 69 | 4 |
| 17 | 48 | 40 | 3 |
| 18 | 48 | 40 | 3 |
| 19 | 27 | 22 | 1 |
| 20 | 15 | 12 | 1 |
| 21 | 9 | 7 | 0 |
| 22 | 3 | 2 | 0 |
| 23 | 3 | 2 | 0 |
| 24 | 3 | 2 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 547 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 531 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 520 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 487 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 432 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 426 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 421 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 383 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 377 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 372 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 322 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 300 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 295 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 219 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 219 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 153 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 88 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 88 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 49 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 27 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 16 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 16 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 563 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 30: Armstrong Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 287 | 290 | 59 |
| 2 | 278 | 281 | 57 |
| 3 | 273 | 276 | 56 |
| 4 | 255 | 258 | 53 |
| 5 | 227 | 229 | 47 |
| 6 | 224 | 226 | 46 |
| 7 | 221 | 223 | 45 |
| 8 | 201 | 203 | 41 |
| 9 | 198 | 200 | 41 |
| 10 | 195 | 197 | 40 |
| 11 | 169 | 171 | 35 |
| 12 | 158 | 160 | 32 |
| 13 | 155 | 157 | 32 |
| 14 | 115 | 116 | 24 |
| 15 | 115 | 116 | 24 |
| 16 | 80 | 81 | 17 |
| 17 | 46 | 46 | 9 |
| 18 | 46 | 46 | 9 |
| 19 | 26 | 26 | 5 |
| 20 | 14 | 15 | 3 |
| 21 | 9 | 9 | 2 |
| 22 | 3 | 3 | 1 |
| 23 | 3 | 3 | 1 |
| 24 | 3 | 3 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 577 | 1 | 59 | No | No | No | No | No | No | No | Yes | No | No |
| 2 | 3 | 559 | 1 | 57 | No | No | No | No | No | No | No | Yes | No | No |
| 3 | 3 | 549 | 1 | 56 | No | No | No | No | No | No | No | Yes | No | No |
| 4 | 3 | 513 | 1 | 53 | No | No | No | No | No | No | No | Yes | No | No |
| 5 | 3 | 456 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 450 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 444 | 1 | 45 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 404 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 398 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 392 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 340 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 318 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 312 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 231 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 231 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 161 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 92 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 92 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 52 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 29 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 18 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 6 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

## Warrant 3 Condition A

| Orientation | S |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 11.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:11 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 59 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 636 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 36: Locan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N, S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | E | W | N | S |
| 1 | 541 | 274 | 227 | 465 |
| 2 | 525 | 266 | 220 | 451 |
| 3 | 514 | 260 | 216 | 442 |
| 4 | 481 | 244 | 202 | 414 |
| 5 | 427 | 216 | 179 | 367 |
| 6 | 422 | 214 | 177 | 363 |
| 7 | 417 | 211 | 175 | 358 |
| 8 | 379 | 192 | 159 | 326 |
| 9 | 373 | 189 | 157 | 321 |
| 10 | 368 | 186 | 154 | 316 |
| 11 | 319 | 162 | 134 | 274 |
| 12 | 298 | 151 | 125 | 256 |
| 13 | 292 | 148 | 123 | 251 |
| 14 | 216 | 110 | 91 | 186 |
| 15 | 216 | 110 | 91 | 186 |
| 16 | 151 | 77 | 64 | 130 |
| 17 | 87 | 44 | 36 | 74 |
| 18 | 87 | 44 | 36 | 74 |
| 19 | 49 | 25 | 20 | 42 |
| 20 | 27 | 14 | 11 | 23 |
| 21 | 16 | 8 | 7 | 14 |
| 22 | 5 | 3 | 2 | 5 |
| 23 | 5 | 3 | 2 | 5 |
| 24 | 5 | 3 | 2 | 5 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 815 | 1 | 465 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 2 | 3 | 791 | 1 | 451 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 3 | 3 | 774 | 1 | 442 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 4 | 3 | 725 | 1 | 414 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| 5 | 3 | 643 | 1 | 367 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 6 | 3 | 636 | 1 | 363 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| 7 | 3 | 628 | 1 | 358 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 8 | 3 | 571 | 1 | 326 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 9 | 3 | 562 | 1 | 321 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 10 | 3 | 554 | 1 | 316 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes |
| 11 | 3 | 481 | 1 | 274 | No | Yes | Yes | Yes | No | No | No | No | Yes | No |
| 12 | 3 | 449 | 1 | 256 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 13 | 3 | 440 | 1 | 251 | No | No | Yes | Yes | No | No | No | No | Yes | No |
| 14 | 3 | 326 | 1 | 186 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 326 | 1 | 186 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 228 | 1 | 130 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 131 | 1 | 74 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 131 | 1 | 74 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 74 | 1 | 42 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 41 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 24 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 8 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 8 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 8 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 7 | 11 | 13 | 13 | 0 | 4 | 6 | 10 | 13 | 10 |

## Warrant 3 Condition A

| Orientation | N | S |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 295.7 | 649.7 |
| Number of Lanes on Minor Street Approach | 2 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 18:38 | 83:54 |
| Delay Condition Met | Yes | Yes |
| Volume on Minor Street Approach During Same Hour | 227 | 465 |
| High Minor Volume Condition Met | Yes | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1507 | 1507 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | Yes | Yes |
| Warrant Met for Approach | Yes | Yes |
| **Warrant Met for Intersection** | **Yes** | |

# Signal Warrants Report For Intersection 37: Locan Ave & Nees Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E, W |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|---|---|---|---|---|
| | N | S | E | W |
| 1 | 228 | 7 | 3 | 509 |
| 2 | 221 | 7 | 3 | 494 |
| 3 | 217 | 7 | 3 | 484 |
| 4 | 203 | 6 | 3 | 453 |
| 5 | 180 | 6 | 2 | 402 |
| 6 | 178 | 5 | 2 | 397 |
| 7 | 176 | 5 | 2 | 392 |
| 8 | 160 | 5 | 2 | 356 |
| 9 | 157 | 5 | 2 | 351 |
| 10 | 155 | 5 | 2 | 346 |
| 11 | 135 | 4 | 2 | 300 |
| 12 | 125 | 4 | 2 | 280 |
| 13 | 123 | 4 | 2 | 275 |
| 14 | 91 | 3 | 1 | 204 |
| 15 | 91 | 3 | 1 | 204 |
| 16 | 64 | 2 | 1 | 143 |
| 17 | 36 | 1 | 0 | 81 |
| 18 | 36 | 1 | 0 | 81 |
| 19 | 21 | 1 | 0 | 46 |
| 20 | 11 | 0 | 0 | 25 |
| 21 | 7 | 0 | 0 | 15 |
| 22 | 2 | 0 | 0 | 5 |
| 23 | 2 | 0 | 0 | 5 |
| 24 | 2 | 0 | 0 | 5 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 235 | 1 | 509 | No | No | No | No | No | No | No | No | Yes | Yes |
| 2 | 1 | 228 | 1 | 494 | No | No | No | No | No | No | No | No | Yes | Yes |
| 3 | 1 | 224 | 1 | 484 | No | No | No | No | No | No | No | No | Yes | Yes |
| 4 | 1 | 209 | 1 | 453 | No | No | No | No | No | No | No | No | Yes | Yes |
| 5 | 1 | 186 | 1 | 402 | No | No | No | No | No | No | No | No | Yes | Yes |
| 6 | 1 | 183 | 1 | 397 | No | No | No | No | No | No | No | No | Yes | Yes |
| 7 | 1 | 181 | 1 | 392 | No | No | No | No | No | No | No | No | Yes | Yes |
| 8 | 1 | 165 | 1 | 356 | No | No | No | No | No | No | No | No | Yes | Yes |
| 9 | 1 | 162 | 1 | 351 | No | No | No | No | No | No | No | No | Yes | Yes |
| 10 | 1 | 160 | 1 | 346 | No | No | No | No | No | No | No | No | Yes | Yes |
| 11 | 1 | 139 | 1 | 300 | No | No | No | No | No | No | No | No | Yes | No |
| 12 | 1 | 129 | 1 | 280 | No | No | No | No | No | No | No | No | Yes | No |
| 13 | 1 | 127 | 1 | 275 | No | No | No | No | No | No | No | No | Yes | No |
| 14 | 1 | 94 | 1 | 204 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 94 | 1 | 204 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 66 | 1 | 143 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 37 | 1 | 81 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 37 | 1 | 81 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 22 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 11 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 7 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 2 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 2 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 2 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 10 |

## Warrant 3 Condition A

| Orientation | E | W |
|---|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.5 | 22 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:00 | 3:06 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 3 | 509 |
| High Minor Volume Condition Met | No | Yes |
| Total Entering Volume on All Approaches During Same Hour | 747 | 747 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| **Warrant Met for Intersection** | **No** | |

# Signal Warrants Report For Intersection 40: De Wolf Ave & Owens Mountain Pkwy

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 827 | 41 | 280 |
| 2 | 802 | 40 | 272 |
| 3 | 786 | 39 | 266 |
| 4 | 736 | 36 | 249 |
| 5 | 653 | 32 | 221 |
| 6 | 645 | 32 | 218 |
| 7 | 637 | 32 | 216 |
| 8 | 579 | 29 | 196 |
| 9 | 571 | 28 | 193 |
| 10 | 562 | 28 | 190 |
| 11 | 488 | 24 | 165 |
| 12 | 455 | 23 | 154 |
| 13 | 447 | 22 | 151 |
| 14 | 331 | 16 | 112 |
| 15 | 331 | 16 | 112 |
| 16 | 232 | 11 | 78 |
| 17 | 132 | 7 | 45 |
| 18 | 132 | 7 | 45 |
| 19 | 74 | 4 | 25 |
| 20 | 41 | 2 | 14 |
| 21 | 25 | 1 | 8 |
| 22 | 8 | 0 | 3 |
| 23 | 8 | 0 | 3 |
| 24 | 8 | 0 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 868 | 2 | 280 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 2 | 2 | 842 | 2 | 272 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 3 | 2 | 825 | 2 | 266 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 4 | 2 | 772 | 2 | 249 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 5 | 2 | 685 | 2 | 221 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 6 | 2 | 677 | 2 | 218 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 7 | 2 | 669 | 2 | 216 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 8 | 2 | 608 | 2 | 196 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 9 | 2 | 599 | 2 | 193 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 10 | 2 | 590 | 2 | 190 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 11 | 2 | 512 | 2 | 165 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 12 | 2 | 478 | 2 | 154 | No | No | Yes | Yes | No | No | No | No | No | No |
| 13 | 2 | 469 | 2 | 151 | No | No | Yes | Yes | No | No | No | No | No | No |
| 14 | 2 | 347 | 2 | 112 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 2 | 347 | 2 | 112 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 2 | 243 | 2 | 78 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 139 | 2 | 45 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 139 | 2 | 45 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 78 | 2 | 25 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 43 | 2 | 14 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 26 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 8 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 8 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 8 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 7 | 11 | 13 | 15 | 0 | 4 | 7 | 11 | 2 | 0 |

## Warrant 3 Condition A

| Orientation | N |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 17.8 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 1:23 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 280 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1148 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 43: Shephed Ave & Project Access South

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 358 | 277 | 157 |
| 2 | 347 | 269 | 152 |
| 3 | 340 | 263 | 149 |
| 4 | 319 | 247 | 140 |
| 5 | 283 | 219 | 124 |
| 6 | 279 | 216 | 122 |
| 7 | 276 | 213 | 121 |
| 8 | 251 | 194 | 110 |
| 9 | 247 | 191 | 108 |
| 10 | 243 | 188 | 107 |
| 11 | 211 | 163 | 93 |
| 12 | 197 | 152 | 86 |
| 13 | 193 | 150 | 85 |
| 14 | 143 | 111 | 63 |
| 15 | 143 | 111 | 63 |
| 16 | 100 | 78 | 44 |
| 17 | 57 | 44 | 25 |
| 18 | 57 | 44 | 25 |
| 19 | 32 | 25 | 14 |
| 20 | 18 | 14 | 8 |
| 21 | 11 | 8 | 5 |
| 22 | 4 | 3 | 2 |
| 23 | 4 | 3 | 2 |
| 24 | 4 | 3 | 2 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 635 | 1 | 157 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 2 | 2 | 616 | 1 | 152 | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 3 | 2 | 603 | 1 | 149 | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| 4 | 2 | 566 | 1 | 140 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 5 | 2 | 502 | 1 | 124 | No | Yes | Yes | Yes | No | No | No | No | No | No |
| 6 | 2 | 495 | 1 | 122 | No | Yes | Yes | Yes | No | No | No | No | No | No |
| 7 | 2 | 489 | 1 | 121 | No | Yes | Yes | Yes | No | No | No | No | No | No |
| 8 | 2 | 445 | 1 | 110 | No | No | Yes | Yes | No | No | No | No | No | No |
| 9 | 2 | 438 | 1 | 108 | No | No | Yes | Yes | No | No | No | No | No | No |
| 10 | 2 | 431 | 1 | 107 | No | No | Yes | Yes | No | No | No | No | No | No |
| 11 | 2 | 374 | 1 | 93 | No | No | No | Yes | No | No | No | No | No | No |
| 12 | 2 | 349 | 1 | 86 | No | No | No | Yes | No | No | No | No | No | No |
| 13 | 2 | 343 | 1 | 85 | No | No | No | Yes | No | No | No | No | No | No |
| 14 | 2 | 254 | 1 | 63 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 254 | 1 | 63 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 178 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 101 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 101 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 57 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 32 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 19 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 7 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 7 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 7 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 2 | 7 | 10 | 13 | 0 | 0 | 1 | 4 | 3 | 0 |

## Warrant 3 Condition A

| Orientation | N |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.3 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:27 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 157 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 792 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 44: Behymer Ave & Project Access North

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 0 | 206 | 100 |
| 2 | 0 | 200 | 97 |
| 3 | 0 | 196 | 95 |
| 4 | 0 | 183 | 89 |
| 5 | 0 | 163 | 79 |
| 6 | 0 | 161 | 78 |
| 7 | 0 | 159 | 77 |
| 8 | 0 | 144 | 70 |
| 9 | 0 | 142 | 69 |
| 10 | 0 | 140 | 68 |
| 11 | 0 | 122 | 59 |
| 12 | 0 | 113 | 55 |
| 13 | 0 | 111 | 54 |
| 14 | 0 | 82 | 40 |
| 15 | 0 | 82 | 40 |
| 16 | 0 | 58 | 28 |
| 17 | 0 | 33 | 16 |
| 18 | 0 | 33 | 16 |
| 19 | 0 | 19 | 9 |
| 20 | 0 | 10 | 5 |
| 21 | 0 | 6 | 3 |
| 22 | 0 | 2 | 1 |
| 23 | 0 | 2 | 1 |
| 24 | 0 | 2 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 206 | 1 | 100 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 200 | 1 | 97 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 196 | 1 | 95 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 183 | 1 | 89 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 163 | 1 | 79 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 161 | 1 | 78 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 159 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 144 | 1 | 70 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 142 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 140 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 122 | 1 | 59 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 113 | 1 | 55 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 111 | 1 | 54 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 82 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 82 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 58 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 33 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 33 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 19 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 10 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 6 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 2 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 2 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 2 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:15 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 100 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 306 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 21: Fowler Ave & Perrin Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | N | S | E |
| 1 | 622 | 582 | 213 |
| 2 | 603 | 565 | 207 |
| 3 | 591 | 553 | 202 |
| 4 | 554 | 518 | 190 |
| 5 | 491 | 460 | 168 |
| 6 | 485 | 454 | 166 |
| 7 | 479 | 448 | 164 |
| 8 | 435 | 407 | 149 |
| 9 | 429 | 402 | 147 |
| 10 | 423 | 396 | 145 |
| 11 | 367 | 343 | 126 |
| 12 | 342 | 320 | 117 |
| 13 | 336 | 314 | 115 |
| 14 | 249 | 233 | 85 |
| 15 | 249 | 233 | 85 |
| 16 | 174 | 163 | 60 |
| 17 | 100 | 93 | 34 |
| 18 | 100 | 93 | 34 |
| 19 | 56 | 52 | 19 |
| 20 | 31 | 29 | 11 |
| 21 | 19 | 17 | 6 |
| 22 | 6 | 6 | 2 |
| 23 | 6 | 6 | 2 |
| 24 | 6 | 6 | 2 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 1204 | 1 | 213 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 1168 | 1 | 207 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 1144 | 1 | 202 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 1072 | 1 | 190 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 951 | 1 | 168 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 939 | 1 | 166 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 927 | 1 | 164 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 842 | 1 | 149 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 9 | 1 | 831 | 1 | 147 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 10 | 1 | 819 | 1 | 145 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 11 | 1 | 710 | 1 | 126 | No | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 12 | 1 | 662 | 1 | 117 | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 13 | 1 | 650 | 1 | 115 | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 14 | 1 | 482 | 1 | 85 | No | No | No | Yes | No | No | No | Yes | No | No |
| 15 | 1 | 482 | 1 | 85 | No | No | No | Yes | No | No | No | Yes | No | No |
| 16 | 1 | 337 | 1 | 60 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 193 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 193 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 108 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 60 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 36 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 12 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 12 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 12 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 7 | 11 | 13 | 15 | 10 | 13 | 13 | 15 | 13 | 7 |

## Warrant 3 Condition A

| Orientation | E |
|---|---|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 276 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 16:19 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 213 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1417 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 28: Perrin Rd & Burgan Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 399 | 275 | 11 |
| 2 | 387 | 267 | 11 |
| 3 | 379 | 261 | 10 |
| 4 | 355 | 245 | 10 |
| 5 | 315 | 217 | 9 |
| 6 | 311 | 215 | 9 |
| 7 | 307 | 212 | 8 |
| 8 | 279 | 193 | 8 |
| 9 | 275 | 190 | 8 |
| 10 | 271 | 187 | 7 |
| 11 | 235 | 162 | 6 |
| 12 | 219 | 151 | 6 |
| 13 | 215 | 149 | 6 |
| 14 | 160 | 110 | 4 |
| 15 | 160 | 110 | 4 |
| 16 | 112 | 77 | 3 |
| 17 | 64 | 44 | 2 |
| 18 | 64 | 44 | 2 |
| 19 | 36 | 25 | 1 |
| 20 | 20 | 14 | 1 |
| 21 | 12 | 8 | 0 |
| 22 | 4 | 3 | 0 |
| 23 | 4 | 3 | 0 |
| 24 | 4 | 3 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 674 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 654 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 640 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 600 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 532 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 526 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 519 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 472 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 465 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 458 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 397 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 370 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 364 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 270 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 270 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 189 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 108 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 108 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 61 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 34 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 20 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 7 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 7 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 7 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 14.6 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 11 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 685 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 29: Burgan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 845 | 522 | 35 |
| 2 | 820 | 506 | 34 |
| 3 | 803 | 496 | 33 |
| 4 | 752 | 465 | 31 |
| 5 | 668 | 412 | 28 |
| 6 | 659 | 407 | 27 |
| 7 | 651 | 402 | 27 |
| 8 | 592 | 365 | 25 |
| 9 | 583 | 360 | 24 |
| 10 | 575 | 355 | 24 |
| 11 | 499 | 308 | 21 |
| 12 | 465 | 287 | 19 |
| 13 | 456 | 282 | 19 |
| 14 | 338 | 209 | 14 |
| 15 | 338 | 209 | 14 |
| 16 | 237 | 146 | 10 |
| 17 | 135 | 84 | 6 |
| 18 | 135 | 84 | 6 |
| 19 | 76 | 47 | 3 |
| 20 | 42 | 26 | 2 |
| 21 | 25 | 16 | 1 |
| 22 | 8 | 5 | 0 |
| 23 | 8 | 5 | 0 |
| 24 | 8 | 5 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1367 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 1326 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 1299 | 1 | 33 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 1217 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 1080 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 1066 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 1053 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 957 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 943 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 930 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 807 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 752 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 738 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 547 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 547 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 383 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 219 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 219 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 123 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 68 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 41 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 13 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 13 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 13 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 15.3 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:08 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 35 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 1402 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 30: Armstrong Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 793 | 581 | 57 |
| 2 | 769 | 564 | 55 |
| 3 | 753 | 552 | 54 |
| 4 | 706 | 517 | 51 |
| 5 | 626 | 459 | 45 |
| 6 | 619 | 453 | 44 |
| 7 | 611 | 447 | 44 |
| 8 | 555 | 407 | 40 |
| 9 | 547 | 401 | 39 |
| 10 | 539 | 395 | 39 |
| 11 | 468 | 343 | 34 |
| 12 | 436 | 320 | 31 |
| 13 | 428 | 314 | 31 |
| 14 | 317 | 232 | 23 |
| 15 | 317 | 232 | 23 |
| 16 | 222 | 163 | 16 |
| 17 | 127 | 93 | 9 |
| 18 | 127 | 93 | 9 |
| 19 | 71 | 52 | 5 |
| 20 | 40 | 29 | 3 |
| 21 | 24 | 17 | 2 |
| 22 | 8 | 6 | 1 |
| 23 | 8 | 6 | 1 |
| 24 | 8 | 6 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1374 | 1 | 57 | No | No | No | No | No | No | Yes | Yes | No | No |
| 2 | 3 | 1333 | 1 | 55 | No | No | No | No | No | No | Yes | Yes | No | No |
| 3 | 3 | 1305 | 1 | 54 | No | No | No | No | No | No | Yes | Yes | No | No |
| 4 | 3 | 1223 | 1 | 51 | No | No | No | No | No | No | No | Yes | No | No |
| 5 | 3 | 1085 | 1 | 45 | No | No | No | No | No | No | No | Yes | No | No |
| 6 | 3 | 1072 | 1 | 44 | No | No | No | No | No | No | No | Yes | No | No |
| 7 | 3 | 1058 | 1 | 44 | No | No | No | No | No | No | No | Yes | No | No |
| 8 | 3 | 962 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 948 | 1 | 39 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 934 | 1 | 39 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 811 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 756 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 742 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 549 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 549 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 385 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 220 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 220 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 123 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 69 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 41 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 14 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 14 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 14 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 20.3 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:19 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 57 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 1431 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 43: Shephed Ave & Project Access South

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 697 | 579 | 152 |
| 2 | 676 | 562 | 147 |
| 3 | 662 | 550 | 144 |
| 4 | 620 | 515 | 135 |
| 5 | 551 | 457 | 120 |
| 6 | 544 | 452 | 119 |
| 7 | 537 | 446 | 117 |
| 8 | 488 | 405 | 106 |
| 9 | 481 | 400 | 105 |
| 10 | 474 | 394 | 103 |
| 11 | 411 | 342 | 90 |
| 12 | 383 | 318 | 84 |
| 13 | 376 | 313 | 82 |
| 14 | 279 | 232 | 61 |
| 15 | 279 | 232 | 61 |
| 16 | 195 | 162 | 43 |
| 17 | 112 | 93 | 24 |
| 18 | 112 | 93 | 24 |
| 19 | 63 | 52 | 14 |
| 20 | 35 | 29 | 8 |
| 21 | 21 | 17 | 5 |
| 22 | 7 | 6 | 2 |
| 23 | 7 | 6 | 2 |
| 24 | 7 | 6 | 2 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1276 | 1 | 152 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 3 | 1238 | 1 | 147 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 3 | 1212 | 1 | 144 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 3 | 1135 | 1 | 135 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 3 | 1008 | 1 | 120 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 3 | 996 | 1 | 119 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 3 | 983 | 1 | 117 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 8 | 3 | 893 | 1 | 106 | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 9 | 3 | 881 | 1 | 105 | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 10 | 3 | 868 | 1 | 103 | No | No | No | Yes | No | Yes | Yes | Yes | Yes | No |
| 11 | 3 | 753 | 1 | 90 | No | No | No | Yes | No | Yes | Yes | Yes | Yes | No |
| 12 | 3 | 701 | 1 | 84 | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 13 | 3 | 689 | 1 | 82 | No | No | No | No | No | No | Yes | Yes | No | No |
| 14 | 3 | 511 | 1 | 61 | No | No | No | No | No | No | No | Yes | No | No |
| 15 | 3 | 511 | 1 | 61 | No | No | No | No | No | No | No | Yes | No | No |
| 16 | 3 | 357 | 1 | 43 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 205 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 205 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 115 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 64 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 38 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 13 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 13 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 13 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 1 | 5 | 9 | 12 | 7 | 11 | 13 | 15 | 11 | 6 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 12.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:31 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 152 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1428 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 44: Behymer Ave & Project Access North

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 0 | 26 | 69 |
| 2 | 0 | 25 | 67 |
| 3 | 0 | 25 | 66 |
| 4 | 0 | 23 | 61 |
| 5 | 0 | 21 | 55 |
| 6 | 0 | 20 | 54 |
| 7 | 0 | 20 | 53 |
| 8 | 0 | 18 | 48 |
| 9 | 0 | 18 | 48 |
| 10 | 0 | 18 | 47 |
| 11 | 0 | 15 | 41 |
| 12 | 0 | 14 | 38 |
| 13 | 0 | 14 | 37 |
| 14 | 0 | 10 | 28 |
| 15 | 0 | 10 | 28 |
| 16 | 0 | 7 | 19 |
| 17 | 0 | 4 | 11 |
| 18 | 0 | 4 | 11 |
| 19 | 0 | 2 | 6 |
| 20 | 0 | 1 | 3 |
| 21 | 0 | 1 | 2 |
| 22 | 0 | 0 | 1 |
| 23 | 0 | 0 | 1 |
| 24 | 0 | 0 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 26 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 25 | 1 | 67 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 25 | 1 | 66 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 23 | 1 | 61 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 21 | 1 | 55 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 20 | 1 | 54 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 20 | 1 | 53 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 18 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 18 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 18 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 15 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 14 | 1 | 38 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 14 | 1 | 37 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 10 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 10 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 7 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 4 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 4 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 2 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 1 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 1 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.9 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:10 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 69 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 95 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 21: Fowler Ave & Perrin Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | N | S | E |
| 1 | 429 | 581 | 254 |
| 2 | 416 | 564 | 246 |
| 3 | 408 | 552 | 241 |
| 4 | 382 | 517 | 226 |
| 5 | 339 | 459 | 201 |
| 6 | 335 | 453 | 198 |
| 7 | 330 | 447 | 196 |
| 8 | 300 | 407 | 178 |
| 9 | 296 | 401 | 175 |
| 10 | 292 | 395 | 173 |
| 11 | 253 | 343 | 150 |
| 12 | 236 | 320 | 140 |
| 13 | 232 | 314 | 137 |
| 14 | 172 | 232 | 102 |
| 15 | 172 | 232 | 102 |
| 16 | 120 | 163 | 71 |
| 17 | 69 | 93 | 41 |
| 18 | 69 | 93 | 41 |
| 19 | 39 | 52 | 23 |
| 20 | 21 | 29 | 13 |
| 21 | 13 | 17 | 8 |
| 22 | 4 | 6 | 3 |
| 23 | 4 | 6 | 3 |
| 24 | 4 | 6 | 3 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 1010 | 1 | 254 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 1 | 980 | 1 | 246 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 1 | 960 | 1 | 241 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 1 | 899 | 1 | 226 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 1 | 798 | 1 | 201 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 1 | 788 | 1 | 198 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 1 | 777 | 1 | 196 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 1 | 707 | 1 | 178 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 9 | 1 | 697 | 1 | 175 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 10 | 1 | 687 | 1 | 173 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| 11 | 1 | 596 | 1 | 150 | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 12 | 1 | 556 | 1 | 140 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 13 | 1 | 546 | 1 | 137 | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No |
| 14 | 1 | 404 | 1 | 102 | No | No | No | Yes | No | No | No | No | No | No |
| 15 | 1 | 404 | 1 | 102 | No | No | No | Yes | No | No | No | No | No | No |
| 16 | 1 | 283 | 1 | 71 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 162 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 162 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 91 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 50 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 30 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 10 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 10 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 10 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 11 | 13 | 13 | 15 | 7 | 10 | 13 | 13 | 13 | 7 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | E |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 61.9 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 4:22 |
| Delay Condition Met | Yes |
| Volume on Minor Street Approach During Same Hour | 254 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1264 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | Yes |
| **Warrant Met for Intersection** | **Yes** |

# Signal Warrants Report For Intersection 28: Perrin Rd & Burgan Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 417 | 458 | 9 |
| 2 | 404 | 444 | 9 |
| 3 | 396 | 435 | 9 |
| 4 | 371 | 408 | 8 |
| 5 | 329 | 362 | 7 |
| 6 | 325 | 357 | 7 |
| 7 | 321 | 353 | 7 |
| 8 | 292 | 321 | 6 |
| 9 | 288 | 316 | 6 |
| 10 | 284 | 311 | 6 |
| 11 | 246 | 270 | 5 |
| 12 | 229 | 252 | 5 |
| 13 | 225 | 247 | 5 |
| 14 | 167 | 183 | 4 |
| 15 | 167 | 183 | 4 |
| 16 | 117 | 128 | 3 |
| 17 | 67 | 73 | 1 |
| 18 | 67 | 73 | 1 |
| 19 | 38 | 41 | 1 |
| 20 | 21 | 23 | 0 |
| 21 | 13 | 14 | 0 |
| 22 | 4 | 5 | 0 |
| 23 | 4 | 5 | 0 |
| 24 | 4 | 5 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 875 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 848 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 831 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 779 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 691 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 682 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 674 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 613 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 604 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 595 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 516 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 481 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 472 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 350 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 350 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 245 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 140 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 140 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 79 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 44 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 27 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 9 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 9 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 9 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 15 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 9 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 884 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 29: Burgan Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 635 | 447 | 16 |
| 2 | 616 | 434 | 16 |
| 3 | 603 | 425 | 15 |
| 4 | 565 | 398 | 14 |
| 5 | 502 | 353 | 13 |
| 6 | 495 | 349 | 12 |
| 7 | 489 | 344 | 12 |
| 8 | 445 | 313 | 11 |
| 9 | 438 | 308 | 11 |
| 10 | 432 | 304 | 11 |
| 11 | 375 | 264 | 9 |
| 12 | 349 | 246 | 9 |
| 13 | 343 | 241 | 9 |
| 14 | 254 | 179 | 6 |
| 15 | 254 | 179 | 6 |
| 16 | 178 | 125 | 4 |
| 17 | 102 | 72 | 3 |
| 18 | 102 | 72 | 3 |
| 19 | 57 | 40 | 1 |
| 20 | 32 | 22 | 1 |
| 21 | 19 | 13 | 0 |
| 22 | 6 | 4 | 0 |
| 23 | 6 | 4 | 0 |
| 24 | 6 | 4 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1082 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 1050 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 1028 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 963 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 855 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 844 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 833 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 758 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 746 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 736 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 639 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 595 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 584 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 433 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 433 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 303 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 174 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 174 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 97 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 54 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 32 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 10 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 10 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 10 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 12.2 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:03 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 16 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 1098 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 30: Armstrong Ave & Shepherd Ave

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 613 | 469 | 30 |
| 2 | 595 | 455 | 29 |
| 3 | 582 | 446 | 29 |
| 4 | 546 | 417 | 27 |
| 5 | 484 | 371 | 24 |
| 6 | 478 | 366 | 23 |
| 7 | 472 | 361 | 23 |
| 8 | 429 | 328 | 21 |
| 9 | 423 | 324 | 21 |
| 10 | 417 | 319 | 20 |
| 11 | 362 | 277 | 18 |
| 12 | 337 | 258 | 17 |
| 13 | 331 | 253 | 16 |
| 14 | 245 | 188 | 12 |
| 15 | 245 | 188 | 12 |
| 16 | 172 | 131 | 8 |
| 17 | 98 | 75 | 5 |
| 18 | 98 | 75 | 5 |
| 19 | 55 | 42 | 3 |
| 20 | 31 | 23 | 2 |
| 21 | 18 | 14 | 1 |
| 22 | 6 | 5 | 0 |
| 23 | 6 | 5 | 0 |
| 24 | 6 | 5 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1082 | 1 | 30 | No | No | No | No | No | No | No | No | No | No |
| 2 | 3 | 1050 | 1 | 29 | No | No | No | No | No | No | No | No | No | No |
| 3 | 3 | 1028 | 1 | 29 | No | No | No | No | No | No | No | No | No | No |
| 4 | 3 | 963 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 5 | 3 | 855 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 6 | 3 | 844 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 7 | 3 | 833 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 8 | 3 | 757 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 9 | 3 | 747 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 10 | 3 | 736 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 11 | 3 | 639 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 12 | 3 | 595 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 13 | 3 | 584 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 14 | 3 | 433 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 433 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 303 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 173 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 173 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 97 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 54 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 32 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 11 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 11 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 11 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.6 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:06 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 30 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 1112 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 43: Shepherd Ave & Project Access South

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | Yes |
| #2 | Four Hour Vehicular Volume | Yes |
| #3 | Peak Hour | Yes |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | N |
| Speed > 40mph | Yes |
| Population < 10,000 | No |
| Warrant Factor | 70% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | N |
| 1 | 835 | 422 | 116 |
| 2 | 810 | 409 | 113 |
| 3 | 793 | 401 | 110 |
| 4 | 743 | 376 | 103 |
| 5 | 660 | 333 | 92 |
| 6 | 651 | 329 | 90 |
| 7 | 643 | 325 | 89 |
| 8 | 585 | 295 | 81 |
| 9 | 576 | 291 | 80 |
| 10 | 568 | 287 | 79 |
| 11 | 493 | 249 | 68 |
| 12 | 459 | 232 | 64 |
| 13 | 451 | 228 | 63 |
| 14 | 334 | 169 | 46 |
| 15 | 334 | 169 | 46 |
| 16 | 234 | 118 | 32 |
| 17 | 134 | 68 | 19 |
| 18 | 134 | 68 | 19 |
| 19 | 75 | 38 | 10 |
| 20 | 42 | 21 | 6 |
| 21 | 25 | 13 | 3 |
| 22 | 8 | 4 | 1 |
| 23 | 8 | 4 | 1 |
| 24 | 8 | 4 | 1 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 3 | 1257 | 1 | 116 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 3 | 1219 | 1 | 113 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 3 | 1194 | 1 | 110 | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 3 | 1119 | 1 | 103 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 3 | 993 | 1 | 92 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 6 | 3 | 980 | 1 | 90 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 7 | 3 | 968 | 1 | 89 | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 8 | 3 | 880 | 1 | 81 | No | No | No | No | No | Yes | Yes | Yes | Yes | No |
| 9 | 3 | 867 | 1 | 80 | No | No | No | No | No | Yes | Yes | Yes | Yes | No |
| 10 | 3 | 855 | 1 | 79 | No | No | No | No | No | Yes | Yes | Yes | Yes | No |
| 11 | 3 | 742 | 1 | 68 | No | No | No | No | No | Yes | Yes | Yes | No | No |
| 12 | 3 | 691 | 1 | 64 | No | No | No | No | No | No | Yes | Yes | No | No |
| 13 | 3 | 679 | 1 | 63 | No | No | No | No | No | No | Yes | Yes | No | No |
| 14 | 3 | 503 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 15 | 3 | 503 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 16 | 3 | 352 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 17 | 3 | 202 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 18 | 3 | 202 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 19 | 3 | 113 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 20 | 3 | 63 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 21 | 3 | 38 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 3 | 12 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 3 | 12 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 3 | 12 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 3 | 7 | 7 | 11 | 13 | 13 | 10 | 4 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | N |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.8 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:20 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 116 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 1373 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Signal Warrants Report For Intersection 44: Behymer Ave & Project Access North

## Warrants Summary

| Warrant | Name | Met? |
|---|---|---|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

## Intersection Warrants Parameters

| | |
|---|---|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

## Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|---|---|---|---|
| | E | W | S |
| 1 | 0 | 167 | 46 |
| 2 | 0 | 162 | 45 |
| 3 | 0 | 159 | 44 |
| 4 | 0 | 149 | 41 |
| 5 | 0 | 132 | 36 |
| 6 | 0 | 130 | 36 |
| 7 | 0 | 129 | 35 |
| 8 | 0 | 117 | 32 |
| 9 | 0 | 115 | 32 |
| 10 | 0 | 114 | 31 |
| 11 | 0 | 99 | 27 |
| 12 | 0 | 92 | 25 |
| 13 | 0 | 90 | 25 |
| 14 | 0 | 67 | 18 |
| 15 | 0 | 67 | 18 |
| 16 | 0 | 47 | 13 |
| 17 | 0 | 27 | 7 |
| 18 | 0 | 27 | 7 |
| 19 | 0 | 15 | 4 |
| 20 | 0 | 8 | 2 |
| 21 | 0 | 5 | 1 |
| 22 | 0 | 2 | 0 |
| 23 | 0 | 2 | 0 |
| 24 | 0 | 2 | 0 |

## Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 167 | 1 | 46 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 162 | 1 | 45 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 159 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 149 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 132 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 130 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 129 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 117 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 115 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 114 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 99 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 92 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 90 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 67 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 67 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 47 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 27 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 27 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 15 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 8 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 2 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 2 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 2 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Warrant 3 Condition A

| | |
|---|---|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.2 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:07 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 46 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 213 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| **Warrant Met for Intersection** | **No** |

# Appendix E

## Level of Service Calculation Sheets – Existing Conditions

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Existing AM.pdf

Scenario 1 Existing AM
8/27/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.539 | 25.6 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.535 | 27.6 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Right | 0.422 | 24.8 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | EB Left | 0.020 | 42.9 | E |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | WB Right | 1.114 | 59.8 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.520 | 20.7 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.317 | 20.7 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.529 | 21.4 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.624 | 24.3 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.600 | 36.5 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.410 | 19.3 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.653 | 22.3 | C |
| 15 | Behymer Ave & Sunnyside Ave | Two-way stop | HCM 7th Edition | NB Left | 0.015 | 15.9 | C |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.582 | 13.4 | B |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | WB Thru | 0.834 | 23.4 | C |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.699 | 26.8 | C |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.468 | 27.0 | C |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 0.991 | 38.5 | E |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.016 | 17.0 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.532 | 18.4 | B |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | WB Left | 0.041 | 13.5 | B |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.596 | 15.5 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.628 | 21.8 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.831 | 34.2 | C |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.591 | 22.9 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.019 | 8.7 | A |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.020 | 17.4 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.281 | 18.2 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.461 | 16.7 | B |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | WB Left | 0.555 | 19.7 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | SB Left | | 8.3 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.541 | 7.1 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.960 | 67.8 | E |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.192 | 14.6 | B |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Right | 0.425 | 9.4 | A |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.366 | 8.4 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | SB Left | 1.129 | 75.1 | F |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | EB Right | 0.656 | 46.1 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.355 | 27.7 | C |
| 43 | Shephed Ave & Project Access South | Unknown | ? | | ? | ? | ? |
| 44 | Behymer Ave & Project Access North | Unknown | ? | | ? | ? | ? |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.539 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 357 | 354 | 18 | 57 | 445 | 123 | 20 | 65 | 238 | 11 | 227 | 53 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 357 | 354 | 18 | 57 | 445 | 123 | 20 | 65 | 238 | 11 | 227 | 53 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 115 | 6 | 19 | 144 | 40 | 6 | 21 | 77 | 4 | 74 | 17 |
| Total Analysis Volume [veh/h] | 464 | 460 | 23 | 74 | 578 | 160 | 26 | 84 | 309 | 14 | 295 | 69 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 12 | 24 | 24 | 6 | 18 | 18 | 3 | 18 | 18 | 2 | 16 | 16 |
| g / C, Green / Cycle | 0.17 | 0.34 | 0.34 | 0.09 | 0.25 | 0.25 | 0.05 | 0.25 | 0.25 | 0.03 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.13 | 0.01 | 0.04 | 0.11 | 0.10 | 0.01 | 0.04 | 0.19 | 0.01 | 0.16 | 0.04 |
| s, saturation flow rate [veh/h] | 3475 | 3560 | 1615 | 1759 | 5065 | 1573 | 1810 | 1877 | 1603 | 1810 | 1894 | 1564 |
| c, Capacity [veh/h] | 575 | 1222 | 554 | 153 | 1270 | 394 | 83 | 469 | 400 | 50 | 423 | 349 |
| d1, Uniform Delay [s] | 28.59 | 17.62 | 15.57 | 30.95 | 22.54 | 22.23 | 32.86 | 20.96 | 24.79 | 33.90 | 25.42 | 22.45 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.04 | 0.62 | 0.10 | 0.88 | 0.83 | 2.17 | 0.79 | 0.43 | 7.24 | 1.12 | 3.55 | 0.47 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.38 | 0.04 | 0.48 | 0.46 | 0.41 | 0.31 | 0.18 | 0.77 | 0.28 | 0.70 | 0.20 |
| d, Delay for Lane Group [s/veh] | 29.63 | 18.25 | 15.67 | 31.83 | 23.37 | 24.41 | 33.65 | 21.38 | 32.04 | 35.01 | 28.98 | 22.92 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.47 | 2.52 | 0.23 | 1.13 | 2.48 | 2.19 | 0.42 | 1.04 | 5.10 | 0.25 | 4.76 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 86.79 | 63.09 | 5.72 | 28.35 | 62.08 | 54.80 | 10.51 | 26.06 | 127.50 | 6.13 | 118.98 | 23.56 |
| 95th-Percentile Queue Length [veh/ln] | 6.25 | 4.54 | 0.41 | 2.04 | 4.47 | 3.95 | 0.76 | 1.88 | 8.80 | 0.44 | 8.34 | 1.70 |
| 95th-Percentile Queue Length [ft/ln] | 156.22 | 113.56 | 10.30 | 51.02 | 111.74 | 98.63 | 18.91 | 46.91 | 220.09 | 11.03 | 208.43 | 42.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.63 | 18.25 | 15.67 | 31.83 | 23.37 | 24.41 | 33.65 | 21.38 | 32.04 | 35.01 | 28.98 | 22.92 |
| Movement LOS | C | B | B | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 23.76 | | | 24.35 | | | 30.00 | | | 28.09 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.61 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.539 | | | | | | | | | | | |

**Emissions**

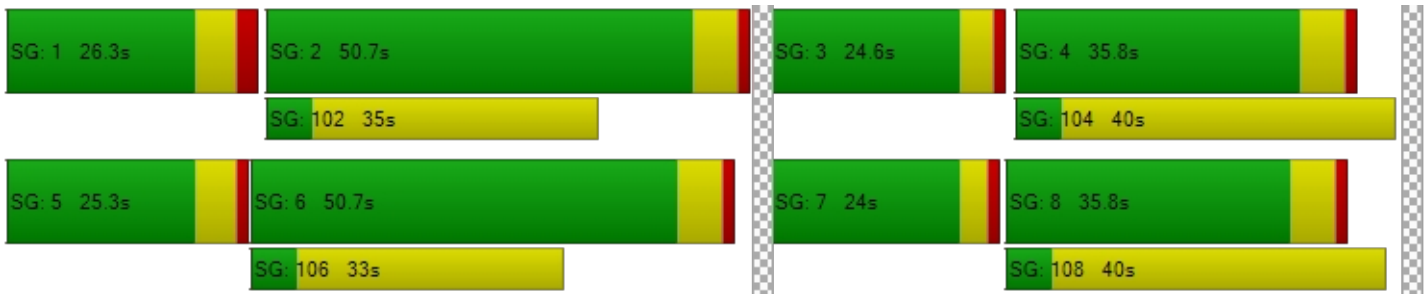
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 234.23 | 232.21 | 11.61 | 7.29 | 56.93 | 15.76 | 2.59 | 8.37 | 30.78 | 14.53 | 306.08 | 71.59 |
| Stops [stops/h] | 352.45 | 256.20 | 11.61 | 57.55 | 378.13 | 111.26 | 21.33 | 52.91 | 258.88 | 12.45 | 241.59 | 47.84 |
| Fuel consumption [US gal/h] | 16.05 | 13.42 | 0.64 | 1.61 | 10.46 | 3.03 | 0.53 | 1.31 | 6.29 | 0.77 | 15.67 | 3.53 |
| CO [g/h] | 1122.04 | 937.88 | 44.77 | 112.32 | 731.19 | 211.82 | 37.19 | 91.59 | 439.55 | 53.58 | 1095.64 | 246.98 |
| NOx [g/h] | 218.31 | 182.48 | 8.71 | 21.85 | 142.26 | 41.21 | 7.24 | 17.82 | 85.52 | 10.42 | 213.17 | 48.05 |
| VOC [g/h] | 260.04 | 217.36 | 10.37 | 26.03 | 169.46 | 49.09 | 8.62 | 21.23 | 101.87 | 12.42 | 253.92 | 57.24 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.03 | 27.03 | 27.03 | 27.03 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.090 | 2.901 | 2.681 | 2.257 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1269 | 1269 | 846 | 846 |
| d_b, Bicycle Delay [s] | 4.74 | 4.74 | 11.81 | 11.81 |
| l_b,int, Bicycle LOS Score for Intersection | 2.341 | 2.006 | 2.251 | 2.183 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.535 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 113 | 774 | 26 | 72 | 585 | 66 | 77 | 130 | 237 | 28 | 155 | 139 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 113 | 774 | 26 | 72 | 585 | 66 | 77 | 130 | 237 | 28 | 155 | 139 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 32 | 217 | 7 | 20 | 164 | 19 | 22 | 37 | 67 | 8 | 44 | 39 |
| Total Analysis Volume [veh/h] | 127 | 870 | 29 | 81 | 657 | 74 | 87 | 146 | 266 | 31 | 174 | 156 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 8 | 25 | 25 | 7 | 25 | 25 | 7 | 23 | 23 | 4 | 19 |
| g / C, Green / Cycle | 0.09 | 0.31 | 0.31 | 0.08 | 0.30 | 0.30 | 0.08 | 0.29 | 0.29 | 0.05 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.17 | 0.02 | 0.05 | 0.13 | 0.05 | 0.05 | 0.08 | 0.17 | 0.02 | 0.19 |
| s, saturation flow rate [veh/h] | 1747 | 5127 | 1567 | 1711 | 5090 | 1615 | 1772 | 1888 | 1577 | 1758 | 1736 |
| c, Capacity [veh/h] | 162 | 1600 | 489 | 141 | 1536 | 487 | 150 | 539 | 450 | 88 | 401 |
| d1, Uniform Delay [s] | 36.31 | 23.33 | 19.74 | 36.15 | 22.91 | 20.91 | 36.06 | 22.65 | 25.14 | 37.60 | 29.87 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.10 | 0.94 | 0.16 | 1.36 | 0.61 | 0.46 | 1.32 | 0.32 | 1.50 | 0.89 | 9.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.54 | 0.06 | 0.57 | 0.43 | 0.15 | 0.58 | 0.27 | 0.59 | 0.35 | 0.82 |
| d, Delay for Lane Group [s/veh] | 39.42 | 24.27 | 19.90 | 37.51 | 23.52 | 21.37 | 37.38 | 22.98 | 26.64 | 38.49 | 38.94 |
| Lane Group LOS | D | C | B | D | C | C | D | C | C | D | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.44 | 4.27 | 0.37 | 1.50 | 3.12 | 1.00 | 1.65 | 2.09 | 4.31 | 0.61 | 6.95 |
| 50th-Percentile Queue Length [ft/ln] | 60.99 | 106.68 | 9.28 | 37.51 | 77.94 | 24.93 | 41.25 | 52.17 | 107.73 | 15.28 | 173.68 |
| 95th-Percentile Queue Length [veh/ln] | 4.39 | 7.66 | 0.67 | 2.70 | 5.61 | 1.80 | 2.97 | 3.76 | 7.71 | 1.10 | 11.27 |
| 95th-Percentile Queue Length [ft/ln] | 109.78 | 191.38 | 16.71 | 67.53 | 140.29 | 44.88 | 74.24 | 93.91 | 192.84 | 27.50 | 281.75 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.42 | 24.27 | 19.90 | 37.51 | 23.52 | 21.37 | 37.38 | 22.98 | 26.64 | 38.49 | 38.94 | 38.94 |
| Movement LOS | D | C | B | D | C | C | D | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 26.02 | | | 24.72 | | | 27.44 | | | 38.90 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 27.62 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.535 | | | | | | | | | | | |

**Emissions**

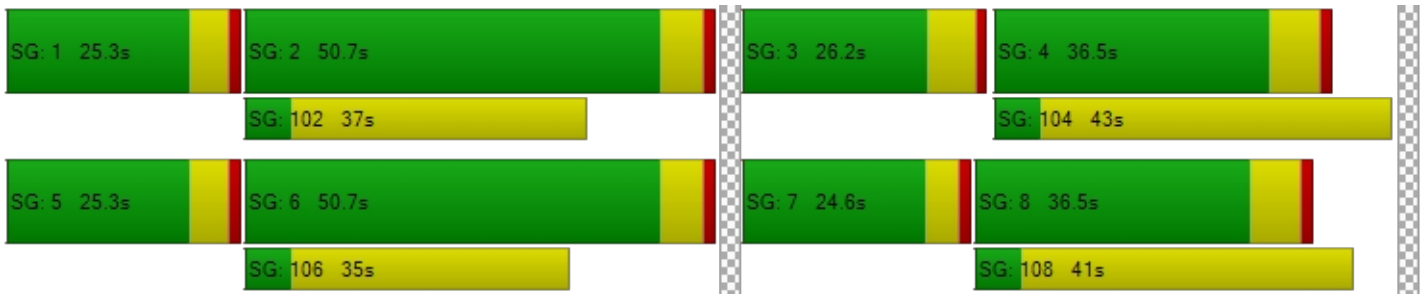
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 128.66 | 881.37 | 29.38 | 40.89 | 331.66 | 37.36 | 9.47 | 15.88 | 28.94 | 32.16 | 342.35 |
| Stops [stops/h] | 107.52 | 564.26 | 16.37 | 66.14 | 412.22 | 43.96 | 72.72 | 91.98 | 189.93 | 26.93 | 306.20 |
| Fuel consumption [US gal/h] | 6.98 | 42.47 | 1.35 | 3.00 | 20.58 | 2.25 | 1.72 | 2.16 | 4.34 | 1.72 | 18.40 |
| CO [g/h] | 487.75 | 2968.93 | 94.54 | 209.90 | 1438.50 | 157.11 | 119.89 | 150.65 | 303.69 | 119.92 | 1286.18 |
| NOx [g/h] | 94.90 | 577.65 | 18.39 | 40.84 | 279.88 | 30.57 | 23.33 | 29.31 | 59.09 | 23.33 | 250.24 |
| VOC [g/h] | 113.04 | 688.08 | 21.91 | 48.65 | 333.39 | 36.41 | 27.79 | 34.92 | 70.38 | 27.79 | 298.08 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.34 | 32.34 | 32.34 | 32.34 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.124 | 3.113 | 2.412 | 2.137 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1102 | 1102 | 735 | 735 |
| d_b, Bicycle Delay [s] | 8.24 | 8.24 | 16.35 | 16.35 |
| l_b,int, Bicycle LOS Score for Intersection | 2.124 | 2.006 | 2.383 | 2.155 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.422 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 143 | 592 | 88 | 172 | 804 | 50 | 59 | 221 | 102 | 37 | 239 | 163 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 143 | 592 | 88 | 172 | 804 | 50 | 59 | 221 | 102 | 37 | 239 | 163 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 164 | 24 | 48 | 223 | 14 | 16 | 61 | 28 | 10 | 66 | 45 |
| Total Analysis Volume [veh/h] | 159 | 658 | 98 | 191 | 893 | 56 | 66 | 246 | 113 | 41 | 266 | 181 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 25 | 25 | 8 | 25 | 25 | 6 | 12 | 12 | 5 | 12 | 12 |
| g / C, Green / Cycle | 0.10 | 0.34 | 0.34 | 0.11 | 0.34 | 0.34 | 0.08 | 0.16 | 0.16 | 0.06 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.13 | 0.06 | 0.06 | 0.18 | 0.04 | 0.02 | 0.07 | 0.07 | 0.01 | 0.07 | 0.11 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1540 | 3467 | 3526 | 1561 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 357 | 1726 | 544 | 360 | 1724 | 521 | 280 | 570 | 253 | 219 | 569 | 254 |
| d1, Uniform Delay [s] | 31.53 | 18.89 | 17.53 | 31.73 | 19.86 | 16.98 | 32.24 | 28.26 | 28.30 | 33.29 | 28.57 | 29.83 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.32 | 0.45 | 0.51 | 0.45 | 0.79 | 0.29 | 0.16 | 1.22 | 2.91 | 0.15 | 0.82 | 5.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.44 | 0.38 | 0.18 | 0.53 | 0.52 | 0.11 | 0.24 | 0.43 | 0.45 | 0.19 | 0.47 | 0.71 |
| d, Delay for Lane Group [s/veh] | 31.85 | 19.34 | 18.04 | 32.18 | 20.64 | 17.27 | 32.40 | 29.48 | 31.21 | 33.44 | 29.39 | 34.88 |
| Lane Group LOS | C | B | B | C | C | B | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.25 | 2.58 | 1.12 | 1.52 | 3.71 | 0.62 | 0.52 | 1.89 | 1.86 | 0.33 | 2.03 | 3.14 |
| 50th-Percentile Queue Length [ft/ln] | 31.23 | 64.49 | 27.92 | 37.88 | 92.71 | 15.47 | 13.00 | 47.35 | 46.45 | 8.23 | 50.65 | 78.57 |
| 95th-Percentile Queue Length [veh/ln] | 2.25 | 4.64 | 2.01 | 2.73 | 6.68 | 1.11 | 0.94 | 3.41 | 3.34 | 0.59 | 3.65 | 5.66 |
| 95th-Percentile Queue Length [ft/ln] | 56.21 | 116.09 | 50.26 | 68.19 | 166.88 | 27.85 | 23.40 | 85.22 | 83.61 | 14.82 | 91.17 | 141.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.85 | 19.34 | 18.04 | 32.18 | 20.64 | 17.27 | 32.40 | 29.48 | 31.21 | 33.44 | 29.39 | 34.88 |
| Movement LOS | C | B | B | C | C | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 21.38 | | | 22.41 | | | 30.39 | | | 31.77 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.77 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.422 | | | | | | | | | | | |

**Emissions**

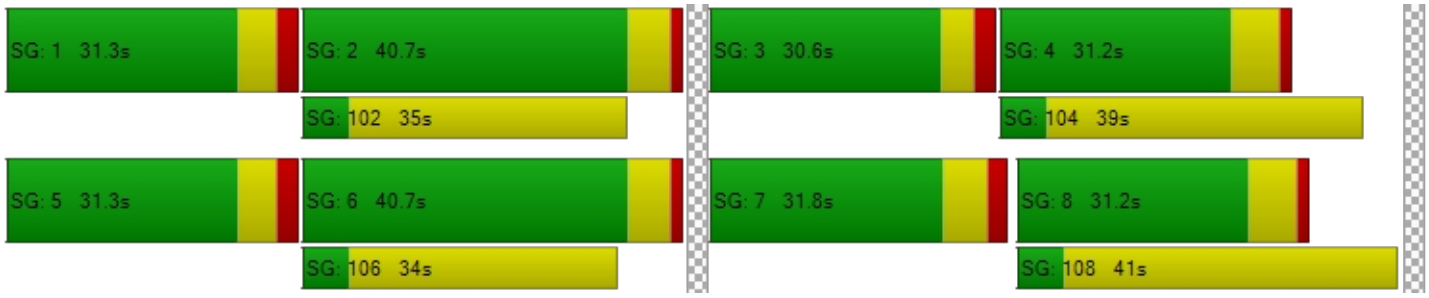
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 25.94 | 107.36 | 15.99 | 193.50 | 904.67 | 56.73 | 8.62 | 32.14 | 14.77 | 42.48 | 275.59 | 187.53 |
| Stops [stops/h] | 120.48 | 373.28 | 53.87 | 146.18 | 536.59 | 29.85 | 50.16 | 182.69 | 89.62 | 31.77 | 195.44 | 151.58 |
| Fuel consumption [US gal/h] | 3.75 | 11.92 | 1.72 | 9.97 | 42.28 | 2.55 | 1.49 | 5.36 | 2.59 | 2.19 | 13.82 | 9.89 |
| CO [g/h] | 262.04 | 832.88 | 120.38 | 697.22 | 2955.63 | 178.58 | 104.42 | 374.41 | 180.89 | 153.03 | 966.03 | 691.42 |
| NOx [g/h] | 50.98 | 162.05 | 23.42 | 135.65 | 575.06 | 34.75 | 20.32 | 72.85 | 35.19 | 29.77 | 187.95 | 134.53 |
| VOC [g/h] | 60.73 | 193.03 | 27.90 | 161.59 | 685.00 | 41.39 | 24.20 | 86.77 | 41.92 | 35.47 | 223.89 | 160.24 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 10119.68 | 0.00 | 602.92 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.86 | 28.86 | 28.86 | 28.86 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.196 | 3.211 | 2.796 | 2.925 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 938 | 938 | 670 | 670 |
| d_b, Bicycle Delay [s] | 10.53 | 10.53 | 16.53 | 16.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.063 | 2.187 | 1.910 | 1.962 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 42.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.020 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 283 | 174 | 0 | 0 | 293 | 8 | 2 | 0 | 99 | 0 | 1 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 283 | 174 | 0 | 0 | 293 | 8 | 2 | 0 | 99 | 0 | 1 | 0 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 86 | 53 | 0 | 0 | 89 | 2 | 1 | 0 | 30 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 345 | 212 | 0 | 0 | 357 | 10 | 2 | 0 | 121 | 0 | 1 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.18 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.55 | 0.00 | 0.00 | 7.63 | 0.00 | 0.00 | 42.91 | 37.74 | 11.74 | 53.81 | 36.79 | 9.60 |
| Movement LOS | A | A | A | A | A | A | E | E | B | F | E | A |
| 95th-Percentile Queue Length [veh/ln] | 0.76 | 0.76 | 0.76 | 0.00 | 0.00 | 0.00 | 0.74 | 0.74 | 0.74 | 0.03 | 0.03 | 0.03 |
| 95th-Percentile Queue Length [ft/ln] | 18.98 | 18.98 | 18.98 | 0.00 | 0.00 | 0.00 | 18.38 | 18.38 | 18.38 | 0.66 | 0.66 | 0.66 |
| d_A, Approach Delay [s/veh] | 5.30 | | | 0.00 | | | 12.25 | | | 36.79 | | |
| Approach LOS | A | | | A | | | B | | | E | | |
| d_I, Intersection Delay [s/veh] | 4.29 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 59.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.114 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 88 | 209 | 19 | 152 | 217 | 4 | 3 | 139 | 59 | 19 | 232 | 255 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 88 | 209 | 19 | 152 | 217 | 4 | 3 | 139 | 59 | 19 | 232 | 255 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 56 | 5 | 40 | 58 | 1 | 1 | 37 | 16 | 5 | 62 | 68 |
| Total Analysis Volume [veh/h] | 94 | 222 | 20 | 162 | 231 | 4 | 3 | 148 | 63 | 20 | 247 | 271 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 442 | 452 | 423 | 538 |
| Degree of Utilization, x | 0.76 | 0.88 | 0.51 | 1.11 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 6.42 | 9.26 | 2.78 | 18.06 |
| 95th-Percentile Queue Length [ft] | 160.41 | 231.59 | 69.56 | 451.53 |
| Approach Delay [s/veh] | 32.72 | 46.22 | 19.95 | 102.46 |
| Approach LOS | D | E | C | F |
| Intersection Delay [s/veh] | 59.75 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.520 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 150 | 41 | 103 | 159 | 29 | 33 | 339 | 152 | 44 | 291 | 91 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 150 | 41 | 103 | 159 | 29 | 33 | 339 | 152 | 44 | 291 | 91 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 44 | 12 | 30 | 47 | 9 | 10 | 100 | 45 | 13 | 86 | 27 |
| Total Analysis Volume [veh/h] | 149 | 176 | 48 | 121 | 187 | 34 | 39 | 399 | 179 | 52 | 342 | 107 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 11 | 11 | 9 | 11 | 5 | 14 | 14 | 6 | 15 | 15 |
| g / C, Green / Cycle | 0.18 | 0.20 | 0.20 | 0.17 | 0.19 | 0.09 | 0.24 | 0.24 | 0.11 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.09 | 0.03 | 0.07 | 0.12 | 0.02 | 0.11 | 0.11 | 0.03 | 0.18 | 0.07 |
| s, saturation flow rate [veh/h] | 1774 | 1855 | 1517 | 1794 | 1826 | 1711 | 3512 | 1598 | 1810 | 1879 | 1568 |
| c, Capacity [veh/h] | 312 | 376 | 308 | 297 | 352 | 155 | 845 | 384 | 199 | 489 | 408 |
| d1, Uniform Delay [s] | 21.13 | 20.00 | 18.69 | 21.25 | 21.11 | 24.11 | 18.54 | 18.49 | 23.23 | 19.07 | 16.74 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.14 | 0.90 | 0.23 | 0.89 | 1.84 | 0.84 | 0.41 | 0.88 | 0.69 | 1.83 | 0.34 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.48 | 0.47 | 0.16 | 0.41 | 0.63 | 0.25 | 0.47 | 0.47 | 0.26 | 0.70 | 0.26 |
| d, Delay for Lane Group [s/veh] | 22.26 | 20.90 | 18.93 | 22.15 | 22.95 | 24.96 | 18.95 | 19.37 | 23.93 | 20.90 | 17.08 |
| Lane Group LOS | C | C | B | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.63 | 1.85 | 0.47 | 1.32 | 2.48 | 0.46 | 1.89 | 1.74 | 0.59 | 3.54 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 40.76 | 46.13 | 11.65 | 32.92 | 62.08 | 11.43 | 47.26 | 43.57 | 14.66 | 88.55 | 23.57 |
| 95th-Percentile Queue Length [veh/ln] | 2.93 | 3.32 | 0.84 | 2.37 | 4.47 | 0.82 | 3.40 | 3.14 | 1.06 | 6.38 | 1.70 |
| 95th-Percentile Queue Length [ft/ln] | 73.37 | 83.03 | 20.98 | 59.25 | 111.75 | 20.57 | 85.06 | 78.42 | 26.38 | 159.39 | 42.43 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.26 | 20.90 | 18.93 | 22.15 | 22.95 | 22.95 | 24.96 | 18.95 | 19.37 | 23.93 | 20.90 | 17.08 |
| Movement LOS | C | C | B | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 21.19 | | | 22.67 | | | 19.45 | | | 20.40 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.66 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.520 | | | | | | | | | | | |

**Emissions**

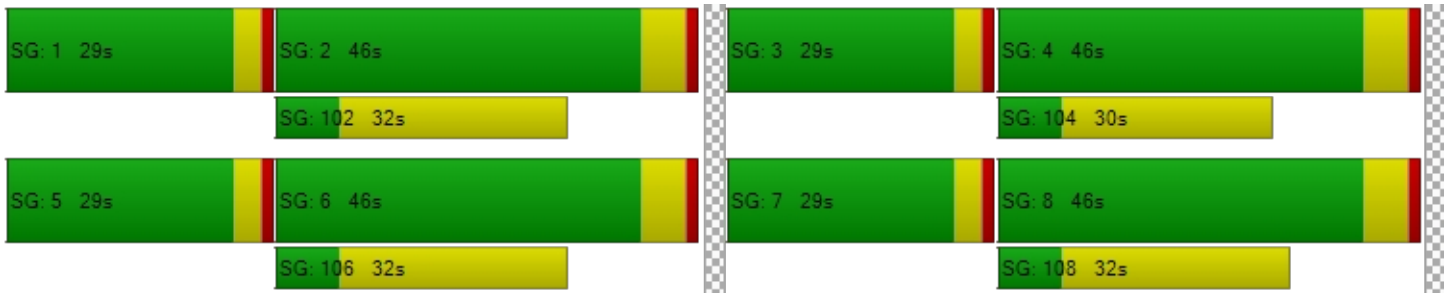
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 17.84 | 21.07 | 5.75 | 121.57 | 222.04 | 40.41 | 413.39 | 185.46 | 26.04 | 171.26 | 53.58 |
| Stops [stops/h] | 103.47 | 117.08 | 29.58 | 83.55 | 157.59 | 29.01 | 239.91 | 110.59 | 37.21 | 224.78 | 59.84 |
| Fuel consumption [US gal/h] | 2.57 | 2.93 | 0.75 | 5.75 | 10.60 | 2.00 | 19.07 | 8.61 | 1.70 | 10.64 | 3.08 |
| CO [g/h] | 179.85 | 204.58 | 52.40 | 402.02 | 741.13 | 139.56 | 1332.65 | 602.11 | 118.58 | 743.78 | 215.63 |
| NOx [g/h] | 34.99 | 39.80 | 10.20 | 78.22 | 144.20 | 27.15 | 259.28 | 117.15 | 23.07 | 144.71 | 41.95 |
| VOC [g/h] | 41.68 | 47.41 | 12.14 | 93.17 | 171.76 | 32.35 | 308.85 | 139.54 | 27.48 | 172.38 | 49.98 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 6741.30 | 0.00 | 16785.92 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.43 | 18.43 | 18.43 | 18.43 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.394 | 2.238 | 2.736 | 2.621 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1410 | 1410 | 1410 | 1410 |
| d_b, Bicycle Delay [s] | 2.47 | 2.47 | 2.47 | 2.47 |
| l_b,int, Bicycle LOS Score for Intersection | 2.175 | 2.124 | 2.069 | 2.386 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.317 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 80 | 59 | 86 | 19 | 71 | 67 | 32 | 337 | 118 | 109 | 294 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 80 | 59 | 86 | 19 | 71 | 67 | 32 | 337 | 118 | 109 | 294 | 48 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 18 | 26 | 6 | 21 | 20 | 10 | 102 | 36 | 33 | 89 | 14 |
| Total Analysis Volume [veh/h] | 96 | 71 | 104 | 23 | 86 | 81 | 39 | 406 | 142 | 131 | 354 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 17 | 17 | 5 | 12 | 12 | 7 | 13 | 13 | 11 | 17 | 17 |
| g / C, Green / Cycle | 0.16 | 0.27 | 0.27 | 0.08 | 0.19 | 0.19 | 0.11 | 0.21 | 0.21 | 0.17 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.04 | 0.07 | 0.01 | 0.02 | 0.05 | 0.01 | 0.11 | 0.09 | 0.04 | 0.10 | 0.04 |
| s, saturation flow rate [veh/h] | 1788 | 1705 | 1449 | 3514 | 3618 | 1581 | 3428 | 3618 | 1587 | 3514 | 3509 | 1612 |
| c, Capacity [veh/h] | 284 | 462 | 393 | 283 | 697 | 305 | 367 | 774 | 340 | 608 | 982 | 451 |
| d1, Uniform Delay [s] | 22.89 | 16.97 | 17.52 | 26.06 | 20.45 | 21.03 | 24.70 | 21.31 | 20.78 | 21.76 | 17.67 | 16.47 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.34 | 0.80 | 0.05 | 0.40 | 2.35 | 0.05 | 0.81 | 1.21 | 0.07 | 0.33 | 0.19 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.15 | 0.26 | 0.08 | 0.12 | 0.27 | 0.11 | 0.52 | 0.42 | 0.22 | 0.36 | 0.13 |
| d, Delay for Lane Group [s/veh] | 23.15 | 17.32 | 18.32 | 26.11 | 20.85 | 23.39 | 24.74 | 22.13 | 21.99 | 21.82 | 17.99 | 16.66 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.11 | 0.70 | 1.07 | 0.15 | 0.51 | 1.12 | 0.23 | 2.27 | 1.60 | 0.76 | 1.88 | 0.58 |
| 50th-Percentile Queue Length [ft/ln] | 27.65 | 17.38 | 26.80 | 3.72 | 12.87 | 28.03 | 5.66 | 56.76 | 40.07 | 19.09 | 47.03 | 14.62 |
| 95th-Percentile Queue Length [veh/ln] | 1.99 | 1.25 | 1.93 | 0.27 | 0.93 | 2.02 | 0.41 | 4.09 | 2.89 | 1.37 | 3.39 | 1.05 |
| 95th-Percentile Queue Length [ft/ln] | 49.76 | 31.28 | 48.24 | 6.70 | 23.17 | 50.46 | 10.19 | 102.17 | 72.13 | 34.35 | 84.66 | 26.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.15 | 17.32 | 18.32 | 26.11 | 20.85 | 23.39 | 24.74 | 22.13 | 21.99 | 21.82 | 17.99 | 16.66 |
| Movement LOS | C | B | B | C | C | C | C | C | C | C | B | B |
| d_A, Approach Delay [s/veh] | 19.77 | | | 22.57 | | | 22.27 | | | 18.78 | | |
| Approach LOS | B | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 20.69 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.317 | | | | | | | | | | | |

**Emissions**

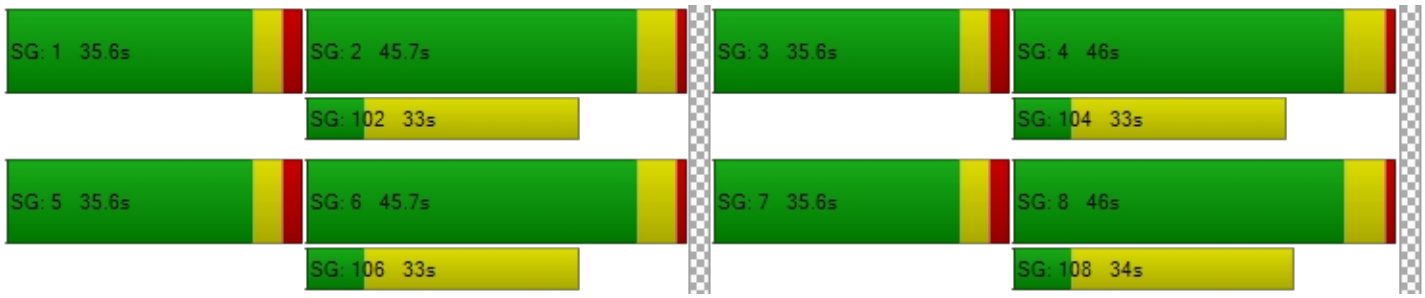
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 97.74 | 72.29 | 105.89 | 23.77 | 88.90 | 83.73 | 19.53 | 203.31 | 71.11 | 65.67 | 177.46 | 29.08 |
| Stops [stops/h] | 65.21 | 40.99 | 63.21 | 17.57 | 60.72 | 66.12 | 26.70 | 267.78 | 94.52 | 90.04 | 221.88 | 34.48 |
| Fuel consumption [US gal/h] | 4.61 | 3.24 | 4.80 | 1.20 | 4.36 | 4.20 | 1.26 | 12.75 | 4.47 | 3.78 | 9.83 | 1.58 |
| CO [g/h] | 322.47 | 226.32 | 335.75 | 83.74 | 304.76 | 293.41 | 88.10 | 891.05 | 312.29 | 264.41 | 686.96 | 110.73 |
| NOx [g/h] | 62.74 | 44.03 | 65.32 | 16.29 | 59.29 | 57.09 | 17.14 | 173.37 | 60.76 | 51.44 | 133.66 | 21.54 |
| VOC [g/h] | 74.74 | 52.45 | 77.81 | 19.41 | 70.63 | 68.00 | 20.42 | 206.51 | 72.38 | 61.28 | 159.21 | 25.66 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 7804.76 | 5121.13 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.52 | 20.52 | 20.52 | 20.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.463 | 2.622 | 2.832 | 2.722 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1310 | 1310 | 1310 | 1310 |
| d_b, Bicycle Delay [s] | 3.63 | 3.63 | 3.63 | 3.63 |
| l_b,int, Bicycle LOS Score for Intersection | 1.783 | 1.716 | 2.044 | 2.008 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.529 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 70 | 294 | 20 | 70 | 416 | 42 | 30 | 306 | 194 | 35 | 363 | 180 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 70 | 294 | 20 | 70 | 416 | 42 | 30 | 306 | 194 | 35 | 363 | 180 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 84 | 6 | 20 | 120 | 12 | 9 | 88 | 56 | 10 | 104 | 52 |
| Total Analysis Volume [veh/h] | 80 | 338 | 23 | 80 | 478 | 48 | 34 | 352 | 223 | 40 | 417 | 207 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 15 | 15 | 8 | 15 | 15 | 4 | 19 | 19 | 5 | 20 | 20 |
| g / C, Green / Cycle | 0.12 | 0.23 | 0.23 | 0.12 | 0.23 | 0.23 | 0.07 | 0.31 | 0.31 | 0.08 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.10 | 0.02 | 0.05 | 0.14 | 0.14 | 0.02 | 0.19 | 0.14 | 0.02 | 0.22 | 0.13 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1477 | 1724 | 1874 | 1815 | 1810 | 1858 | 1592 | 1810 | 1886 | 1598 |
| c, Capacity [veh/h] | 214 | 813 | 345 | 208 | 437 | 424 | 130 | 577 | 494 | 146 | 602 | 510 |
| d1, Uniform Delay [s] | 25.43 | 20.44 | 18.75 | 25.47 | 21.52 | 21.53 | 27.56 | 18.42 | 17.36 | 27.13 | 18.68 | 16.71 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.40 | 0.52 | 0.12 | 0.43 | 2.10 | 2.19 | 0.39 | 1.60 | 0.99 | 0.37 | 2.11 | 0.77 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.42 | 0.07 | 0.38 | 0.61 | 0.61 | 0.26 | 0.61 | 0.45 | 0.27 | 0.69 | 0.41 |
| d, Delay for Lane Group [s/veh] | 25.83 | 20.96 | 18.87 | 25.90 | 23.61 | 23.72 | 27.95 | 20.02 | 18.34 | 27.50 | 20.79 | 17.47 |
| Lane Group LOS | C | C | B | C | C | C | C | C | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.01 | 1.89 | 0.24 | 1.01 | 3.29 | 3.22 | 0.45 | 3.92 | 2.32 | 0.52 | 4.79 | 2.08 |
| 50th-Percentile Queue Length [ft/ln] | 25.17 | 47.20 | 6.00 | 25.24 | 82.34 | 80.39 | 11.25 | 97.98 | 58.06 | 13.09 | 119.67 | 51.93 |
| 95th-Percentile Queue Length [veh/ln] | 1.81 | 3.40 | 0.43 | 1.82 | 5.93 | 5.79 | 0.81 | 7.05 | 4.18 | 0.94 | 8.37 | 3.74 |
| 95th-Percentile Queue Length [ft/ln] | 45.31 | 84.97 | 10.81 | 45.43 | 148.20 | 144.70 | 20.26 | 176.36 | 104.50 | 23.56 | 209.37 | 93.47 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.83 | 20.96 | 18.87 | 25.90 | 23.66 | 23.72 | 27.95 | 20.02 | 18.34 | 27.50 | 20.79 | 17.47 |
| Movement LOS | C | C | B | C | C | C | C | C | B | C | C | B |
| d_A, Approach Delay [s/veh] | 21.73 | | | 23.96 | | | 19.85 | | | 20.16 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.37 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.529 | | | | | | | | | | | |

**Emissions**

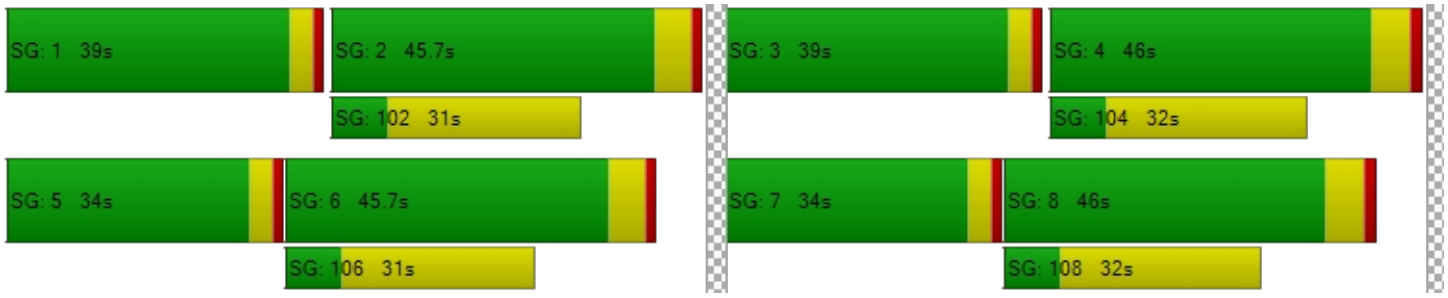
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.00 | 177.46 | 12.08 | 81.45 | 271.47 | 264.07 | 2.94 | 30.45 | 19.29 | 24.07 | 250.96 | 124.58 |
| Stops [stops/h] | 57.89 | 217.08 | 13.81 | 58.03 | 189.32 | 184.84 | 25.87 | 225.28 | 133.49 | 30.09 | 275.16 | 119.40 |
| Fuel consumption [US gal/h] | 2.58 | 10.22 | 0.67 | 3.94 | 12.94 | 12.60 | 0.62 | 5.28 | 3.15 | 1.42 | 13.79 | 6.49 |
| CO [g/h] | 180.34 | 714.63 | 47.11 | 275.07 | 904.54 | 880.89 | 43.05 | 368.97 | 220.42 | 99.48 | 963.76 | 453.72 |
| NOx [g/h] | 35.09 | 139.04 | 9.17 | 53.52 | 175.99 | 171.39 | 8.38 | 71.79 | 42.89 | 19.36 | 187.51 | 88.28 |
| VOC [g/h] | 41.80 | 165.62 | 10.92 | 63.75 | 209.64 | 204.15 | 9.98 | 85.51 | 51.08 | 23.06 | 223.36 | 105.15 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.28 | 21.28 | 21.28 | 21.28 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.721 | 2.626 | 2.617 | 2.607 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1277 | 1277 | 1277 | 1277 |
| d_b, Bicycle Delay [s] | 4.09 | 4.09 | 4.09 | 4.09 |
| l_b,int, Bicycle LOS Score for Intersection | 1.923 | 2.060 | 2.564 | 2.655 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.624 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 282 | 61 | 126 | 576 | 34 | 13 | 269 | 153 | 44 | 407 | 89 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 282 | 61 | 126 | 576 | 34 | 13 | 269 | 153 | 44 | 407 | 89 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 79 | 17 | 35 | 162 | 10 | 4 | 76 | 43 | 12 | 114 | 25 |
| Total Analysis Volume [veh/h] | 143 | 317 | 69 | 142 | 647 | 38 | 15 | 302 | 172 | 49 | 457 | 100 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 17 | 17 | 11 | 17 | 17 | 3 | 18 | 18 | 6 | 21 | 21 |
| g / C, Green / Cycle | 0.16 | 0.25 | 0.25 | 0.16 | 0.25 | 0.25 | 0.04 | 0.26 | 0.26 | 0.09 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.11 | 0.11 | 0.08 | 0.18 | 0.18 | 0.01 | 0.16 | 0.11 | 0.03 | 0.24 | 0.06 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1709 | 1791 | 1891 | 1854 | 1810 | 1835 | 1541 | 1810 | 1874 | 1600 |
| c, Capacity [veh/h] | 295 | 463 | 432 | 293 | 477 | 468 | 72 | 473 | 397 | 167 | 582 | 497 |
| d1, Uniform Delay [s] | 26.01 | 21.45 | 21.51 | 26.02 | 23.44 | 23.44 | 31.86 | 22.59 | 21.21 | 29.02 | 21.55 | 17.37 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.24 | 0.63 | 0.69 | 1.24 | 2.11 | 2.15 | 1.43 | 1.44 | 0.74 | 0.97 | 2.49 | 0.20 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.49 | 0.43 | 0.44 | 0.48 | 0.72 | 0.73 | 0.21 | 0.64 | 0.43 | 0.29 | 0.79 | 0.20 |
| d, Delay for Lane Group [s/veh] | 27.25 | 22.08 | 22.20 | 27.26 | 25.54 | 25.59 | 33.29 | 24.02 | 21.95 | 29.99 | 24.04 | 17.57 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.01 | 2.44 | 2.33 | 2.00 | 4.78 | 4.69 | 0.25 | 4.00 | 2.12 | 0.73 | 6.16 | 1.04 |
| 50th-Percentile Queue Length [ft/ln] | 50.31 | 60.93 | 58.27 | 49.96 | 119.46 | 117.36 | 6.26 | 99.88 | 52.94 | 18.33 | 154.10 | 26.09 |
| 95th-Percentile Queue Length [veh/ln] | 3.62 | 4.39 | 4.20 | 3.60 | 8.36 | 8.25 | 0.45 | 7.19 | 3.81 | 1.32 | 10.24 | 1.88 |
| 95th-Percentile Queue Length [ft/ln] | 90.56 | 109.68 | 104.89 | 89.92 | 209.09 | 206.20 | 11.26 | 179.78 | 95.29 | 33.00 | 255.89 | 46.97 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.25 | 22.12 | 22.20 | 27.26 | 25.57 | 25.59 | 33.29 | 24.02 | 21.95 | 29.99 | 24.04 | 17.57 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 23.52 | | | 25.86 | | | 23.58 | | | 23.45 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.30 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.624 | | | | | | | | | | | |

**Emissions**

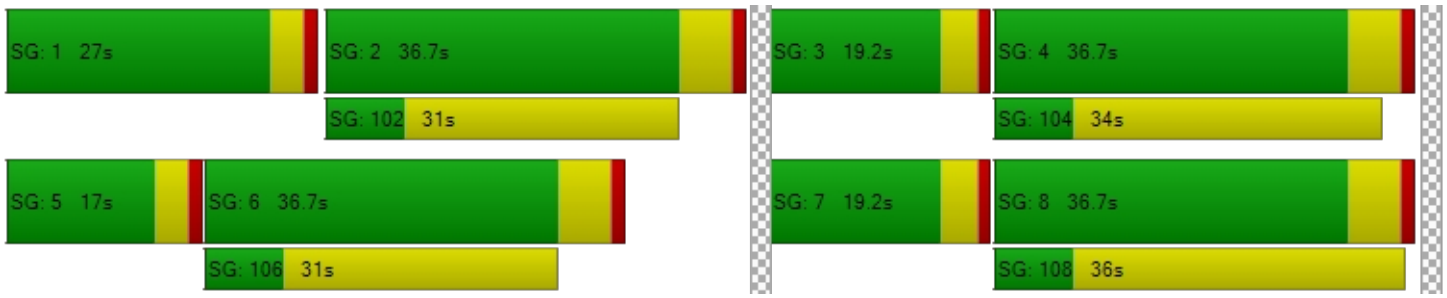
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 75.98 | 105.10 | 99.98 | 74.55 | 181.54 | 178.10 | 1.50 | 30.28 | 17.24 | 23.32 | 217.50 | 47.59 |
| Stops [stops/h] | 106.01 | 128.40 | 122.79 | 105.27 | 251.74 | 247.31 | 13.19 | 210.47 | 111.55 | 38.63 | 324.71 | 54.98 |
| Fuel consumption [US gal/h] | 4.72 | 6.09 | 5.80 | 4.65 | 11.15 | 10.95 | 0.32 | 5.13 | 2.75 | 1.58 | 13.73 | 2.67 |
| CO [g/h] | 329.62 | 425.55 | 405.70 | 325.18 | 779.40 | 765.17 | 22.17 | 358.66 | 191.97 | 110.35 | 959.62 | 186.82 |
| NOx [g/h] | 64.13 | 82.80 | 78.93 | 63.27 | 151.64 | 148.87 | 4.31 | 69.78 | 37.35 | 21.47 | 186.71 | 36.35 |
| VOC [g/h] | 76.39 | 98.62 | 94.02 | 75.36 | 180.63 | 177.34 | 5.14 | 83.12 | 44.49 | 25.57 | 222.40 | 43.30 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.05 | 24.05 | 24.05 | 24.05 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.778 | 2.653 | 2.528 | 2.525 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 907 | 907 | 907 | 907 |
| d_b, Bicycle Delay [s] | 10.20 | 10.20 | 10.20 | 10.20 |
| l_b,int, Bicycle LOS Score for Intersection | 1.996 | 2.242 | 2.366 | 2.560 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.600 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 197 | 254 | 122 | 256 | 305 | 429 | 222 | 800 | 203 | 144 | 1166 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 197 | 254 | 122 | 256 | 305 | 429 | 222 | 800 | 203 | 144 | 1166 | 230 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 53 | 68 | 33 | 69 | 82 | 115 | 60 | 215 | 55 | 39 | 313 | 62 |
| Total Analysis Volume [veh/h] | 212 | 273 | 131 | 275 | 328 | 461 | 239 | 860 | 218 | 155 | 1254 | 247 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 27 | 27 | 14 | 27 | 27 | 13 | 60 | 60 | 13 | 60 | 60 |
| g / C, Green / Cycle | 0.11 | 0.21 | 0.21 | 0.11 | 0.21 | 0.21 | 0.10 | 0.46 | 0.46 | 0.10 | 0.46 | 0.46 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.08 | 0.08 | 0.08 | 0.06 | 0.16 | 0.07 | 0.17 | 0.14 | 0.05 | 0.25 | 0.16 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1543 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 370 | 727 | 319 | 369 | 1059 | 585 | 338 | 2325 | 730 | 343 | 2329 | 727 |
| d1, Uniform Delay [s] | 55.19 | 44.44 | 44.79 | 56.30 | 43.79 | 48.96 | 56.71 | 22.79 | 21.92 | 55.21 | 25.17 | 22.44 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 0.12 | 0.31 | 1.13 | 0.19 | 2.70 | 1.03 | 0.45 | 1.05 | 0.35 | 0.90 | 1.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.57 | 0.38 | 0.41 | 0.75 | 0.31 | 0.79 | 0.71 | 0.37 | 0.30 | 0.45 | 0.54 | 0.34 |
| d, Delay for Lane Group [s/veh] | 55.71 | 44.56 | 45.11 | 57.44 | 43.98 | 51.66 | 57.74 | 23.24 | 22.97 | 55.56 | 26.07 | 23.71 |
| Lane Group LOS | E | D | D | E | D | D | E | C | C | E | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.29 | 3.76 | 3.66 | 4.35 | 2.95 | 7.14 | 3.77 | 5.58 | 4.22 | 2.37 | 9.02 | 4.91 |
| 50th-Percentile Queue Length [ft/ln] | 82.35 | 94.10 | 91.44 | 108.70 | 73.83 | 178.43 | 94.35 | 139.52 | 105.57 | 59.20 | 225.51 | 122.65 |
| 95th-Percentile Queue Length [veh/ln] | 5.93 | 6.78 | 6.58 | 7.77 | 5.32 | 11.52 | 6.79 | 9.46 | 7.59 | 4.26 | 13.95 | 8.54 |
| 95th-Percentile Queue Length [ft/ln] | 148.24 | 169.39 | 164.59 | 194.19 | 132.89 | 287.96 | 169.83 | 236.38 | 189.82 | 106.56 | 348.65 | 213.47 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 55.71 | 44.56 | 45.11 | 57.44 | 43.98 | 51.66 | 57.74 | 23.24 | 22.97 | 55.56 | 26.07 | 23.71 |
| Movement LOS | E | D | D | E | D | D | E | C | C | E | C | C |
| d_A, Approach Delay [s/veh] | 48.51 | | | 50.78 | | | 29.46 | | | 28.48 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 36.51 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.600 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.50 | 19.96 | 9.58 | 146.11 | 174.27 | 244.93 | 27.19 | 97.86 | 24.81 | 77.36 | 625.84 | 123.27 |
| Stops [stops/h] | 182.25 | 208.26 | 101.18 | 240.56 | 245.09 | 394.88 | 208.81 | 463.15 | 116.82 | 131.02 | 748.60 | 135.72 |
| Fuel consumption [US gal/h] | 4.75 | 5.24 | 2.54 | 11.21 | 11.96 | 18.15 | 6.34 | 13.18 | 3.32 | 6.03 | 37.41 | 7.10 |
| CO [g/h] | 331.94 | 366.00 | 177.50 | 783.80 | 835.72 | 1268.75 | 442.91 | 921.34 | 232.18 | 421.69 | 2615.14 | 496.62 |
| NOx [g/h] | 64.58 | 71.21 | 34.54 | 152.50 | 162.60 | 246.85 | 86.17 | 179.26 | 45.17 | 82.05 | 508.81 | 96.62 |
| VOC [g/h] | 76.93 | 84.82 | 41.14 | 181.65 | 193.69 | 294.04 | 102.65 | 213.53 | 53.81 | 97.73 | 606.08 | 115.10 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.53 | 54.53 | 32.40 | 54.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.957 | 3.338 | 3.577 | 3.342 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 645 | 630 |
| d_b, Bicycle Delay [s] | 31.72 | 32.40 | 29.85 | 30.53 |
| l_b,int, Bicycle LOS Score for Intersection | 1.898 | 2.145 | 2.284 | 2.470 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.410 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 472 | 0 | 0 | 0 | 0 | 746 | 224 | 0 | 1679 | 67 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 472 | 0 | 0 | 0 | 0 | 746 | 224 | 0 | 1679 | 67 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 126 | 0 | 0 | 0 | 0 | 198 | 60 | 0 | 447 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 502 | 0 | 0 | 0 | 0 | 794 | 238 | 0 | 1786 | 71 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 30 | 30 | | 86 | 86 | 86 |
| g / C, Green / Cycle | 0.23 | 0.23 | | 0.66 | 0.66 | 0.66 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.18 | | 0.16 | 0.21 | 0.04 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1197 | 642 | | 3340 | 5612 | 1054 |
| d1, Uniform Delay [s] | 42.34 | 46.83 | | 8.87 | 9.47 | 7.82 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.55 | 5.13 | | 0.17 | 0.15 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.78 | | 0.24 | 0.32 | 0.07 |
| d, Delay for Lane Group [s/veh] | 42.89 | 51.96 | | 9.04 | 9.61 | 7.95 |
| Lane Group LOS | D | D | | A | A | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.30 | 7.72 | | 2.78 | 3.98 | 0.68 |
| 50th-Percentile Queue Length [ft/ln] | 107.47 | 192.97 | | 69.54 | 99.47 | 17.05 |
| 95th-Percentile Queue Length [veh/ln] | 7.70 | 12.28 | | 5.01 | 7.16 | 1.23 |
| 95th-Percentile Queue Length [ft/ln] | 192.48 | 306.88 | | 125.17 | 179.04 | 30.70 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.89 | 0.00 | 51.96 | 0.00 | 0.00 | 0.00 | 0.00 | 9.04 | 0.00 | 0.00 | 9.61 | 7.95 |
| Movement LOS | D | | D | | | | | A | | | A | A |
| d_A, Approach Delay [s/veh] | 47.50 | | | 0.00 | | | 7.05 | | | 9.55 | | |
| Approach LOS | D | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 19.31 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.410 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 65.80 | | 124.94 | 203.22 | 8.08 |
| Stops [stops/h] | 357.52 | 427.96 | | 231.33 | 551.49 | 18.91 |
| Fuel consumption [US gal/h] | 13.01 | 15.46 | | 8.62 | 17.32 | 0.63 |
| CO [g/h] | 909.66 | 1080.49 | | 602.48 | 1210.51 | 43.82 |
| NOx [g/h] | 176.99 | 210.22 | | 117.22 | 235.52 | 8.53 |
| VOC [g/h] | 210.82 | 250.41 | | 139.63 | 280.55 | 10.16 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.765 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 | |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 1.996 | 2.172 | |
| Bicycle LOS | A | D | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.653 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 74 | 0 | 793 | 0 | 911 | 496 | 0 | 1560 | 615 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 74 | 0 | 793 | 0 | 911 | 496 | 0 | 1560 | 615 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 207 | 0 | 237 | 129 | 0 | 406 | 160 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 77 | 0 | 826 | 0 | 949 | 517 | 0 | 1625 | 641 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 40 | 40 | 77 | 77 | 77 |
| g / C, Green / Cycle | | 0.31 | 0.31 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.29 | 0.14 | 0.33 | 0.24 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1062 | 872 | 3966 | 915 | 3989 |
| d1, Uniform Delay [s] | | 32.01 | 44.07 | 12.73 | 16.40 | 14.39 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.07 | 12.96 | 0.14 | 2.53 | 0.31 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.07 | 0.95 | 0.24 | 0.57 | 0.41 |
| d, Delay for Lane Group [s/veh] | | 32.09 | 57.02 | 12.87 | 18.93 | 14.70 |
| Lane Group LOS | | C | E | B | B | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.88 | 14.46 | 3.15 | 9.37 | 6.10 |
| 50th-Percentile Queue Length [ft/ln] | | 22.08 | 361.41 | 78.69 | 234.19 | 152.56 |
| 95th-Percentile Queue Length [veh/ln] | | 1.59 | 20.69 | 5.67 | 14.39 | 10.15 |
| 95th-Percentile Queue Length [ft/ln] | | 39.75 | 517.30 | 141.64 | 359.68 | 253.85 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 32.09 | 0.00 | 57.02 | 0.00 | 12.87 | 18.93 | 0.00 | 14.70 | 0.00 |
| Movement LOS | | | | C | | E | | B | B | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 54.90 | | | 15.01 | | | 10.67 | | |
| Approach LOS | A | | | D | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 22.26 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.653 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.87 | 127.29 | 91.89 | 50.06 | 255.71 |
| Stops [stops/h] | | 48.95 | 801.10 | 348.83 | 259.55 | 676.34 |
| Fuel consumption [US gal/h] | | 1.26 | 19.25 | 9.97 | 6.93 | 22.04 |
| CO [g/h] | | 88.19 | 1345.59 | 697.13 | 484.71 | 1540.32 |
| NOx [g/h] | | 17.16 | 261.80 | 135.64 | 94.31 | 299.69 |
| VOC [g/h] | | 20.44 | 311.85 | 161.57 | 112.34 | 356.98 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.984 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | A | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1173 | 1173 |
| d_b, Bicycle Delay [s] | 64.97 | 30.98 | 11.11 | 11.11 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.164 | 2.230 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.015 |

**Intersection Setup**

| Name | Sunnyside | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Sunnyside | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 5 | 310 | 5 | 5 | 510 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 5 | 310 | 5 | 5 | 510 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 78 | 1 | 1 | 128 |
| Total Analysis Volume [veh/h] | 5 | 5 | 310 | 5 | 5 | 510 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 15.86 | 10.12 | 0.00 | 0.00 | 7.90 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 0.07 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 1.66 | 1.66 | 0.00 | 0.00 | 0.21 | 0.21 |
| d_A, Approach Delay [s/veh] | 12.99 | | 0.00 | | 0.08 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.20 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 13.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.582 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 54 | 11 | 27 | 2 | 14 | 9 | 8 | 325 | 106 | 31 | 371 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 54 | 11 | 27 | 2 | 14 | 9 | 8 | 325 | 106 | 31 | 371 | 3 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 3 | 7 | 1 | 4 | 2 | 2 | 83 | 27 | 8 | 95 | 1 |
| Total Analysis Volume [veh/h] | 55 | 11 | 28 | 2 | 14 | 9 | 8 | 332 | 108 | 32 | 379 | 3 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 607 | 603 | 770 | 742 |
| Degree of Utilization, x | 0.15 | 0.04 | 0.58 | 0.56 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.54 | 0.13 | 3.82 | 3.49 |
| 95th-Percentile Queue Length [ft] | 13.62 | 3.24 | 95.42 | 87.29 |
| Approach Delay [s/veh] | 10.01 | 9.23 | 13.98 | 13.80 |
| Approach LOS | B | A | B | B |
| Intersection Delay [s/veh] | 13.41 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 23.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.834 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 137 | 57 | 17 | 22 | 115 | 34 | 12 | 269 | 85 | 25 | 367 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 137 | 57 | 17 | 22 | 115 | 34 | 12 | 269 | 85 | 25 | 367 | 14 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 15 | 4 | 6 | 30 | 9 | 3 | 71 | 22 | 7 | 97 | 4 |
| Total Analysis Volume [veh/h] | 144 | 60 | 18 | 23 | 121 | 36 | 13 | 283 | 89 | 26 | 386 | 15 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 413 | 488 | 444 | 430 | 462 | 481 | 444 | 481 |
| Degree of Utilization, x | 0.49 | 0.04 | 0.41 | 0.03 | 0.40 | 0.39 | 0.06 | 0.83 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 2.66 | 0.11 | 1.93 | 0.09 | 1.91 | 1.80 | 0.19 | 8.26 |
| 95th-Percentile Queue Length [ft] | 66.47 | 2.86 | 48.31 | 2.33 | 47.81 | 45.05 | 4.66 | 206.48 |
| Approach Delay [s/veh] | 18.88 | | 16.53 | 15.09 | | | 36.14 | |
| Approach LOS | C | | C | C | | | E | |
| Intersection Delay [s/veh] | 23.40 | | | | | | | |
| Intersection LOS | C | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.699 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 147 | 19 | 39 | 148 | 117 | 115 | 255 | 123 | 42 | 462 | 81 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 147 | 19 | 39 | 148 | 117 | 115 | 255 | 123 | 42 | 462 | 81 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 47 | 6 | 12 | 47 | 37 | 36 | 81 | 39 | 13 | 146 | 26 |
| Total Analysis Volume [veh/h] | 161 | 186 | 24 | 49 | 187 | 148 | 146 | 323 | 156 | 53 | 585 | 103 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 16 | 16 | 7 | 13 | 13 | 10 | 30 | 30 | 7 | 27 | 27 |
| g / C, Green / Cycle | 0.13 | 0.21 | 0.21 | 0.09 | 0.17 | 0.17 | 0.13 | 0.40 | 0.40 | 0.09 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.06 | 0.06 | 0.03 | 0.10 | 0.10 | 0.08 | 0.17 | 0.10 | 0.03 | 0.31 | 0.07 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1775 | 1737 | 1849 | 1566 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 222 | 391 | 373 | 154 | 310 | 263 | 231 | 752 | 603 | 164 | 680 | 570 |
| d1, Uniform Delay [s] | 31.46 | 24.94 | 24.97 | 32.24 | 28.86 | 29.07 | 31.13 | 16.54 | 15.29 | 32.03 | 22.38 | 16.52 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.25 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.44 | 0.37 | 0.40 | 1.18 | 1.63 | 2.25 | 2.85 | 0.39 | 0.22 | 1.13 | 7.38 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.27 | 0.28 | 0.32 | 0.57 | 0.61 | 0.63 | 0.43 | 0.26 | 0.32 | 0.86 | 0.18 |
| d, Delay for Lane Group [s/veh] | 35.90 | 25.31 | 25.37 | 33.43 | 30.49 | 31.32 | 33.98 | 16.93 | 15.51 | 33.16 | 29.76 | 16.67 |
| Lane Group LOS | D | C | C | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.91 | 1.53 | 1.49 | 0.83 | 2.83 | 2.62 | 2.51 | 3.60 | 1.61 | 0.89 | 9.72 | 1.11 |
| 50th-Percentile Queue Length [ft/ln] | 72.78 | 38.13 | 37.30 | 20.79 | 70.70 | 65.43 | 62.74 | 90.11 | 40.25 | 22.34 | 243.00 | 27.64 |
| 95th-Percentile Queue Length [veh/ln] | 5.24 | 2.75 | 2.69 | 1.50 | 5.09 | 4.71 | 4.52 | 6.49 | 2.90 | 1.61 | 14.83 | 1.99 |
| 95th-Percentile Queue Length [ft/ln] | 131.01 | 68.64 | 67.14 | 37.43 | 127.27 | 117.77 | 112.93 | 162.20 | 72.46 | 40.21 | 370.82 | 49.76 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.90 | 25.34 | 25.37 | 33.43 | 30.54 | 31.32 | 33.98 | 16.93 | 15.51 | 33.16 | 29.76 | 16.67 |
| Movement LOS | D | C | C | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 29.92 | | | 31.21 | | | 20.56 | | | 28.19 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.79 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.699 | | | | | | | | | | | |

**Emissions**

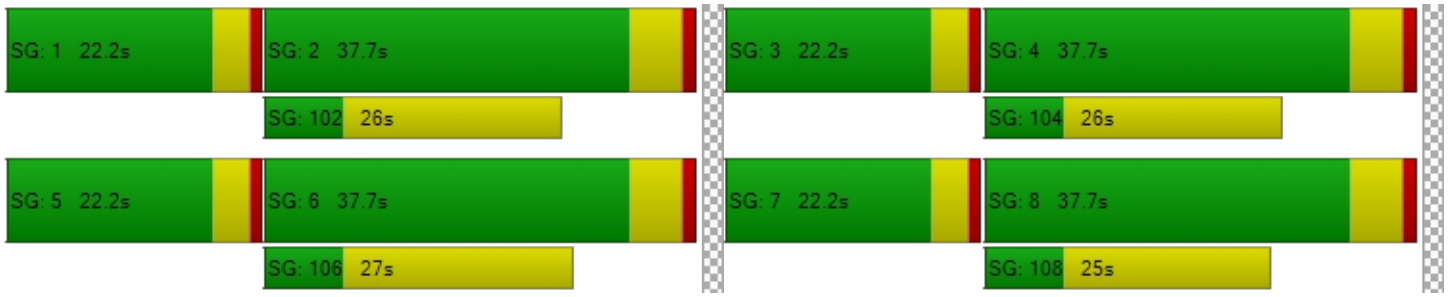
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 87.00 | 57.45 | 56.03 | 24.37 | 87.40 | 79.17 | 69.49 | 153.73 | 74.25 | 26.12 | 288.27 | 50.76 |
| Stops [stops/h] | 139.26 | 72.96 | 71.37 | 39.78 | 135.29 | 125.19 | 120.05 | 172.41 | 77.02 | 42.75 | 464.95 | 52.89 |
| Fuel consumption [US gal/h] | 5.66 | 3.32 | 3.24 | 1.66 | 5.77 | 5.29 | 4.88 | 8.53 | 4.00 | 1.78 | 19.21 | 2.75 |
| CO [g/h] | 395.68 | 232.21 | 226.73 | 116.25 | 403.23 | 369.45 | 341.40 | 595.96 | 279.26 | 124.73 | 1342.47 | 192.01 |
| NOx [g/h] | 76.98 | 45.18 | 44.11 | 22.62 | 78.45 | 71.88 | 66.42 | 115.95 | 54.33 | 24.27 | 261.20 | 37.36 |
| VOC [g/h] | 91.70 | 53.82 | 52.55 | 26.94 | 93.45 | 85.62 | 79.12 | 138.12 | 64.72 | 28.91 | 311.13 | 44.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.43 | 27.43 | 27.43 | 27.43 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.489 | 2.530 | 2.677 | 2.537 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 850 | 850 | 850 | 850 |
| d_b, Bicycle Delay [s] | 12.44 | 12.43 | 12.43 | 12.43 |
| l_b,int, Bicycle LOS Score for Intersection | 1.866 | 1.876 | 2.591 | 2.782 |
| Bicycle LOS | A | A | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.468 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 271 | 141 | 77 | 105 | 193 | 103 | 39 | 696 | 344 | 95 | 1151 | 84 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 271 | 141 | 77 | 105 | 193 | 103 | 39 | 696 | 344 | 95 | 1151 | 84 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 73 | 38 | 21 | 28 | 52 | 28 | 10 | 187 | 92 | 26 | 309 | 23 |
| Total Analysis Volume [veh/h] | 291 | 152 | 83 | 113 | 208 | 111 | 42 | 748 | 370 | 102 | 1238 | 90 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 14 | 14 | 13 | 13 | 13 | 10 | 65 | 65 | 13 | 67 | 67 |
| g / C, Green / Cycle | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.08 | 0.54 | 0.54 | 0.11 | 0.56 | 0.56 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.04 | 0.05 | 0.03 | 0.07 | 0.07 | 0.01 | 0.15 | 0.23 | 0.03 | 0.24 | 0.06 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1520 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 375 | 391 | 175 | 351 | 341 | 173 | 297 | 2750 | 851 | 364 | 2868 | 880 |
| d1, Uniform Delay [s] | 51.83 | 49.23 | 49.72 | 49.68 | 51.09 | 51.28 | 50.98 | 14.91 | 16.62 | 49.55 | 15.29 | 12.29 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.31 | 0.50 | 1.59 | 0.19 | 1.42 | 3.14 | 0.08 | 0.24 | 1.62 | 0.15 | 0.48 | 0.23 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.39 | 0.47 | 0.32 | 0.61 | 0.64 | 0.14 | 0.27 | 0.43 | 0.28 | 0.43 | 0.10 |
| d, Delay for Lane Group [s/veh] | 53.15 | 49.74 | 51.31 | 49.87 | 52.51 | 54.41 | 51.06 | 15.16 | 18.24 | 49.70 | 15.77 | 12.53 |
| Lane Group LOS | D | D | D | D | D | D | D | B | B | D | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.26 | 2.11 | 2.38 | 1.58 | 3.06 | 3.35 | 0.59 | 3.70 | 6.39 | 1.39 | 6.14 | 1.11 |
| 50th-Percentile Queue Length [ft/ln] | 106.43 | 52.78 | 59.40 | 39.62 | 76.45 | 83.86 | 14.78 | 92.43 | 159.83 | 34.72 | 153.58 | 27.80 |
| 95th-Percentile Queue Length [veh/ln] | 7.64 | 3.80 | 4.28 | 2.85 | 5.50 | 6.04 | 1.06 | 6.65 | 10.54 | 2.50 | 10.21 | 2.00 |
| 95th-Percentile Queue Length [ft/ln] | 191.03 | 95.01 | 106.91 | 71.32 | 137.61 | 150.96 | 26.61 | 166.37 | 263.50 | 62.50 | 255.20 | 50.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 53.15 | 49.74 | 51.31 | 49.87 | 52.51 | 54.41 | 51.06 | 15.16 | 18.24 | 49.70 | 15.77 | 12.53 |
| Movement LOS | D | D | D | D | D | D | D | B | B | D | B | B |
| d_A, Approach Delay [s/veh] | 51.87 | | | 52.31 | | | 17.44 | | | 17.98 | | |
| Approach LOS | D | | | D | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 27.01 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.468 | | | | | | | | | | | |

**Emissions**

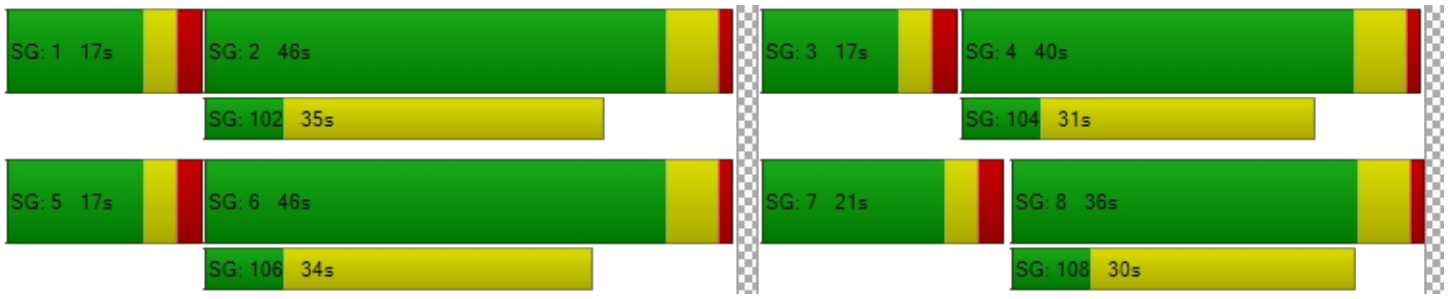
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 30.46 | 15.91 | 8.69 | 61.06 | 112.40 | 59.98 | 20.96 | 373.31 | 184.66 | 11.76 | 142.69 | 10.37 |
| Stops [stops/h] | 255.26 | 126.60 | 71.23 | 95.03 | 183.36 | 100.57 | 35.46 | 332.51 | 191.67 | 83.28 | 552.53 | 33.34 |
| Fuel consumption [US gal/h] | 6.75 | 3.35 | 1.88 | 4.19 | 7.86 | 4.25 | 1.50 | 19.51 | 10.03 | 2.47 | 15.73 | 1.00 |
| CO [g/h] | 471.51 | 234.29 | 131.23 | 292.56 | 549.59 | 297.34 | 104.51 | 1363.90 | 701.36 | 172.65 | 1099.75 | 69.87 |
| NOx [g/h] | 91.74 | 45.58 | 25.53 | 56.92 | 106.93 | 57.85 | 20.33 | 265.37 | 136.46 | 33.59 | 213.97 | 13.59 |
| VOC [g/h] | 109.28 | 54.30 | 30.41 | 67.80 | 127.37 | 68.91 | 24.22 | 316.10 | 162.55 | 40.01 | 254.88 | 16.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.54 | 49.54 | 49.54 | 49.54 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.832 | 2.707 | 3.166 | 3.249 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 505 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.64 | 33.56 | 26.50 | 26.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.994 | 1.916 | 2.198 | 2.346 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 38.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.991 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 491 | 125 | 2 | 0 | 59 | 16 | 12 | 1 | 292 | 2 | 6 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 491 | 125 | 2 | 0 | 59 | 16 | 12 | 1 | 292 | 2 | 6 | 1 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 135 | 34 | 1 | 0 | 16 | 4 | 3 | 0 | 80 | 1 | 2 | 0 |
| Total Analysis Volume [veh/h] | 540 | 137 | 2 | 0 | 65 | 18 | 13 | 1 | 321 | 2 | 7 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 685 | 610 | 657 | 538 |
| Degree of Utilization, x | 0.99 | 0.14 | 0.51 | 0.02 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 15.56 | 0.47 | 2.91 | 0.06 |
| 95th-Percentile Queue Length [ft] | 388.92 | 11.74 | 72.72 | 1.42 |
| Approach Delay [s/veh] | 54.55 | 9.83 | 14.03 | 9.83 |
| Approach LOS | F | A | B | A |
| Intersection Delay [s/veh] | 38.53 | | | |
| Intersection LOS | E | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.016 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 550 | 5 | 5 | 340 | 5 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 550 | 5 | 5 | 340 | 5 | 5 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 138 | 1 | 1 | 85 | 1 | 1 |
| Total Analysis Volume [veh/h] | 550 | 5 | 5 | 340 | 5 | 5 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.55 | 0.00 | 17.00 | 12.00 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.01 | 0.01 | 0.08 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.21 | 0.21 | 1.98 | 1.98 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.12 | | 14.50 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 0.21 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.532 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 141 | 92 | 34 | 185 | 125 | 18 | 20 | 281 | 51 | 36 | 279 | 370 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 141 | 92 | 34 | 185 | 125 | 18 | 20 | 281 | 51 | 36 | 279 | 370 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 24 | 9 | 48 | 33 | 5 | 5 | 73 | 13 | 9 | 73 | 96 |
| Total Analysis Volume [veh/h] | 147 | 96 | 35 | 193 | 130 | 19 | 21 | 293 | 53 | 38 | 291 | 385 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 9 | 9 | 9 | 9 | 2 | 19 | 19 | 4 | 20 | 20 |
| g / C, Green / Cycle | 0.15 | 0.16 | 0.16 | 0.15 | 0.16 | 0.04 | 0.34 | 0.34 | 0.06 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.05 | 0.02 | 0.11 | 0.08 | 0.01 | 0.09 | 0.10 | 0.02 | 0.15 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1823 | 1810 | 1870 | 1773 | 1782 | 1900 | 1586 |
| c, Capacity [veh/h] | 263 | 291 | 242 | 274 | 298 | 73 | 637 | 604 | 115 | 693 | 579 |
| d1, Uniform Delay [s] | 22.25 | 21.03 | 20.42 | 22.47 | 21.31 | 26.06 | 13.42 | 13.45 | 25.01 | 13.32 | 14.90 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.70 | 0.65 | 0.27 | 1.24 | 1.29 | 0.79 | 0.43 | 0.47 | 0.62 | 0.76 | 2.45 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.56 | 0.33 | 0.14 | 0.70 | 0.50 | 0.29 | 0.28 | 0.28 | 0.33 | 0.42 | 0.67 |
| d, Delay for Lane Group [s/veh] | 22.95 | 21.69 | 20.69 | 23.72 | 22.60 | 26.85 | 13.85 | 13.92 | 25.63 | 14.08 | 17.35 |
| Lane Group LOS | C | C | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.60 | 1.02 | 0.36 | 2.16 | 1.63 | 0.26 | 1.41 | 1.38 | 0.44 | 2.23 | 3.48 |
| 50th-Percentile Queue Length [ft/ln] | 40.04 | 25.44 | 8.99 | 54.10 | 40.83 | 6.54 | 35.36 | 34.40 | 10.90 | 55.72 | 86.93 |
| 95th-Percentile Queue Length [veh/ln] | 2.88 | 1.83 | 0.65 | 3.90 | 2.94 | 0.47 | 2.55 | 2.48 | 0.78 | 4.01 | 6.26 |
| 95th-Percentile Queue Length [ft/ln] | 72.08 | 45.79 | 16.19 | 97.38 | 73.50 | 11.77 | 63.65 | 61.92 | 19.62 | 100.30 | 156.48 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.95 | 21.69 | 20.69 | 23.72 | 22.60 | 22.60 | 26.85 | 13.88 | 13.92 | 25.63 | 14.08 | 17.35 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 22.23 | | | 23.23 | | | 14.63 | | | 16.46 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.37 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.532 | | | | | | | | | | | |

**Emissions**

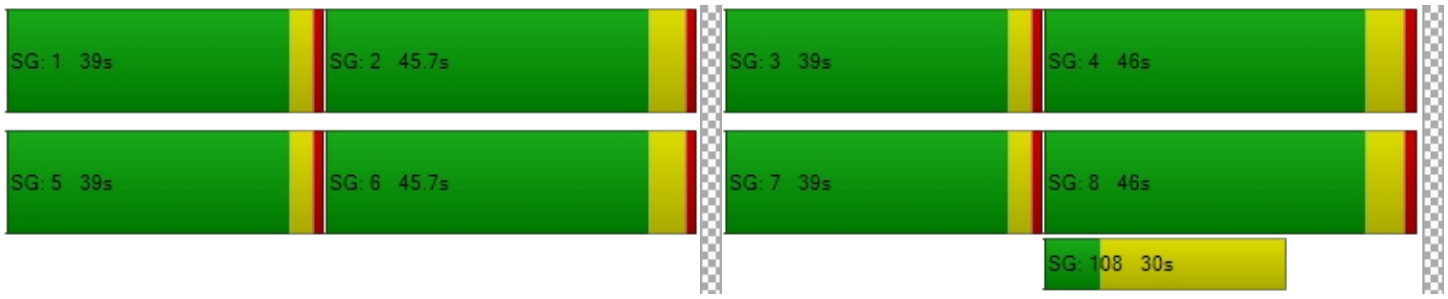
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 73.92 | 48.28 | 17.60 | 96.19 | 74.26 | 10.35 | 86.67 | 83.85 | 9.96 | 76.27 | 100.91 |
| Stops [stops/h] | 103.28 | 65.62 | 23.19 | 139.54 | 105.32 | 16.86 | 91.21 | 88.73 | 28.11 | 143.72 | 224.22 |
| Fuel consumption [US gal/h] | 4.50 | 2.89 | 1.04 | 5.96 | 4.54 | 0.65 | 4.50 | 4.36 | 0.96 | 5.59 | 8.18 |
| CO [g/h] | 314.87 | 202.32 | 72.63 | 416.87 | 317.37 | 45.51 | 314.29 | 304.55 | 67.33 | 391.02 | 571.84 |
| NOx [g/h] | 61.26 | 39.36 | 14.13 | 81.11 | 61.75 | 8.86 | 61.15 | 59.25 | 13.10 | 76.08 | 111.26 |
| VOC [g/h] | 72.97 | 46.89 | 16.83 | 96.61 | 73.55 | 10.55 | 72.84 | 70.58 | 15.60 | 90.62 | 132.53 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.00 | 20.49 | 20.23 | 20.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.419 | 2.330 | 2.377 | 2.679 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1433 | 1433 | 1433 | 1433 |
| d_b, Bicycle Delay [s] | 2.24 | 2.24 | 2.24 | 2.24 |
| l_b,int, Bicycle LOS Score for Intersection | 2.018 | 2.124 | 1.862 | 2.738 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.041 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 164 | 7 | 19 | 238 | 10 | 4 | 6 | 6 | 17 | 8 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 164 | 7 | 19 | 238 | 10 | 4 | 6 | 6 | 17 | 8 | 30 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 45 | 2 | 5 | 65 | 3 | 1 | 2 | 2 | 5 | 2 | 8 |
| Total Analysis Volume [veh/h] | 3 | 180 | 8 | 21 | 262 | 11 | 4 | 7 | 7 | 19 | 9 | 33 |
| Pedestrian Volume [ped/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.02 | 0.01 | 0.04 | 0.02 | 0.04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.97 | 0.00 | 0.00 | 7.61 | 0.00 | 0.00 | 13.27 | 12.97 | 9.83 | 13.47 | 13.40 | 9.89 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 0.33 | 0.33 | 0.33 |
| 95th-Percentile Queue Length [ft/ln] | 0.19 | 0.00 | 0.00 | 1.14 | 0.00 | 0.00 | 2.55 | 2.55 | 2.55 | 8.25 | 8.25 | 8.25 |
| d_A, Approach Delay [s/veh] | 0.13 | | | 0.54 | | | 11.81 | | | 11.52 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 1.95 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.596 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 123 | 37 | 28 | 215 | 32 | 20 | 202 | 87 | 73 | 272 | 32 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 123 | 37 | 28 | 215 | 32 | 20 | 202 | 87 | 73 | 272 | 32 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 33 | 10 | 8 | 58 | 9 | 5 | 55 | 24 | 20 | 74 | 9 |
| Total Analysis Volume [veh/h] | 121 | 134 | 40 | 30 | 234 | 35 | 22 | 220 | 95 | 79 | 296 | 35 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 11 | 11 | 1 | 9 | 1 | 7 | 7 | 2 | 9 |
| g / C, Green / Cycle | 0.09 | 0.29 | 0.29 | 0.03 | 0.23 | 0.02 | 0.19 | 0.19 | 0.06 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.07 | 0.03 | 0.02 | 0.15 | 0.01 | 0.09 | 0.09 | 0.04 | 0.18 |
| s, saturation flow rate [veh/h] | 1765 | 1859 | 1578 | 1772 | 1844 | 1691 | 1868 | 1684 | 1794 | 1840 |
| c, Capacity [veh/h] | 160 | 549 | 466 | 52 | 431 | 38 | 364 | 328 | 109 | 429 |
| d1, Uniform Delay [s] | 16.90 | 10.19 | 9.70 | 18.24 | 13.09 | 18.43 | 13.51 | 13.57 | 17.57 | 13.65 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.74 | 0.33 | 0.11 | 3.76 | 2.11 | 5.17 | 0.64 | 0.76 | 3.45 | 2.23 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.24 | 0.09 | 0.58 | 0.62 | 0.58 | 0.45 | 0.47 | 0.73 | 0.77 |
| d, Delay for Lane Group [s/veh] | 19.64 | 10.52 | 9.82 | 22.00 | 15.20 | 23.61 | 14.15 | 14.33 | 21.02 | 15.88 |
| Lane Group LOS | B | B | A | C | B | C | B | B | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.90 | 0.61 | 0.17 | 0.28 | 1.88 | 0.20 | 0.94 | 0.89 | 0.63 | 2.09 |
| 50th-Percentile Queue Length [ft/ln] | 22.55 | 15.18 | 4.32 | 6.94 | 47.12 | 5.10 | 23.44 | 22.36 | 15.66 | 52.15 |
| 95th-Percentile Queue Length [veh/ln] | 1.62 | 1.09 | 0.31 | 0.50 | 3.39 | 0.37 | 1.69 | 1.61 | 1.13 | 3.76 |
| 95th-Percentile Queue Length [ft/ln] | 40.59 | 27.33 | 7.78 | 12.50 | 84.82 | 9.19 | 42.18 | 40.25 | 28.18 | 93.88 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.64 | 10.52 | 9.82 | 22.00 | 15.20 | 15.20 | 23.61 | 14.20 | 14.33 | 21.02 | 15.88 | 15.88 |
| Movement LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 14.16 | | | 15.88 | | | 14.85 | | | 16.87 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.55 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.596 | | | | | | | | | | | |

**Emissions**

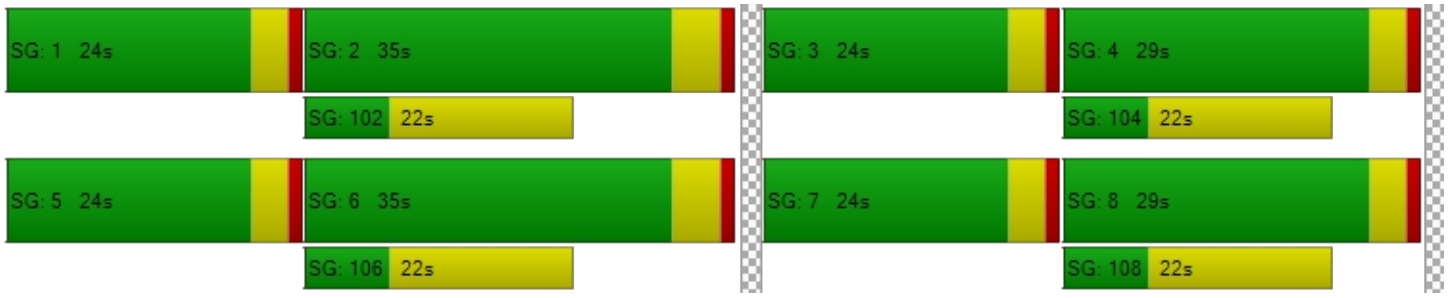
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 60.36 | 66.84 | 19.95 | 15.02 | 134.72 | 10.97 | 80.95 | 76.16 | 79.13 | 331.54 |
| Stops [stops/h] | 85.75 | 57.73 | 16.44 | 26.41 | 179.20 | 19.41 | 89.12 | 85.04 | 59.54 | 198.32 |
| Fuel consumption [US gal/h] | 3.62 | 3.30 | 0.97 | 0.90 | 7.37 | 0.72 | 4.35 | 4.11 | 3.79 | 14.90 |
| CO [g/h] | 252.94 | 230.38 | 67.68 | 62.82 | 515.03 | 50.55 | 304.08 | 287.53 | 264.97 | 1041.51 |
| NOx [g/h] | 49.21 | 44.82 | 13.17 | 12.22 | 100.21 | 9.83 | 59.16 | 55.94 | 51.55 | 202.64 |
| VOC [g/h] | 58.62 | 53.39 | 15.69 | 14.56 | 119.36 | 11.71 | 70.47 | 66.64 | 61.41 | 241.38 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.53 | 9.53 | 9.53 | 9.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.453 | 2.047 | 2.367 | 2.335 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1584 | 1584 | 1320 | 1320 |
| d_b, Bicycle Delay [s] | 0.82 | 0.82 | 2.19 | 2.19 |
| l_b,int, Bicycle LOS Score for Intersection | 2.046 | 2.053 | 1.838 | 2.236 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.628 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 170 | 283 | 58 | 49 | 540 | 78 | 22 | 186 | 140 | 116 | 310 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 170 | 283 | 58 | 49 | 540 | 78 | 22 | 186 | 140 | 116 | 310 | 36 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 50 | 83 | 17 | 14 | 159 | 23 | 6 | 55 | 41 | 34 | 91 | 11 |
| Total Analysis Volume [veh/h] | 200 | 333 | 68 | 58 | 635 | 92 | 26 | 219 | 165 | 136 | 365 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 20 | 20 | 6 | 17 | 17 | 3 | 11 | 11 | 8 | 16 | 16 |
| g / C, Green / Cycle | 0.14 | 0.32 | 0.32 | 0.09 | 0.27 | 0.27 | 0.05 | 0.18 | 0.18 | 0.13 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.09 | 0.04 | 0.03 | 0.20 | 0.20 | 0.01 | 0.12 | 0.10 | 0.08 | 0.10 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1560 | 1751 | 1867 | 1785 | 1810 | 1883 | 1595 | 1785 | 3589 | 1611 |
| c, Capacity [veh/h] | 258 | 1140 | 507 | 163 | 512 | 490 | 96 | 347 | 294 | 239 | 951 | 427 |
| d1, Uniform Delay [s] | 25.04 | 15.28 | 14.45 | 25.81 | 19.95 | 19.96 | 27.61 | 22.85 | 22.52 | 24.66 | 18.26 | 16.84 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.95 | 0.14 | 0.12 | 1.31 | 1.97 | 2.07 | 1.49 | 1.89 | 1.68 | 2.13 | 0.25 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.29 | 0.13 | 0.36 | 0.73 | 0.73 | 0.27 | 0.63 | 0.56 | 0.57 | 0.38 | 0.10 |
| d, Delay for Lane Group [s/veh] | 29.99 | 15.42 | 14.57 | 27.12 | 21.92 | 22.04 | 29.09 | 24.74 | 24.19 | 26.79 | 18.51 | 16.94 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.79 | 1.46 | 0.57 | 0.80 | 4.61 | 4.43 | 0.38 | 2.87 | 2.13 | 1.76 | 1.82 | 0.39 |
| 50th-Percentile Queue Length [ft/ln] | 69.87 | 36.41 | 14.27 | 20.04 | 115.13 | 110.67 | 9.60 | 71.73 | 53.30 | 44.05 | 45.54 | 9.78 |
| 95th-Percentile Queue Length [veh/ln] | 5.03 | 2.62 | 1.03 | 1.44 | 8.12 | 7.88 | 0.69 | 5.16 | 3.84 | 3.17 | 3.28 | 0.70 |
| 95th-Percentile Queue Length [ft/ln] | 125.76 | 65.54 | 25.68 | 36.07 | 203.12 | 196.94 | 17.28 | 129.11 | 95.94 | 79.28 | 81.98 | 17.61 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.99 | 15.42 | 14.57 | 27.12 | 21.97 | 22.04 | 29.09 | 24.74 | 24.19 | 26.79 | 18.51 | 16.94 |
| Movement LOS | C | B | B | C | C | C | C | C | C | C | B | B |
| d_A, Approach Delay [s/veh] | 20.17 | | | 22.36 | | | 24.80 | | | 20.46 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.78 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.628 | | | | | | | | | | | |

**Emissions**

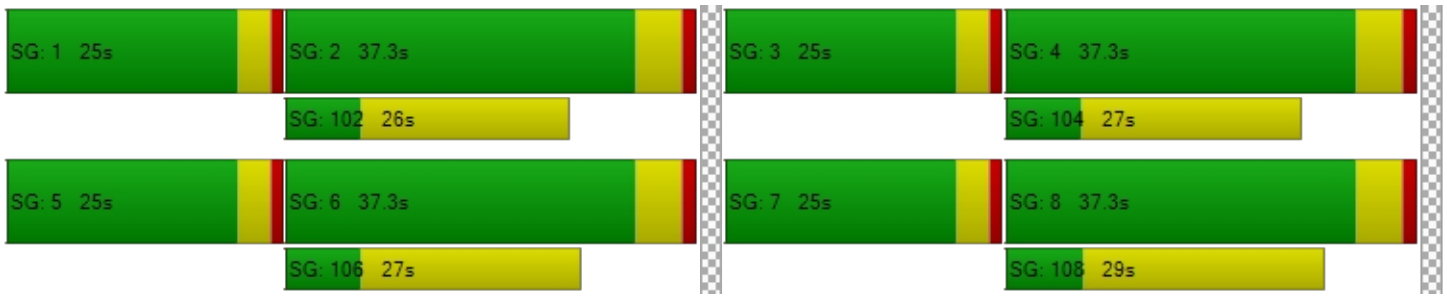
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 39.98 | 66.56 | 13.59 | 28.93 | 185.22 | 177.42 | 12.81 | 107.92 | 81.31 | 14.04 | 37.69 | 4.34 |
| Stops [stops/h] | 166.11 | 173.13 | 33.93 | 47.64 | 273.73 | 263.13 | 22.82 | 170.53 | 126.72 | 104.72 | 216.57 | 23.26 |
| Fuel consumption [US gal/h] | 4.66 | 5.48 | 1.09 | 1.77 | 10.79 | 10.35 | 0.81 | 6.49 | 4.86 | 2.52 | 5.36 | 0.58 |
| CO [g/h] | 325.47 | 383.01 | 76.15 | 124.02 | 754.48 | 723.65 | 56.44 | 453.46 | 339.69 | 176.48 | 374.64 | 40.73 |
| NOx [g/h] | 63.32 | 74.52 | 14.82 | 24.13 | 146.79 | 140.80 | 10.98 | 88.23 | 66.09 | 34.34 | 72.89 | 7.92 |
| VOC [g/h] | 75.43 | 88.77 | 17.65 | 28.74 | 174.86 | 167.71 | 13.08 | 105.09 | 78.73 | 40.90 | 86.83 | 9.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.28 | 20.28 | 20.28 | 20.28 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.806 | 2.509 | 2.486 | 2.538 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1057 | 1057 | 1057 | 1057 |
| d_b, Bicycle Delay [s] | 6.74 | 6.74 | 6.74 | 6.74 |
| l_b,int, Bicycle LOS Score for Intersection | 2.055 | 2.207 | 2.236 | 2.008 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.831 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 587 | 465 | 0 | 0 | 325 | 540 | 0 | 0 | 0 | 170 | 0 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 587 | 465 | 0 | 0 | 325 | 540 | 0 | 0 | 0 | 170 | 0 | 29 |
| Peak Hour Factor | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 1.0000 | 0.8600 | 1.0000 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 171 | 135 | 0 | 0 | 94 | 157 | 0 | 0 | 0 | 49 | 0 | 8 |
| Total Analysis Volume [veh/h] | 683 | 541 | 0 | 0 | 378 | 628 | 0 | 0 | 0 | 198 | 0 | 34 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 101 | 101 | 101 | 101 | | 101 | 101 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 25 | 74 | 43 | 43 | | 14 | 14 |
| g / C, Green / Cycle | 0.25 | 0.73 | 0.43 | 0.43 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.15 | 0.20 | 0.40 | | 0.11 | 0.02 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 682 | 2607 | 801 | 672 | | 252 | 221 |
| d1, Uniform Delay [s] | 38.20 | 4.34 | 20.81 | 27.65 | | 42.12 | 38.29 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.39 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 10.26 | 0.07 | 0.81 | 18.25 | | 10.96 | 0.69 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.00 | 0.21 | 0.47 | 0.93 | | 0.79 | 0.15 |
| d, Delay for Lane Group [s/veh] | 48.46 | 4.42 | 21.61 | 45.90 | | 53.08 | 38.98 |
| Lane Group LOS | F | A | C | D | | D | D |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 8.94 | 1.31 | 6.12 | 16.52 | | 5.26 | 0.74 |
| 50th-Percentile Queue Length [ft/ln] | 223.56 | 32.65 | 152.97 | 413.08 | | 131.41 | 18.58 |
| 95th-Percentile Queue Length [veh/ln] | 13.86 | 2.35 | 10.18 | 23.19 | | 9.02 | 1.34 |
| 95th-Percentile Queue Length [ft/ln] | 346.56 | 58.77 | 254.39 | 579.74 | | 225.41 | 33.44 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.46 | 4.42 | 0.00 | 0.00 | 21.61 | 45.90 | 0.00 | 0.00 | 0.00 | 53.08 | 0.00 | 38.98 |
| Movement LOS | F | A | | | C | D | | | | D | | D |
| d_A, Approach Delay [s/veh] | 28.99 | | | 36.78 | | | 0.00 | | | 51.01 | | |
| Approach LOS | C | | | D | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.25 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.831 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 73.83 | 58.48 | 75.56 | 125.53 | | 17.02 | 2.92 |
| Stops [stops/h] | 635.71 | 92.85 | 217.50 | 587.31 | | 186.84 | 26.41 |
| Fuel consumption [US gal/h] | 17.17 | 3.65 | 6.96 | 17.47 | | 6.18 | 0.86 |
| CO [g/h] | 1200.20 | 254.80 | 486.28 | 1221.23 | | 431.86 | 59.98 |
| NOx [g/h] | 233.51 | 49.58 | 94.61 | 237.61 | | 84.02 | 11.67 |
| VOC [g/h] | 278.16 | 59.05 | 112.70 | 283.03 | | 100.09 | 13.90 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 47.98 | 47.98 | 40.24 | 40.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.904 | 2.722 | 2.359 | 1.928 |
| Crosswalk LOS | C | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 889 | 889 | 0 | 592 |
| d_b, Bicycle Delay [s] | 15.64 | 15.65 | 50.64 | 25.08 |
| l_b,int, Bicycle LOS Score for Intersection | 2.569 | 2.390 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.591 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 872 | 92 | 16 | 512 | 0 | 158 | 0 | 342 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 872 | 92 | 16 | 512 | 0 | 158 | 0 | 342 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 240 | 25 | 4 | 141 | 0 | 43 | 0 | 94 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 958 | 101 | 18 | 563 | 0 | 174 | 0 | 376 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 53 | 53 | 2 | 61 | 26 | 26 | |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.02 | 0.61 | 0.26 | 0.26 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.29 | 0.01 | 0.16 | 0.05 | 0.24 | |
| s, saturation flow rate [veh/h] | 1877 | 1815 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 986 | 953 | 42 | 2171 | 910 | 422 | |
| d1, Uniform Delay [s] | 15.69 | 15.90 | 48.04 | 9.17 | 28.49 | 35.38 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.33 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 2.10 | 2.33 | 2.53 | 0.29 | 0.22 | 17.37 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.54 | 0.56 | 0.43 | 0.26 | 0.19 | 0.89 | |
| d, Delay for Lane Group [s/veh] | 17.79 | 18.24 | 50.57 | 9.46 | 28.70 | 52.75 | |
| Lane Group LOS | B | B | D | A | C | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 7.83 | 7.97 | 0.46 | 2.55 | 1.53 | 10.10 | |
| 50th-Percentile Queue Length [ft/ln] | 195.78 | 199.35 | 11.44 | 63.67 | 38.25 | 252.54 | |
| 95th-Percentile Queue Length [veh/ln] | 12.42 | 12.61 | 0.82 | 4.58 | 2.75 | 15.31 | |
| 95th-Percentile Queue Length [ft/ln] | 310.51 | 315.13 | 20.59 | 114.60 | 68.86 | 382.86 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.99 | 18.24 | 50.57 | 9.46 | 0.00 | 28.70 | 0.00 | 52.75 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | D | A | | C | | D | | | |
| d_A, Approach Delay [s/veh] | 18.01 | | | 10.73 | | | 45.14 | | | 0.00 | | |
| Approach LOS | B | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 22.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.591 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 35.14 | 35.14 | 1.95 | 60.86 | 20.68 | 44.69 | |
| Stops [stops/h] | 282.04 | 287.19 | 16.48 | 183.44 | 110.22 | 363.83 | |
| Fuel consumption [US gal/h] | 5.95 | 6.05 | 0.46 | 5.45 | 3.76 | 12.29 | |
| CO [g/h] | 415.62 | 422.56 | 31.93 | 381.02 | 262.50 | 858.98 | |
| NOx [g/h] | 80.87 | 82.22 | 6.21 | 74.13 | 51.07 | 167.13 | |
| VOC [g/h] | 96.33 | 97.93 | 7.40 | 88.30 | 60.84 | 199.08 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.766 | 2.787 | 2.273 | 1.778 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.433 | 2.039 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.019 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 0 | 8 | 4 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 0 | 8 | 4 | 0 |
| Peak Hour Factor | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 0 | 3 | 2 | 0 |
| Total Analysis Volume [veh/h] | 19 | 0 | 0 | 14 | 7 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.70 | 8.42 | 0.00 | 0.00 | 7.25 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 1.46 | 1.46 | 0.00 | 0.00 | 0.33 | 0.33 |
| d_A, Approach Delay [s/veh] | 8.70 | | 0.00 | | 7.25 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.40 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.020 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 19 | 12 | 243 | 597 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 19 | 12 | 243 | 597 | 12 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 5 | 3 | 68 | 168 | 3 |
| Total Analysis Volume [veh/h] | 6 | 21 | 13 | 273 | 671 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.03 | 0.01 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 17.40 | 10.90 | 9.04 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 0.16 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.12 | 4.12 | 1.09 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.35 | | 0.41 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.45 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.281 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 81 | 20 | 254 | 37 | 5 | 505 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 81 | 20 | 254 | 37 | 5 | 505 |
| Peak Hour Factor | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 7 | 84 | 12 | 2 | 166 |
| Total Analysis Volume [veh/h] | 107 | 26 | 334 | 49 | 7 | 664 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.28 | 0.03 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 18.25 | 13.04 | 0.00 | 0.00 | 8.11 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.31 | 1.31 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 32.84 | 32.84 | 0.00 | 0.00 | 0.45 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.23 | | 0.00 | | 0.08 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.98 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.461 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 0 | 40 | 2 | 3 | 2 | 2 | 147 | 128 | 25 | 381 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 0 | 40 | 2 | 3 | 2 | 2 | 147 | 128 | 25 | 381 | 0 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 0 | 13 | 1 | 1 | 1 | 1 | 48 | 42 | 8 | 124 | 0 |
| Total Analysis Volume [veh/h] | 165 | 0 | 52 | 3 | 4 | 3 | 3 | 191 | 166 | 32 | 495 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 13 | 4 | 1 | 18 | 18 | 5 | 22 |
| g / C, Green / Cycle | 0.23 | 0.23 | 0.08 | 0.02 | 0.32 | 0.32 | 0.09 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.03 | 0.01 | 0.00 | 0.05 | 0.10 | 0.02 | 0.26 |
| s, saturation flow rate [veh/h] | 1810 | 1519 | 1779 | 1738 | 3520 | 1603 | 1752 | 1873 |
| c, Capacity [veh/h] | 407 | 342 | 141 | 43 | 1138 | 518 | 155 | 726 |
| d1, Uniform Delay [s] | 18.64 | 17.54 | 24.04 | 26.89 | 13.66 | 14.41 | 23.86 | 14.38 |
| k, delay calibration | 0.04 | 0.04 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.24 | 0.08 | 0.45 | 0.26 | 0.15 | 0.75 | 0.24 | 2.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.15 | 0.07 | 0.07 | 0.17 | 0.32 | 0.21 | 0.68 |
| d, Delay for Lane Group [s/veh] | 18.88 | 17.62 | 24.48 | 27.14 | 13.80 | 15.16 | 24.10 | 16.81 |
| Lane Group LOS | B | B | C | C | B | B | C | B |
| Critical Lane Group | Yes | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.70 | 0.50 | 0.13 | 0.04 | 0.71 | 1.37 | 0.35 | 4.39 |
| 50th-Percentile Queue Length [ft/ln] | 42.59 | 12.61 | 3.33 | 0.94 | 17.74 | 34.17 | 8.79 | 109.68 |
| 95th-Percentile Queue Length [veh/ln] | 3.07 | 0.91 | 0.24 | 0.07 | 1.28 | 2.46 | 0.63 | 7.82 |
| 95th-Percentile Queue Length [ft/ln] | 76.67 | 22.70 | 6.00 | 1.69 | 31.92 | 61.50 | 15.82 | 195.56 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 18.88 | 18.88 | 17.62 | 24.48 | 24.48 | 24.48 | 27.14 | 13.80 | 15.16 | 24.10 | 16.81 | 16.81 |
| Movement LOS | B | B | B | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 18.58 | | | 24.48 | | | 14.54 | | | 17.25 | | |
| Approach LOS | B | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 16.70 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.461 | | | | | | | | | | | |

**Emissions**

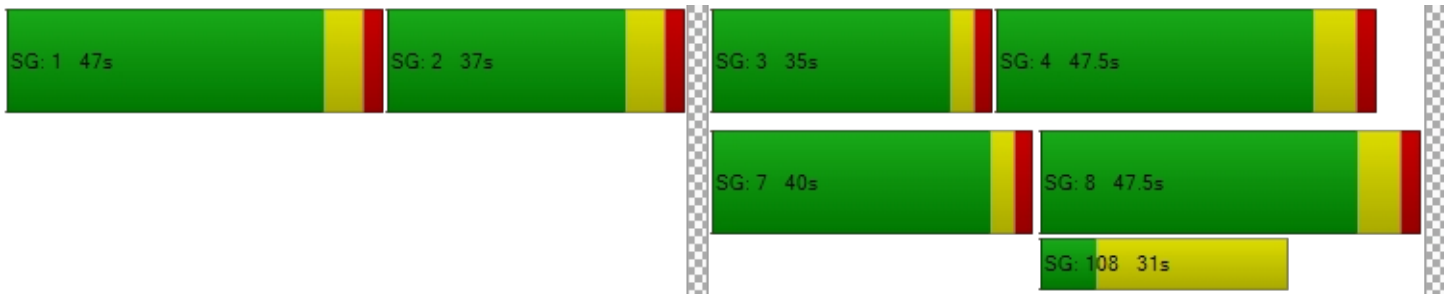
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 164.41 | 51.81 | 0.28 | 1.11 | 70.43 | 61.21 | 16.17 | 250.09 |
| Stops [stops/h] | 108.93 | 32.25 | 8.53 | 2.40 | 90.72 | 87.39 | 22.48 | 280.53 |
| Fuel consumption [US gal/h] | 8.00 | 2.50 | 0.11 | 0.09 | 4.29 | 3.90 | 1.04 | 14.37 |
| CO [g/h] | 559.49 | 174.58 | 7.59 | 6.32 | 299.72 | 272.86 | 72.93 | 1004.74 |
| NOx [g/h] | 108.86 | 33.97 | 1.48 | 1.23 | 58.32 | 53.09 | 14.19 | 195.49 |
| VOC [g/h] | 129.67 | 40.46 | 1.76 | 1.46 | 69.46 | 63.24 | 16.90 | 232.86 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.23 | 22.03 | 21.59 | 21.59 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.207 | 1.703 | 2.613 | 2.426 |
| Crosswalk LOS | B | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1421 | 1066 | 1421 | 1421 |
| d_b, Bicycle Delay [s] | 2.36 | 6.14 | 2.36 | 2.36 |
| l_b,int, Bicycle LOS Score for Intersection | 1.918 | 1.576 | 1.857 | 2.429 |
| Bicycle LOS | A | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.555 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 98 | 217 | 59 | 0 | 457 | 198 | 79 | 80 | 119 | 180 | 181 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 98 | 217 | 59 | 0 | 457 | 198 | 79 | 80 | 119 | 180 | 181 | 6 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 66 | 18 | 0 | 139 | 60 | 24 | 24 | 36 | 55 | 55 | 2 |
| Total Analysis Volume [veh/h] | 120 | 265 | 72 | 0 | 557 | 241 | 96 | 98 | 145 | 220 | 221 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 22 | 22 | 0 | 15 | 15 | 7 | 9 | 9 | 9 | 11 | 11 |
| g / C, Green / Cycle | 0.14 | 0.40 | 0.40 | 0.00 | 0.26 | 0.26 | 0.12 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.08 | 0.04 | 0.00 | 0.16 | 0.15 | 0.05 | 0.05 | 0.09 | 0.12 | 0.12 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1609 | 1810 | 3592 | 1593 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 240 | 1402 | 640 | 0 | 940 | 417 | 224 | 296 | 259 | 279 | 363 | 270 |
| d1, Uniform Delay [s] | 22.54 | 11.04 | 10.69 | 0.00 | 18.16 | 18.08 | 22.77 | 20.87 | 21.73 | 22.88 | 20.77 | 18.43 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.60 | 0.09 | 0.10 | 0.00 | 0.80 | 1.69 | 0.48 | 0.81 | 2.36 | 1.89 | 2.05 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.50 | 0.19 | 0.11 | 0.00 | 0.59 | 0.58 | 0.43 | 0.33 | 0.56 | 0.79 | 0.61 | 0.03 |
| d, Delay for Lane Group [s/veh] | 23.14 | 11.13 | 10.79 | 0.00 | 18.96 | 19.76 | 23.25 | 21.68 | 24.09 | 24.77 | 22.82 | 18.48 |
| Lane Group LOS | C | B | B | A | B | B | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.29 | 0.82 | 0.44 | 0.00 | 2.65 | 2.39 | 1.12 | 1.12 | 1.79 | 2.56 | 2.47 | 0.07 |
| 50th-Percentile Queue Length [ft/ln] | 32.20 | 20.53 | 11.04 | 0.00 | 66.37 | 59.81 | 28.08 | 28.04 | 44.87 | 63.96 | 61.70 | 1.68 |
| 95th-Percentile Queue Length [veh/ln] | 2.32 | 1.48 | 0.79 | 0.00 | 4.78 | 4.31 | 2.02 | 2.02 | 3.23 | 4.61 | 4.44 | 0.12 |
| 95th-Percentile Queue Length [ft/ln] | 57.96 | 36.96 | 19.87 | 0.00 | 119.47 | 107.65 | 50.54 | 50.47 | 80.77 | 115.13 | 111.06 | 3.02 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.14 | 11.13 | 10.79 | 0.00 | 18.96 | 19.76 | 23.25 | 21.68 | 24.09 | 24.77 | 22.82 | 18.48 |
| Movement LOS | C | B | B | A | B | B | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 14.23 | | | 19.20 | | | 23.15 | | | 23.71 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 19.74 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.555 | | | | | | | | | | | |

**Emissions**

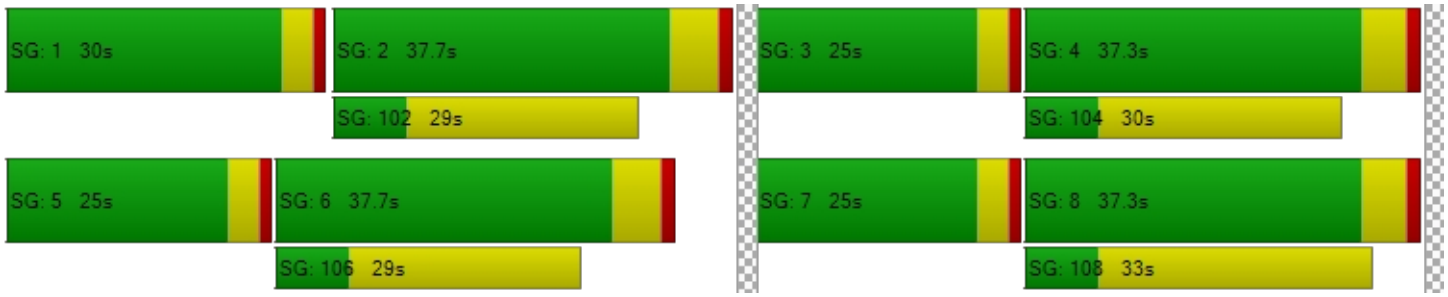
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 54.93 | 121.30 | 32.96 | 0.00 | 555.02 | 240.14 | 96.16 | 98.16 | 145.24 | 110.35 | 110.85 | 3.51 |
| Stops [stops/h] | 82.51 | 105.24 | 28.28 | 0.00 | 340.16 | 153.26 | 71.95 | 71.85 | 114.99 | 163.89 | 158.10 | 4.30 |
| Fuel consumption [US gal/h] | 3.67 | 6.28 | 1.70 | 0.00 | 25.96 | 11.36 | 4.81 | 4.87 | 7.32 | 6.93 | 6.79 | 0.20 |
| CO [g/h] | 256.62 | 438.82 | 118.55 | 0.00 | 1814.42 | 794.33 | 336.23 | 340.42 | 512.01 | 484.37 | 474.76 | 13.99 |
| NOx [g/h] | 49.93 | 85.38 | 23.07 | 0.00 | 353.02 | 154.55 | 65.42 | 66.23 | 99.62 | 94.24 | 92.37 | 2.72 |
| VOC [g/h] | 59.47 | 101.70 | 27.47 | 0.00 | 420.51 | 184.09 | 77.93 | 78.90 | 118.66 | 112.26 | 110.03 | 3.24 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.17 | 18.17 | 18.17 | 18.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.800 | 2.742 | 2.329 | 2.331 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1139 | 1139 | 1139 | 1139 |
| d_b, Bicycle Delay [s] | 5.21 | 5.21 | 5.21 | 5.21 |
| l_b,int, Bicycle LOS Score for Intersection | 1.937 | 2.218 | 2.119 | 2.299 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 8.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 150 | 299 | 269 | 89 | 655 | 77 | 20 | 35 | 108 | 231 | 37 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 150 | 299 | 269 | 89 | 655 | 77 | 20 | 35 | 108 | 231 | 37 | 79 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 82 | 74 | 24 | 180 | 21 | 5 | 10 | 30 | 63 | 10 | 22 |
| Total Analysis Volume [veh/h] | 165 | 329 | 296 | 98 | 720 | 85 | 22 | 38 | 119 | 254 | 41 | 87 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 164 | | | 472 | | | 1094 | | | 539 | | |
| Exiting Flow Rate [veh/h] | 1113 | | | 458 | | | 294 | | | 442 | | |
| Demand Flow Rate [veh/h] | 150 | 299 | 269 | 89 | 655 | 77 | 20 | 35 | 108 | 231 | 37 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 165 | 329 | 296 | 98 | 720 | 85 | 22 | 38 | 119 | 254 | 41 | 87 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.96 | 0.98 | 0.99 | 0.96 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 388 | 435 | 432 | 485 | 63 | 121 | 210 | 184 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1224 | 1224 | 875 | 951 | 494 | 561 | 823 | 898 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1171 | 1177 | 861 | 939 | 476 | 556 | 795 | 878 |
| X, volume / capacity | 0.32 | 0.36 | 0.49 | 0.51 | 0.13 | 0.21 | 0.25 | 0.20 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 1.37 | 1.63 | 2.78 | 2.97 | 0.43 | 0.81 | 1.01 | 0.76 |
| 95th-Percentile Queue Length [ft] | 34.37 | 40.72 | 69.49 | 74.17 | 10.73 | 20.16 | 25.31 | 19.12 |
| Approach Delay [s/veh] | 6.31 | | 10.47 | | 9.31 | | 6.80 | |
| Approach LOS | A | | B | | A | | A | |
| Intersection Delay [s/veh] | 8.30 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.541 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 574 | 949 | 0 | 423 | 559 | 0 | 0 | 0 | 69 | 0 | 114 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 574 | 949 | 0 | 423 | 559 | 0 | 0 | 0 | 69 | 0 | 114 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 159 | 264 | 0 | 118 | 155 | 0 | 0 | 0 | 19 | 0 | 32 |
| Total Analysis Volume [veh/h] | 0 | 638 | 1054 | 0 | 470 | 621 | 0 | 0 | 0 | 77 | 0 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 43 | 43 | 43 | | 43 | 43 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 23 | 23 | 23 | | 7 | 7 |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.53 | | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.13 | 0.39 | | 0.04 | 0.08 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 1891 | 1888 | 859 | | 303 | 273 |
| d1, Uniform Delay [s] | 5.71 | 5.40 | 7.62 | | 15.41 | 16.02 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.20 | 0.13 | 2.17 | | 0.93 | 2.63 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.25 | 0.72 | | 0.25 | 0.47 |
| d, Delay for Lane Group [s/veh] | 5.91 | 5.53 | 9.79 | | 16.34 | 18.64 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.83 | 0.57 | 2.53 | | 0.55 | 1.00 |
| 50th-Percentile Queue Length [ft/ln] | 20.71 | 14.37 | 63.37 | | 13.71 | 25.12 |
| 95th-Percentile Queue Length [veh/ln] | 1.49 | 1.03 | 4.56 | | 0.99 | 1.81 |
| 95th-Percentile Queue Length [ft/ln] | 37.28 | 25.87 | 114.07 | | 24.68 | 45.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.91 | 0.00 | 0.00 | 5.53 | 9.79 | 0.00 | 0.00 | 0.00 | 16.34 | 0.00 | 18.64 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 2.38 | | | 7.95 | | | 0.00 | | | 17.78 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 7.15 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.541 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 72.98 | 46.37 | 61.27 | | 5.45 | 8.98 |
| Stops [stops/h] | 139.32 | 96.66 | 213.15 | | 46.11 | 84.48 |
| Fuel consumption [US gal/h] | 5.00 | 3.32 | 5.99 | | 1.29 | 2.35 |
| CO [g/h] | 349.57 | 232.08 | 418.50 | | 90.51 | 164.37 |
| NOx [g/h] | 68.01 | 45.16 | 81.42 | | 17.61 | 31.98 |
| VOC [g/h] | 81.02 | 53.79 | 96.99 | | 20.98 | 38.10 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.42 | 18.42 | 11.82 | 11.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.621 | 2.817 | 1.974 | 2.018 |
| Crosswalk LOS | B | C | A | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1635 | 1635 | 0 | 934 |
| d_b, Bicycle Delay [s] | 0.71 | 0.71 | 21.41 | 6.08 |
| l_b,int, Bicycle LOS Score for Intersection | 2.086 | 2.460 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 67.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.960 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1310 | 24 | 28 | 472 | 0 | 190 | 0 | 693 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1310 | 24 | 28 | 472 | 0 | 190 | 0 | 693 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 356 | 7 | 8 | 128 | 0 | 52 | 0 | 188 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1424 | 26 | 30 | 513 | 0 | 207 | 0 | 753 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 106 | 106 | 106 | 106 | 106 | 106 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 44 | 44 | 4 | 53 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.50 | 0.38 | 0.38 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.39 | 0.39 | 0.02 | 0.14 | 0.12 | 0.47 | |
| s, saturation flow rate [veh/h] | 1873 | 1861 | 1758 | 3580 | 1749 | 1597 | |
| c, Capacity [veh/h] | 781 | 776 | 60 | 1808 | 660 | 602 | |
| d1, Uniform Delay [s] | 29.40 | 29.52 | 50.33 | 15.16 | 23.34 | 33.04 | |
| k, delay calibration | 0.39 | 0.40 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 15.69 | 16.61 | 2.37 | 0.15 | 0.58 | 125.98 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.93 | 0.93 | 0.50 | 0.28 | 0.31 | 1.25 | |
| d, Delay for Lane Group [s/veh] | 45.08 | 46.13 | 52.70 | 15.32 | 23.92 | 159.01 | |
| Lane Group LOS | D | D | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 19.48 | 19.73 | 0.80 | 3.34 | 3.46 | 34.91 | |
| 50th-Percentile Queue Length [ft/ln] | 487.12 | 493.18 | 19.97 | 83.43 | 86.60 | 872.65 | |
| 95th-Percentile Queue Length [veh/ln] | 26.72 | 27.01 | 1.44 | 6.01 | 6.24 | 51.33 | |
| 95th-Percentile Queue Length [ft/ln] | 668.10 | 675.28 | 35.95 | 150.17 | 155.88 | 1283.23 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 45.60 | 46.13 | 52.70 | 15.32 | 0.00 | 23.92 | 0.00 | 159.01 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | D | D | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 45.60 | | | 17.38 | | | 129.88 | | | 0.00 | | |
| Approach LOS | D | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 67.81 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.960 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 58.73 | 58.73 | 3.43 | 58.68 | 16.19 | 58.88 | |
| Stops [stops/h] | 661.92 | 670.14 | 27.14 | 226.73 | 117.68 | 1185.79 | |
| Fuel consumption [US gal/h] | 16.89 | 17.15 | 0.78 | 6.43 | 3.73 | 48.36 | |
| CO [g/h] | 1180.90 | 1198.78 | 54.30 | 449.43 | 261.06 | 3380.18 | |
| NOx [g/h] | 229.76 | 233.24 | 10.56 | 87.44 | 50.79 | 657.66 | |
| VOC [g/h] | 273.69 | 277.83 | 12.58 | 104.16 | 60.50 | 783.39 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.74 | 49.74 | 42.56 | 42.56 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.138 | 2.997 | 2.581 | 1.750 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 849 | 661 | 755 | 0 |
| d_b, Bicycle Delay [s] | 17.54 | 23.77 | 20.54 | 52.99 |
| l_b,int, Bicycle LOS Score for Intersection | 2.756 | 2.008 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.192 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 64 | 0 | 19 | 0 | 0 | 1 | 8 | 152 | 32 | 9 | 333 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 64 | 0 | 19 | 0 | 0 | 1 | 8 | 152 | 32 | 9 | 333 | 0 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 0 | 6 | 0 | 0 | 0 | 3 | 51 | 11 | 3 | 111 | 0 |
| Total Analysis Volume [veh/h] | 85 | 0 | 25 | 0 | 0 | 1 | 11 | 203 | 43 | 12 | 444 | 0 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.19 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 14.62 | 16.73 | 10.60 | 14.58 | 15.55 | 9.58 | 8.23 | 0.00 | 0.00 | 7.73 | 0.00 | 0.00 |
| Movement LOS | B | C | B | B | C | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.71 | 0.71 | 0.71 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 17.63 | 17.63 | 17.63 | 0.10 | 0.10 | 0.10 | 0.74 | 0.00 | 0.00 | 0.68 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.71 | | | 9.58 | | | 0.35 | | | 0.20 | | |
| Approach LOS | B | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 2.06 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 9.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.425 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 7 | 3 | 1 | 1 | 3 | 325 | 117 | 2 | 2 | 0 | 4 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 3 | 1 | 1 | 3 | 325 | 117 | 2 | 2 | 0 | 4 | 1 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 0 | 0 | 1 | 100 | 36 | 1 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 9 | 4 | 1 | 1 | 4 | 401 | 144 | 2 | 2 | 0 | 5 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 747 | 956 | 723 | 736 |
| Degree of Utilization, x | 0.02 | 0.42 | 0.20 | 0.01 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.06 | 2.15 | 0.76 | 0.02 |
| 95th-Percentile Queue Length [ft] | 1.43 | 53.69 | 19.11 | 0.62 |
| Approach Delay [s/veh] | 7.91 | 9.52 | 9.26 | 7.94 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 9.39 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.366 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 134 | 11 | 0 | 120 | 48 | 5 | 206 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 134 | 11 | 0 | 120 | 48 | 5 | 206 |
| Peak Hour Factor | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 4 | 0 | 41 | 16 | 2 | 71 |
| Total Analysis Volume [veh/h] | 184 | 15 | 0 | 164 | 66 | 7 | 282 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 9 | 9 | 0 | 9 |
| g / C, Green / Cycle | 0.27 | 0.27 | 0.00 | 0.30 | 0.30 | 0.02 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.01 | 0.00 | 0.05 | 0.04 | 0.00 | 0.15 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 1900 |
| c, Capacity [veh/h] | 474 | 433 | 1 | 1058 | 476 | 30 | 610 |
| d1, Uniform Delay [s] | 8.74 | 7.91 | 0.00 | 7.42 | 7.38 | 14.19 | 7.92 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.01 | 0.00 | 0.09 | 0.18 | 1.42 | 0.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.39 | 0.03 | 0.00 | 0.15 | 0.14 | 0.23 | 0.46 |
| d, Delay for Lane Group [s/veh] | 8.94 | 7.92 | 0.00 | 7.52 | 7.57 | 15.60 | 8.68 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.65 | 0.05 | 0.00 | 0.17 | 0.15 | 0.05 | 0.99 |
| 50th-Percentile Queue Length [ft/ln] | 16.22 | 1.18 | 0.00 | 4.28 | 3.75 | 1.19 | 24.82 |
| 95th-Percentile Queue Length [veh/ln] | 1.17 | 0.09 | 0.00 | 0.31 | 0.27 | 0.09 | 1.79 |
| 95th-Percentile Queue Length [ft/ln] | 29.19 | 2.13 | 0.00 | 7.71 | 6.76 | 2.14 | 44.68 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.94 | 7.92 | 0.00 | 7.52 | 7.57 | 15.60 | 8.68 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 8.86 | | 7.53 | | | 8.84 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.43 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.366 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 137.70 | 11.23 | 0.00 | 82.05 | 33.02 | 9.09 | 366.09 |
| Stops [stops/h] | 80.29 | 5.86 | 0.00 | 42.40 | 18.59 | 5.89 | 122.89 |
| Fuel consumption [US gal/h] | 6.45 | 0.52 | 0.00 | 3.65 | 1.49 | 0.43 | 16.25 |
| CO [g/h] | 450.65 | 36.26 | 0.00 | 255.09 | 104.35 | 29.98 | 1135.69 |
| NOx [g/h] | 87.68 | 7.05 | 0.00 | 49.63 | 20.30 | 5.83 | 220.96 |
| VOC [g/h] | 104.44 | 8.40 | 0.00 | 59.12 | 24.18 | 6.95 | 263.21 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.62 | 11.08 | 11.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.955 | 2.480 | 2.199 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1513 | 2200 | 2200 |
| d_b, Bicycle Delay [s] | 0.86 | 0.15 | 0.15 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.749 | 2.036 |
| Bicycle LOS | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 75.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.129 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 569 | 8 | 12 | 51 | 11 | 130 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 569 | 8 | 12 | 51 | 11 | 130 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 176 | 2 | 4 | 16 | 3 | 40 |
| Total Analysis Volume [veh/h] | 702 | 10 | 15 | 63 | 14 | 160 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 702 | 788 | 491 | 535 | 617 |
| Degree of Utilization, x | 1.13 | 0.01 | 0.03 | 0.12 | 0.28 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 22.01 | 0.04 | 0.09 | 0.40 | 1.15 |
| 95th-Percentile Queue Length [ft] | 550.23 | 0.96 | 2.36 | 9.94 | 28.87 |
| Approach Delay [s/veh] | 97.86 | | 10.31 | | 11.11 |
| Approach LOS | F | | B | | B |
| Intersection Delay [s/veh] | 75.12 | | | | |
| Intersection LOS | F | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 46.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.656 |

**Intersection Setup**

| Name | SR 168 | | | SR 168 | | | Owen Mountain | | | Tollhouse | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 | 415.00 | 100.00 | 415.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | SR 168 | | | SR 168 | | | Owen Mountain | | | Tollhouse | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 136 | 204 | 51 | 12 | 591 | 2 | 4 | 43 | 574 | 124 | 23 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 | 0.00 | 4.70 | 1.00 | 2.40 | 17.40 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 287 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 136 | 204 | 51 | 12 | 591 | 2 | 4 | 43 | 287 | 124 | 23 | 5 |
| Peak Hour Factor | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 65 | 16 | 4 | 189 | 1 | 1 | 14 | 92 | 40 | 7 | 2 |
| Total Analysis Volume [veh/h] | 174 | 262 | 65 | 15 | 758 | 3 | 5 | 55 | 368 | 159 | 29 | 6 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 4 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 40 | 0 | 15 | 40 | 0 | 15 | 30 | 30 | 15 | 20 | 0 |
| Amber [s] | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 4.8 | 0.0 |
| All red [s] | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 | 3.6 | 2.4 | 2.4 | 3.6 | 2.4 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 61 | 61 | 0 | 61 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 | 6.0 | 5.2 | 5.2 | 6.0 | 5.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 18 | 18 | 10 | 18 | 0 |
| Vehicle Extension [s] | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 5.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| L, Total Lost Time per Cycle [s] | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 |
| g_i, Effective Green Time [s] | 10 | 39 | 39 | 4 | 33 | 33 | 1 | 28 | 28 | 12 | 39 | 39 |
| g / C, Green / Cycle | 0.09 | 0.35 | 0.35 | 0.03 | 0.29 | 0.29 | 0.01 | 0.25 | 0.25 | 0.11 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.08 | 0.04 | 0.01 | 0.21 | 0.00 | 0.00 | 0.03 | 0.23 | 0.09 | 0.01 | 0.00 |
| s, saturation flow rate [veh/h] | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 | 1810 | 1829 | 1602 | 1775 | 3120 | 1589 |
| c, Capacity [veh/h] | 286 | 1130 | 542 | 57 | 1037 | 464 | 24 | 458 | 401 | 189 | 1072 | 546 |
| d1, Uniform Delay [s] | 49.85 | 26.37 | 25.31 | 53.43 | 36.16 | 28.51 | 55.38 | 32.86 | 41.38 | 49.73 | 24.66 | 24.53 |
| k, delay calibration | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 | 0.11 | 0.31 | 0.40 | 0.11 | 0.28 | 0.28 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.10 | 0.67 | 0.63 | 2.43 | 6.22 | 0.04 | 4.27 | 0.34 | 24.38 | 9.59 | 0.03 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.61 | 0.23 | 0.12 | 0.26 | 0.73 | 0.01 | 0.21 | 0.12 | 0.92 | 0.84 | 0.03 | 0.01 |
| d, Delay for Lane Group [s/veh] | 51.95 | 27.04 | 25.94 | 55.87 | 42.39 | 28.54 | 59.65 | 33.20 | 65.76 | 59.31 | 24.69 | 24.55 |
| Lane Group LOS | D | C | C | E | D | C | E | C | E | E | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.46 | 2.62 | 1.29 | 0.45 | 10.24 | 0.06 | 0.17 | 1.22 | 12.61 | 4.91 | 0.26 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 61.39 | 65.58 | 32.34 | 11.37 | 256.05 | 1.57 | 4.24 | 30.43 | 315.21 | 122.74 | 6.60 | 2.75 |
| 95th-Percentile Queue Length [veh/ln] | 4.42 | 4.72 | 2.33 | 0.82 | 15.49 | 0.11 | 0.31 | 2.19 | 18.43 | 8.54 | 0.48 | 0.20 |
| 95th-Percentile Queue Length [ft/ln] | 110.50 | 118.05 | 58.22 | 20.47 | 387.26 | 2.83 | 7.63 | 54.77 | 460.79 | 213.59 | 11.88 | 4.96 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.95 | 27.04 | 25.94 | 55.87 | 42.39 | 28.54 | 59.65 | 33.20 | 65.76 | 59.31 | 24.69 | 24.55 |
| Movement LOS | D | C | C | E | D | C | E | C | E | E | C | C |
| d_A, Approach Delay [s/veh] | 35.55 | | | 42.59 | | | 61.51 | | | 53.06 | | |
| Approach LOS | D | | | D | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 46.07 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.656 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 24.05 | 36.21 | 8.98 | 18.71 | 945.39 | 3.74 | 1.37 | 15.08 | 100.90 | 13.64 | 2.49 | 0.51 |
| Stops [stops/h] | 156.11 | 166.78 | 41.13 | 14.46 | 651.14 | 2.00 | 5.39 | 38.69 | 400.80 | 156.07 | 16.79 | 3.50 |
| Fuel consumption [US gal/h] | 3.69 | 3.85 | 0.94 | 1.02 | 49.05 | 0.18 | 0.15 | 1.21 | 11.29 | 3.34 | 0.34 | 0.07 |
| CO [g/h] | 258.05 | 269.36 | 65.71 | 71.34 | 3428.84 | 12.76 | 10.27 | 84.31 | 789.35 | 233.66 | 23.83 | 4.93 |
| NOx [g/h] | 50.21 | 52.41 | 12.79 | 13.88 | 667.13 | 2.48 | 2.00 | 16.40 | 153.58 | 45.46 | 4.64 | 0.96 |
| VOC [g/h] | 59.80 | 62.43 | 15.23 | 16.53 | 794.67 | 2.96 | 2.38 | 19.54 | 182.94 | 54.15 | 5.52 | 1.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.16 | 46.16 | 46.16 | 46.16 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.894 | 2.634 | 2.899 | 2.375 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 706 | 706 | 530 | 353 |
| d_b, Bicycle Delay [s] | 23.69 | 23.69 | 30.60 | 38.39 |
| l_b,int, Bicycle LOS Score for Intersection | 1.973 | 2.200 | 2.739 | 1.720 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.355 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 58 | 2 | 49 | 46 | 200 | 43 | 163 | 13 | 2 | 338 | 89 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 58 | 2 | 49 | 46 | 200 | 43 | 163 | 13 | 2 | 338 | 89 |
| Peak Hour Factor | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 17 | 1 | 15 | 14 | 60 | 13 | 49 | 4 | 1 | 101 | 26 |
| Total Analysis Volume [veh/h] | 36 | 69 | 2 | 58 | 55 | 238 | 51 | 194 | 15 | 2 | 402 | 106 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 16 | 7 | 18 | 18 | 6 | 19 | 19 | 0 | 13 | 13 |
| g / C, Green / Cycle | 0.07 | 0.22 | 0.10 | 0.25 | 0.25 | 0.09 | 0.26 | 0.26 | 0.01 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.04 | 0.02 | 0.03 | 0.15 | 0.02 | 0.06 | 0.01 | 0.00 | 0.11 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1762 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 127 | 396 | 333 | 464 | 400 | 304 | 902 | 419 | 11 | 643 | 505 |
| d1, Uniform Delay [s] | 31.74 | 22.63 | 30.01 | 21.02 | 23.94 | 30.39 | 20.99 | 20.00 | 35.74 | 27.38 | 25.26 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.45 | 0.74 | 0.09 | 0.65 | 7.86 | 0.10 | 0.25 | 0.07 | 3.06 | 2.14 | 0.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.28 | 0.18 | 0.17 | 0.12 | 0.60 | 0.17 | 0.22 | 0.04 | 0.19 | 0.63 | 0.21 |
| d, Delay for Lane Group [s/veh] | 32.19 | 23.37 | 30.11 | 21.66 | 31.80 | 30.49 | 21.24 | 20.07 | 38.80 | 29.52 | 25.70 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.59 | 1.02 | 0.43 | 0.72 | 4.02 | 0.40 | 1.26 | 0.19 | 0.04 | 2.90 | 0.69 |
| 50th-Percentile Queue Length [ft/ln] | 14.83 | 25.41 | 10.66 | 18.02 | 100.40 | 10.04 | 31.52 | 4.74 | 1.00 | 72.50 | 17.24 |
| 95th-Percentile Queue Length [veh/ln] | 1.07 | 1.83 | 0.77 | 1.30 | 7.23 | 0.72 | 2.27 | 0.34 | 0.07 | 5.22 | 1.24 |
| 95th-Percentile Queue Length [ft/ln] | 26.69 | 45.73 | 19.19 | 32.43 | 180.73 | 18.07 | 56.73 | 8.54 | 1.80 | 130.49 | 31.03 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.19 | 23.37 | 23.37 | 30.11 | 21.66 | 31.80 | 30.49 | 21.24 | 20.07 | 38.80 | 29.52 | 25.70 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 26.34 | | | 29.93 | | | 22.99 | | | 28.76 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.66 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.355 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.67 | 5.26 | 75.29 | 71.40 | 308.97 | 63.61 | 241.96 | 18.71 | 0.35 | 69.53 | 18.33 |
| Stops [stops/h] | 29.61 | 50.73 | 42.59 | 35.98 | 200.49 | 40.10 | 125.86 | 9.47 | 2.00 | 289.52 | 68.85 |
| Fuel consumption [US gal/h] | 0.51 | 0.83 | 3.53 | 3.19 | 14.96 | 3.16 | 11.49 | 0.88 | 0.08 | 12.40 | 2.99 |
| CO [g/h] | 35.59 | 58.33 | 246.78 | 222.69 | 1046.03 | 220.64 | 803.46 | 61.77 | 5.59 | 867.06 | 209.27 |
| NOx [g/h] | 6.92 | 11.35 | 48.02 | 43.33 | 203.52 | 42.93 | 156.32 | 12.02 | 1.09 | 168.70 | 40.72 |
| VOC [g/h] | 8.25 | 13.52 | 57.19 | 51.61 | 242.43 | 51.14 | 186.21 | 14.32 | 1.30 | 200.95 | 48.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.90 | 25.90 | 25.90 | 25.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.986 | 2.597 | 2.712 | 2.812 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 555 | 555 | 832 | 832 |
| d_b, Bicycle Delay [s] | 18.83 | 18.83 | 12.30 | 12.30 |
| l_b,int, Bicycle LOS Score for Intersection | 1.736 | 2.139 | 1.774 | 1.980 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Existing AM.pdf

Scenario 1 Existing AM
8/27/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 1 | Willow Ave & International Ave | 357 | 354 | 18 | 57 | 445 | 123 | 20 | 65 | 238 | 11 | 227 | 53 | 1968 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 2 | Willow Ave & Behymer Ave | 113 | 774 | 26 | 72 | 585 | 66 | 77 | 130 | 237 | 28 | 155 | 139 | 2402 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 3 | Willow Ave & Shepherd Ave | 143 | 592 | 88 | 172 | 804 | 50 | 59 | 221 | 102 | 37 | 239 | 163 | 2670 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 4 | Minnewawa Ave & International Ave | 283 | 174 | 0 | 0 | 293 | 8 | 2 | 0 | 99 | 0 | 1 | 0 | 860 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Minnewawa Ave & Behymer Ave | 88 | 209 | 19 | 152 | 217 | 4 | 3 | 139 | 59 | 19 | 232 | 255 | 1396 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | Minnewawa Ave & Shepherd Ave | 127 | 150 | 41 | 103 | 159 | 29 | 33 | 339 | 152 | 44 | 291 | 91 | 1559 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Clovis Ave & International Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 8 | Clovis Ave & Behymer Ave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Clovis Ave & Shepherd Ave | 80 | 59 | 86 | 19 | 71 | 67 | 32 | 337 | 118 | 109 | 294 | 48 | 1320 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Clovis Ave & Nees Ave | 70 | 294 | 20 | 70 | 416 | 42 | 30 | 306 | 194 | 35 | 363 | 180 | 2020 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 11 | Clovis Ave & Alluvial Ave | 127 | 282 | 61 | 126 | 576 | 34 | 13 | 269 | 153 | 44 | 407 | 89 | 2181 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 12 | Clovis Ave & Herndon Ave | 197 | 254 | 122 | 256 | 305 | 429 | 222 | 800 | 203 | 144 | 1166 | 230 | 4328 |

| ID | Intersection Name | Northbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Right | Thru | Right | |
| 13 | SR 168 EB Ramps & Herndon Ave | 457 | 472 | 746 | 224 | 1679 | 67 | 3645 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Right | Thru | Right | |
| 14 | SR 168 WB Ramps & Herndon Ave | 74 | 793 | 911 | 496 | 1560 | 615 | 4449 |

| ID | Intersection Name | Northbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Right | Left | Thru | |
| 15 | Behymer Ave & Sunnyside Ave | 5 | 5 | 310 | 5 | 5 | 510 | 840 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 16 | Sunnyside Ave & Shepherd Ave | 54 | 11 | 27 | 2 | 14 | 9 | 8 | 325 | 106 | 31 | 371 | 3 | 961 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 17 | Sunnyside Ave & Nees Ave | 137 | 57 | 17 | 22 | 115 | 34 | 12 | 269 | 85 | 25 | 367 | 14 | 1154 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 18 | Sunnyside Ave & Alluvial Ave | 127 | 147 | 19 | 39 | 148 | 117 | 115 | 255 | 123 | 42 | 462 | 81 | 1675 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 19 | Sunnyside Ave & Herndon Ave | 271 | 141 | 77 | 105 | 193 | 103 | 39 | 696 | 344 | 95 | 1151 | 84 | 3299 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 20 | Fowler Ave & Behymer Ave | 491 | 125 | 2 | 0 | 59 | 16 | 12 | 1 | 292 | 2 | 6 | 1 | 1007 |

| ID | Intersection Name | Northbound | | Southbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Left | Right | |
| 21 | Fowler Ave & Perrin Ave | 550 | 5 | 5 | 340 | 5 | 5 | 910 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 22 | Fowler Ave & Shepherd Ave | 141 | 92 | 34 | 185 | 125 | 18 | 20 | 281 | 51 | 36 | 279 | 370 | 1632 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 23 | Fowler Ave & Teague Ave | 3 | 164 | 7 | 19 | 238 | 10 | 4 | 6 | 6 | 17 | 8 | 30 | 512 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 24 | Fowler Ave & Nees Ave | 111 | 123 | 37 | 28 | 215 | 32 | 20 | 202 | 87 | 73 | 272 | 32 | 1232 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 25 | Fowler Ave & Alluvial Ave | 170 | 283 | 58 | 49 | 540 | 78 | 22 | 186 | 140 | 116 | 310 | 36 | 1988 |

| ID | Intersection Name | Northbound | | Southbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | Left | Right | |
| 26 | Fowler Ave & SR 168 WB Ramps | 587 | 465 | 325 | 540 | 170 | 29 | 2116 |

| ID | Intersection Name | Northbound | | Southbound | | Eastbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Left | Right | |
| 27 | Fowler Ave & SR 168 EB Ramps | 872 | 92 | 16 | 512 | 158 | 342 | 1992 |

| ID | Intersection Name | Northbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Right | Left | Thru | |
| 28 | Perrin Rd & Burgan Ave | 11 | 0 | 0 | 8 | 4 | 0 | 23 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 29 | Burgan Ave & Shepherd Ave | 5 | 19 | 12 | 243 | 597 | 12 | 888 |

| ID | Intersection Name | Northbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Right | Left | Thru | |
| 30 | Armstrong Ave & Shepherd Ave | 81 | 20 | 254 | 37 | 5 | 505 | 902 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 31 | Temperance Ave & Shepherd Ave | 127 | 0 | 40 | 2 | 3 | 2 | 2 | 147 | 128 | 25 | 381 | 0 | 857 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 32 | Nees Ave & Temperance Ave | 98 | 217 | 59 | 0 | 457 | 198 | 79 | 80 | 119 | 180 | 181 | 6 | 1674 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 33 | Temperance Ave & Alluvial Ave | 150 | 299 | 269 | 89 | 655 | 77 | 20 | 35 | 108 | 231 | 37 | 79 | 2049 |

| ID | Intersection Name | Northbound | | Southbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Thru | Right | Left | Right | |
| 34 | Temperance Ave & SR 168 WB Ramps | 574 | 949 | 423 | 559 | 69 | 114 | 2688 |

| ID | Intersection Name | Northbound | | Southbound | | Eastbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Left | Right | |
| 35 | Temperance Ave & SR 168 EB Ramps | 1310 | 24 | 28 | 472 | 190 | 693 | 2717 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 36 | Locan Ave & Shepherd Ave | 64 | 0 | 19 | 0 | 0 | 1 | 8 | 152 | 32 | 9 | 333 | 0 | 618 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 37 | Locan Ave & Nees Ave | 7 | 3 | 1 | 1 | 3 | 325 | 117 | 2 | 2 | 0 | 4 | 1 | 466 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 38 | Locan Ave & Owens Mountain Pkwy | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| ID | Intersection Name | Northbound | | Eastbound | | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | Left | Right | U-T | Thru | Right | Left | Thru | |
| 39 | De Wolf Ave & Shepherd Ave | 134 | 11 | 0 | 120 | 48 | 5 | 206 | 524 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | 569 | 8 | 12 | 51 | 11 | 130 | 781 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 41 | Owen Mountain Pkwy & SR 168 | 136 | 204 | 51 | 12 | 591 | 2 | 4 | 43 | 574 | 124 | 23 | 5 | 1769 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 42 | Shepherd Ave & SR 168 | 30 | 58 | 2 | 49 | 46 | 200 | 43 | 163 | 13 | 2 | 338 | 89 | 1033 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 43 | Shephed Ave & Project Access South | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| ID | Intersection Name | Northbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Right | Left | Thru | |
| 44 | Behymer Ave & Project Access North | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Existing PM.pdf

Scenario 2 Existing PM
8/27/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.441 | 19.8 | B |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.426 | 22.1 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Right | 0.450 | 25.6 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | WB Left | 0.014 | 30.3 | D |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | WB Thru | 1.033 | 56.7 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.466 | 17.6 | B |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.285 | 18.3 | B |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.497 | 19.3 | B |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.541 | 24.3 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.738 | 43.3 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.606 | 23.1 | C |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.530 | 11.9 | B |
| 15 | Behymer Ave & Sunnyside Ave | Two-way stop | HCM 7th Edition | NB Left | 0.014 | 15.4 | C |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.597 | 13.2 | B |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | WB Thru | 0.897 | 28.0 | D |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.454 | 18.6 | B |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.689 | 34.1 | C |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 0.910 | 28.5 | D |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.013 | 14.2 | B |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.377 | 16.9 | B |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | WB Left | 0.013 | 14.7 | B |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.591 | 15.4 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.491 | 17.4 | B |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.491 | 13.4 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.832 | 55.4 | E |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.007 | 8.6 | A |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Right | 0.015 | 9.6 | A |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.096 | 12.9 | B |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.284 | 14.2 | B |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | WB Left | 0.417 | 17.0 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 6.7 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.312 | 5.0 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.031 | 100.8 | F |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.068 | 12.3 | B |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | EB Left | 0.367 | 9.2 | A |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB U-T | 0.239 | 7.3 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | WB Right | 0.687 | 16.0 | C |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | EB Left | 0.480 | 31.6 | C |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.202 | 23.6 | C |
| 43 | Shephed Ave & Project Access South | Unknown | ? | | ? | ? | ? |
| 44 | Behymer Ave & Project Access North | Unknown | ? | | ? | ? | ? |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.441 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 215 | 454 | 14 | 64 | 276 | 94 | 15 | 56 | 218 | 6 | 85 | 66 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 215 | 454 | 14 | 64 | 276 | 94 | 15 | 56 | 218 | 6 | 85 | 66 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 129 | 4 | 18 | 78 | 27 | 4 | 16 | 62 | 2 | 24 | 19 |
| Total Analysis Volume [veh/h] | 244 | 516 | 16 | 73 | 314 | 107 | 17 | 64 | 248 | 7 | 97 | 75 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 8 | 14 | 14 | 5 | 11 | 11 | 2 | 12 | 12 | 1 | 10 | 10 |
| g / C, Green / Cycle | 0.15 | 0.27 | 0.27 | 0.10 | 0.21 | 0.21 | 0.03 | 0.22 | 0.22 | 0.01 | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.14 | 0.01 | 0.04 | 0.06 | 0.07 | 0.01 | 0.03 | 0.15 | 0.00 | 0.05 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 3618 | 1615 | 1810 | 5159 | 1615 | 1810 | 1900 | 1604 | 1810 | 1864 | 1615 |
| c, Capacity [veh/h] | 514 | 982 | 438 | 181 | 1065 | 334 | 62 | 424 | 357 | 27 | 359 | 311 |
| d1, Uniform Delay [s] | 20.86 | 16.49 | 14.28 | 22.48 | 17.86 | 17.97 | 25.10 | 16.65 | 19.03 | 25.94 | 18.32 | 18.21 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.25 | 1.42 | 0.11 | 0.54 | 0.50 | 1.78 | 0.89 | 0.39 | 5.60 | 1.81 | 0.69 | 0.68 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.53 | 0.04 | 0.40 | 0.29 | 0.32 | 0.28 | 0.15 | 0.69 | 0.26 | 0.27 | 0.24 |
| d, Delay for Lane Group [s/veh] | 21.12 | 17.91 | 14.39 | 23.02 | 18.36 | 19.75 | 25.99 | 17.04 | 24.63 | 27.75 | 19.00 | 18.89 |
| Lane Group LOS | C | B | B | C | B | B | C | B | C | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.17 | 2.29 | 0.13 | 0.75 | 0.93 | 1.07 | 0.20 | 0.57 | 2.88 | 0.10 | 0.99 | 0.77 |
| 50th-Percentile Queue Length [ft/ln] | 29.31 | 57.23 | 3.15 | 18.73 | 23.32 | 26.85 | 4.97 | 14.24 | 71.93 | 2.39 | 24.83 | 19.24 |
| 95th-Percentile Queue Length [veh/ln] | 2.11 | 4.12 | 0.23 | 1.35 | 1.68 | 1.93 | 0.36 | 1.03 | 5.18 | 0.17 | 1.79 | 1.39 |
| 95th-Percentile Queue Length [ft/ln] | 52.75 | 103.01 | 5.66 | 33.71 | 41.98 | 48.33 | 8.95 | 25.63 | 129.47 | 4.30 | 44.70 | 34.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.12 | 17.91 | 14.39 | 23.02 | 18.36 | 19.75 | 25.99 | 17.04 | 24.63 | 27.75 | 19.00 | 18.89 |
| Movement LOS | C | B | B | C | B | B | C | B | C | C | B | B |
| d_A, Approach Delay [s/veh] | 18.85 | | | 19.35 | | | 23.22 | | | 19.30 | | |
| Approach LOS | B | | | B | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.84 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.441 | | | | | | | | | | | |

**Emissions**

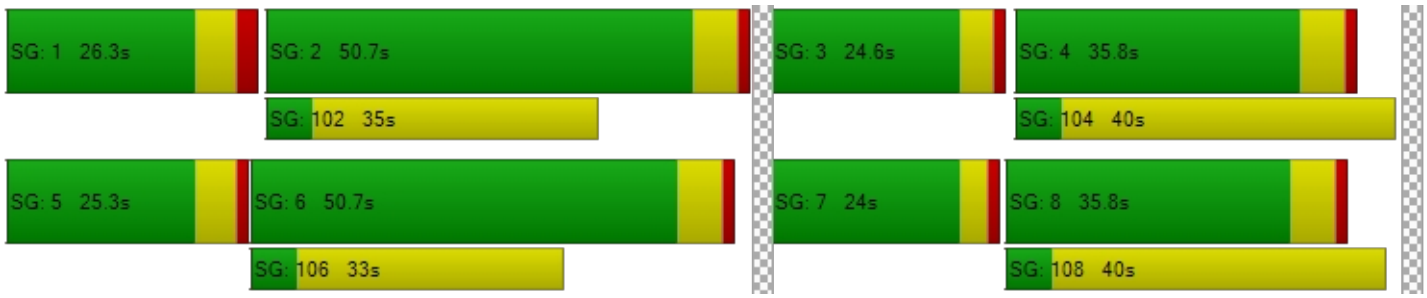
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 123.17 | 260.48 | 8.08 | 7.19 | 30.93 | 10.54 | 1.69 | 6.38 | 24.70 | 7.26 | 100.64 | 77.82 |
| Stops [stops/h] | 158.84 | 310.15 | 8.53 | 50.75 | 189.59 | 72.76 | 13.47 | 38.58 | 194.91 | 6.48 | 67.29 | 52.14 |
| Fuel consumption [US gal/h] | 7.61 | 15.36 | 0.45 | 1.36 | 5.12 | 1.90 | 0.32 | 0.92 | 4.51 | 0.37 | 4.89 | 3.78 |
| CO [g/h] | 532.05 | 1074.00 | 31.33 | 95.19 | 357.83 | 132.80 | 22.05 | 64.31 | 315.49 | 26.16 | 341.81 | 264.20 |
| NOx [g/h] | 103.52 | 208.96 | 6.10 | 18.52 | 69.62 | 25.84 | 4.29 | 12.51 | 61.38 | 5.09 | 66.50 | 51.40 |
| VOC [g/h] | 123.31 | 248.91 | 7.26 | 22.06 | 82.93 | 30.78 | 5.11 | 14.91 | 73.12 | 6.06 | 79.22 | 61.23 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.33 | 18.33 | 18.33 | 18.33 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.973 | 2.824 | 2.501 | 2.186 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1694 | 1694 | 1129 | 1129 |
| d_b, Bicycle Delay [s] | 0.62 | 0.62 | 5.04 | 5.04 |
| l_b,int, Bicycle LOS Score for Intersection | 2.200 | 1.831 | 2.102 | 1.855 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.426 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 99 | 684 | 46 | 90 | 492 | 47 | 23 | 82 | 118 | 42 | 137 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 99 | 684 | 46 | 90 | 492 | 47 | 23 | 82 | 118 | 42 | 137 | 86 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 186 | 13 | 24 | 134 | 13 | 6 | 22 | 32 | 11 | 37 | 23 |
| Total Analysis Volume [veh/h] | 108 | 743 | 50 | 98 | 535 | 51 | 25 | 89 | 128 | 46 | 149 | 93 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 20 | 20 | 7 | 20 | 20 | 3 | 12 | 12 | 5 | 12 |
| g / C, Green / Cycle | 0.11 | 0.30 | 0.30 | 0.10 | 0.30 | 0.30 | 0.05 | 0.18 | 0.18 | 0.07 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.14 | 0.03 | 0.05 | 0.10 | 0.03 | 0.01 | 0.05 | 0.08 | 0.03 | 0.14 |
| s, saturation flow rate [veh/h] | 1781 | 5176 | 1615 | 1810 | 5135 | 1615 | 1810 | 1882 | 1605 | 1810 | 1779 |
| c, Capacity [veh/h] | 189 | 1579 | 493 | 186 | 1549 | 487 | 82 | 346 | 295 | 127 | 327 |
| d1, Uniform Delay [s] | 27.78 | 18.41 | 16.27 | 27.80 | 17.78 | 16.44 | 30.16 | 22.83 | 23.64 | 28.96 | 25.16 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.02 | 0.71 | 0.29 | 0.87 | 0.43 | 0.30 | 0.77 | 0.47 | 1.22 | 0.64 | 7.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.57 | 0.47 | 0.10 | 0.53 | 0.35 | 0.10 | 0.30 | 0.26 | 0.43 | 0.36 | 0.74 |
| d, Delay for Lane Group [s/veh] | 28.80 | 19.12 | 16.56 | 28.67 | 18.21 | 16.75 | 30.93 | 23.30 | 24.85 | 29.60 | 32.28 |
| Lane Group LOS | C | B | B | C | B | B | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.48 | 2.64 | 0.49 | 1.33 | 1.82 | 0.51 | 0.37 | 1.11 | 1.69 | 0.68 | 3.98 |
| 50th-Percentile Queue Length [ft/ln] | 36.91 | 66.07 | 12.32 | 33.34 | 45.55 | 12.67 | 9.27 | 27.83 | 42.25 | 17.01 | 99.41 |
| 95th-Percentile Queue Length [veh/ln] | 2.66 | 4.76 | 0.89 | 2.40 | 3.28 | 0.91 | 0.67 | 2.00 | 3.04 | 1.22 | 7.16 |
| 95th-Percentile Queue Length [ft/ln] | 66.45 | 118.93 | 22.17 | 60.02 | 81.99 | 22.80 | 16.68 | 50.10 | 76.04 | 30.62 | 178.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 28.80 | 19.12 | 16.56 | 28.67 | 18.21 | 16.75 | 30.93 | 23.30 | 24.85 | 29.60 | 32.28 | 32.28 |
| Movement LOS | C | B | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 20.14 | | | 19.60 | | | 24.91 | | | 31.85 | | |
| Approach LOS | C | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.426 | | | | | | | | | | | |

**Emissions**

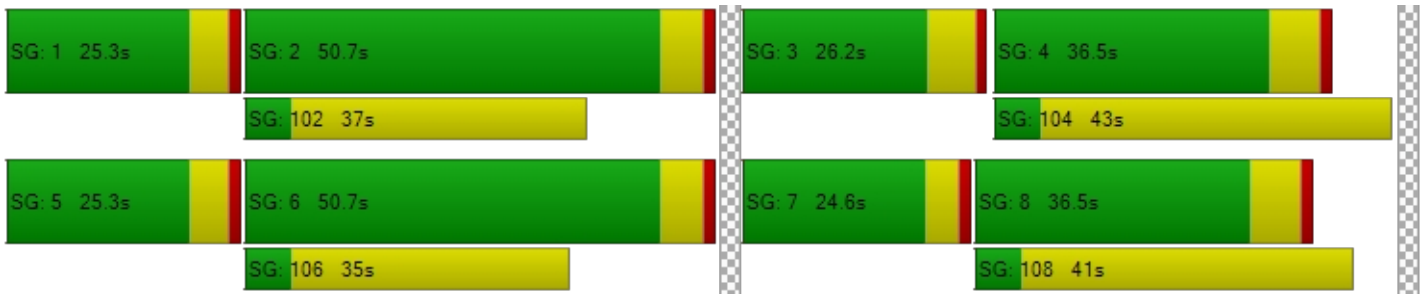
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 109.41 | 752.71 | 50.65 | 49.47 | 270.07 | 25.75 | 2.72 | 9.68 | 13.93 | 47.72 | 251.06 |
| Stops [stops/h] | 81.64 | 438.38 | 27.24 | 73.74 | 302.21 | 28.02 | 20.49 | 61.55 | 93.43 | 37.63 | 219.85 |
| Fuel consumption [US gal/h] | 5.55 | 34.83 | 2.28 | 3.36 | 15.67 | 1.47 | 0.46 | 1.37 | 2.06 | 2.45 | 13.14 |
| CO [g/h] | 387.96 | 2434.46 | 159.58 | 234.89 | 1095.02 | 102.48 | 31.88 | 96.01 | 144.28 | 171.22 | 918.45 |
| NOx [g/h] | 75.48 | 473.66 | 31.05 | 45.70 | 213.05 | 19.94 | 6.20 | 18.68 | 28.07 | 33.31 | 178.70 |
| VOC [g/h] | 89.91 | 564.21 | 36.98 | 54.44 | 253.78 | 23.75 | 7.39 | 22.25 | 33.44 | 39.68 | 212.86 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.18 | 24.18 | 24.18 | 24.18 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.038 | 3.024 | 2.295 | 2.096 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1382 | 1382 | 922 | 922 |
| d_b, Bicycle Delay [s] | 3.11 | 3.11 | 9.47 | 9.47 |
| l_b,int, Bicycle LOS Score for Intersection | 2.055 | 1.936 | 1.959 | 2.035 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.450 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 198 | 584 | 174 | 150 | 635 | 66 | 55 | 310 | 140 | 44 | 247 | 227 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 198 | 584 | 174 | 150 | 635 | 66 | 55 | 310 | 140 | 44 | 247 | 227 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 162 | 48 | 42 | 176 | 18 | 15 | 86 | 39 | 12 | 69 | 63 |
| Total Analysis Volume [veh/h] | 220 | 649 | 193 | 167 | 706 | 73 | 61 | 344 | 156 | 49 | 274 | 252 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 8 | 19 | 19 | 6 | 14 | 14 | 5 | 15 | 15 |
| g / C, Green / Cycle | 0.11 | 0.28 | 0.28 | 0.11 | 0.27 | 0.27 | 0.08 | 0.20 | 0.20 | 0.07 | 0.20 | 0.20 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.13 | 0.12 | 0.05 | 0.14 | 0.05 | 0.02 | 0.10 | 0.10 | 0.01 | 0.08 | 0.16 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1591 | 3514 | 3600 | 1585 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 387 | 1422 | 443 | 378 | 1398 | 434 | 280 | 710 | 312 | 248 | 741 | 331 |
| d1, Uniform Delay [s] | 30.26 | 21.52 | 21.39 | 29.95 | 21.98 | 19.86 | 30.91 | 25.55 | 25.58 | 31.40 | 24.52 | 26.85 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.49 | 0.74 | 2.19 | 0.30 | 0.92 | 0.59 | 0.14 | 1.21 | 2.90 | 0.14 | 0.42 | 4.94 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.57 | 0.46 | 0.44 | 0.44 | 0.50 | 0.17 | 0.22 | 0.48 | 0.50 | 0.20 | 0.37 | 0.76 |
| d, Delay for Lane Group [s/veh] | 30.75 | 22.27 | 23.57 | 30.25 | 22.90 | 20.45 | 31.05 | 26.76 | 28.48 | 31.54 | 24.94 | 31.79 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.65 | 2.72 | 2.59 | 1.24 | 3.02 | 0.89 | 0.46 | 2.43 | 2.35 | 0.37 | 1.82 | 4.04 |
| 50th-Percentile Queue Length [ft/ln] | 41.33 | 67.99 | 64.83 | 30.90 | 75.62 | 22.13 | 11.38 | 60.79 | 58.78 | 9.23 | 45.57 | 100.96 |
| 95th-Percentile Queue Length [veh/ln] | 2.98 | 4.90 | 4.67 | 2.22 | 5.44 | 1.59 | 0.82 | 4.38 | 4.23 | 0.66 | 3.28 | 7.27 |
| 95th-Percentile Queue Length [ft/ln] | 74.40 | 122.38 | 116.69 | 55.61 | 136.12 | 39.84 | 20.48 | 109.43 | 105.80 | 16.62 | 82.03 | 181.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.75 | 22.27 | 23.57 | 30.25 | 22.90 | 20.45 | 31.05 | 26.76 | 28.48 | 31.54 | 24.94 | 31.79 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 24.26 | | | 24.01 | | | 27.71 | | | 28.51 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.58 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.450 | | | | | | | | | | | |

**Emissions**

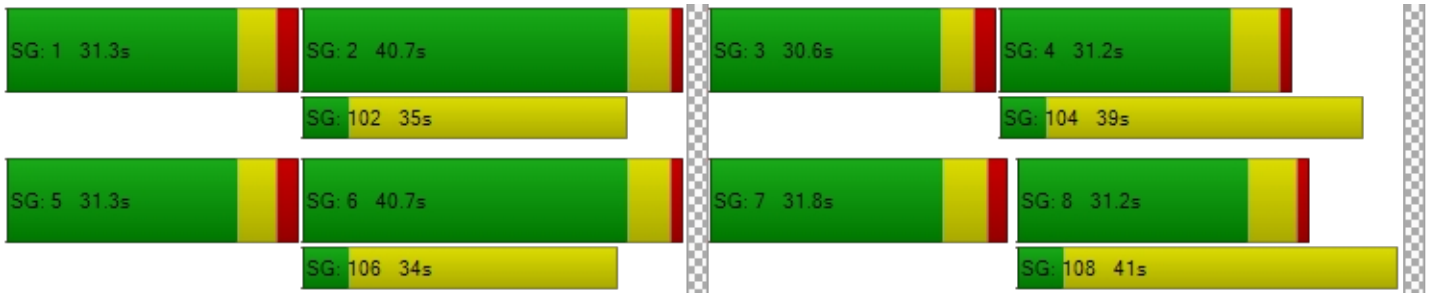
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 35.90 | 105.89 | 31.49 | 169.18 | 715.23 | 73.95 | 7.97 | 44.95 | 20.38 | 50.77 | 283.88 | 261.09 |
| Stops [stops/h] | 166.56 | 410.97 | 130.62 | 124.50 | 457.10 | 44.60 | 45.86 | 244.99 | 118.43 | 37.20 | 183.65 | 203.42 |
| Fuel consumption [US gal/h] | 5.14 | 12.80 | 3.99 | 8.60 | 34.26 | 3.46 | 1.36 | 7.14 | 3.40 | 2.59 | 13.72 | 13.50 |
| CO [g/h] | 358.98 | 894.41 | 278.59 | 601.49 | 2394.64 | 242.20 | 94.81 | 499.06 | 237.99 | 180.74 | 958.78 | 943.39 |
| NOx [g/h] | 69.84 | 174.02 | 54.20 | 117.03 | 465.91 | 47.12 | 18.45 | 97.10 | 46.30 | 35.17 | 186.54 | 183.55 |
| VOC [g/h] | 83.20 | 207.29 | 64.57 | 139.40 | 554.98 | 56.13 | 21.97 | 115.66 | 55.16 | 41.89 | 222.21 | 218.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 3520.87 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.30 | 27.30 | 27.30 | 27.30 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.195 | 3.184 | 2.846 | 2.975 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 979 | 979 | 700 | 700 |
| d_b, Bicycle Delay [s] | 9.30 | 9.30 | 15.15 | 15.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.144 | 2.080 | 2.022 | 2.034 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 30.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.014 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 174 | 289 | 2 | 1 | 268 | 4 | 0 | 0 | 107 | 2 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 174 | 289 | 2 | 1 | 268 | 4 | 0 | 0 | 107 | 2 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 47 | 79 | 1 | 0 | 73 | 1 | 0 | 0 | 29 | 1 | 0 | 0 |
| Total Analysis Volume [veh/h] | 189 | 314 | 2 | 1 | 291 | 4 | 0 | 0 | 116 | 2 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.07 | 0.00 | 0.00 | 7.89 | 0.00 | 0.00 | 25.17 | 23.57 | 10.69 | 30.35 | 23.06 | 10.28 |
| Movement LOS | A | A | A | A | A | A | D | C | B | D | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.35 | 0.35 | 0.35 | 0.00 | 0.00 | 0.00 | 0.55 | 0.55 | 0.55 | 0.04 | 0.04 | 0.04 |
| 95th-Percentile Queue Length [ft/ln] | 8.80 | 8.80 | 8.80 | 0.04 | 0.04 | 0.04 | 13.65 | 13.65 | 13.65 | 1.05 | 1.05 | 1.05 |
| d_A, Approach Delay [s/veh] | 3.02 | | | 0.03 | | | 10.69 | | | 30.35 | | |
| Approach LOS | A | | | A | | | B | | | D | | |
| d_I, Intersection Delay [s/veh] | 3.08 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 56.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.033 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 49 | 278 | 28 | 172 | 202 | 3 | 2 | 166 | 27 | 15 | 233 | 185 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 49 | 278 | 28 | 172 | 202 | 3 | 2 | 166 | 27 | 15 | 233 | 185 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 76 | 8 | 47 | 55 | 1 | 1 | 45 | 7 | 4 | 63 | 50 |
| Total Analysis Volume [veh/h] | 53 | 302 | 30 | 187 | 220 | 3 | 2 | 180 | 29 | 16 | 253 | 201 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 438 | 438 | 397 | 470 |
| Degree of Utilization, x | 0.88 | 0.94 | 0.53 | 1.03 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 9.16 | 10.77 | 3.01 | 14.23 |
| 95th-Percentile Queue Length [ft] | 229.08 | 269.34 | 75.24 | 355.84 |
| Approach Delay [s/veh] | 47.28 | 57.42 | 21.87 | 79.29 |
| Approach LOS | E | F | C | F |
| Intersection Delay [s/veh] | 56.66 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.466 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 104 | 152 | 26 | 76 | 142 | 13 | 20 | 390 | 81 | 19 | 342 | 85 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 104 | 152 | 26 | 76 | 142 | 13 | 20 | 390 | 81 | 19 | 342 | 85 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 41 | 7 | 20 | 38 | 3 | 5 | 105 | 22 | 5 | 92 | 23 |
| Total Analysis Volume [veh/h] | 112 | 163 | 28 | 82 | 153 | 14 | 22 | 419 | 87 | 20 | 368 | 91 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 10 | 10 | 8 | 9 | 3 | 15 | 15 | 3 | 14 | 14 |
| g / C, Green / Cycle | 0.17 | 0.20 | 0.20 | 0.15 | 0.18 | 0.06 | 0.28 | 0.28 | 0.05 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.09 | 0.02 | 0.05 | 0.09 | 0.01 | 0.12 | 0.05 | 0.01 | 0.19 | 0.06 |
| s, saturation flow rate [veh/h] | 1810 | 1886 | 1615 | 1810 | 1863 | 1810 | 3618 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 311 | 384 | 329 | 270 | 337 | 106 | 1024 | 457 | 98 | 529 | 450 |
| d1, Uniform Delay [s] | 18.84 | 17.90 | 16.64 | 19.55 | 19.01 | 23.11 | 14.99 | 14.01 | 23.31 | 16.65 | 14.22 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.70 | 0.75 | 0.11 | 0.63 | 1.13 | 0.95 | 0.26 | 0.20 | 1.01 | 1.66 | 0.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.42 | 0.09 | 0.30 | 0.50 | 0.21 | 0.41 | 0.19 | 0.20 | 0.70 | 0.20 |
| d, Delay for Lane Group [s/veh] | 19.55 | 18.64 | 16.75 | 20.18 | 20.14 | 24.07 | 15.25 | 14.21 | 24.33 | 18.31 | 14.44 |
| Lane Group LOS | B | B | B | C | C | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.05 | 1.47 | 0.23 | 0.78 | 1.60 | 0.24 | 1.57 | 0.62 | 0.22 | 3.22 | 0.66 |
| 50th-Percentile Queue Length [ft/ln] | 26.17 | 36.78 | 5.81 | 19.62 | 39.92 | 6.07 | 39.15 | 15.47 | 5.60 | 80.46 | 16.40 |
| 95th-Percentile Queue Length [veh/ln] | 1.88 | 2.65 | 0.42 | 1.41 | 2.87 | 0.44 | 2.82 | 1.11 | 0.40 | 5.79 | 1.18 |
| 95th-Percentile Queue Length [ft/ln] | 47.10 | 66.20 | 10.45 | 35.31 | 71.86 | 10.93 | 70.47 | 27.84 | 10.08 | 144.82 | 29.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.55 | 18.64 | 16.75 | 20.18 | 20.14 | 20.14 | 24.07 | 15.25 | 14.21 | 24.33 | 18.31 | 14.44 |
| Movement LOS | B | B | B | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 18.80 | | | 20.15 | | | 15.45 | | | 17.83 | | |
| Approach LOS | B | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.58 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.466 | | | | | | | | | | | |

**Emissions**

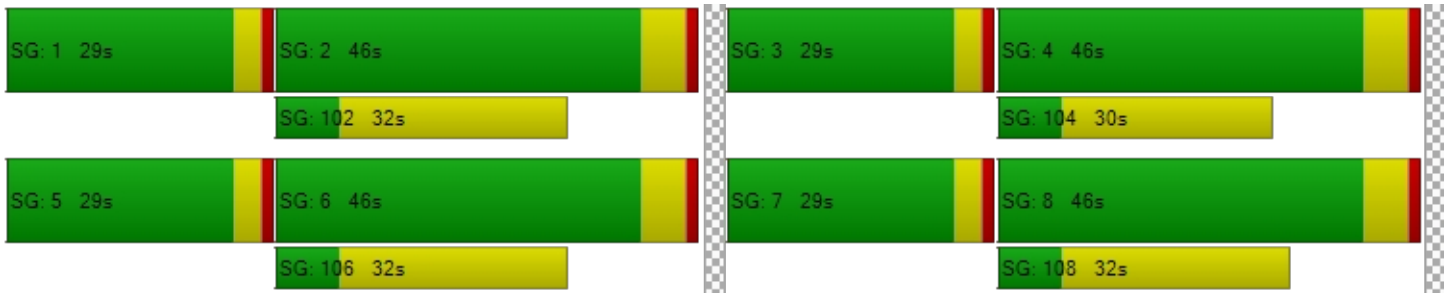
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 13.41 | 19.51 | 3.35 | 82.39 | 167.79 | 22.79 | 434.11 | 90.14 | 10.02 | 184.28 | 45.57 |
| Stops [stops/h] | 73.32 | 103.06 | 16.28 | 54.97 | 111.87 | 17.02 | 219.42 | 43.34 | 15.70 | 225.47 | 45.94 |
| Fuel consumption [US gal/h] | 1.82 | 2.57 | 0.41 | 3.84 | 7.83 | 1.13 | 19.21 | 3.94 | 0.68 | 11.00 | 2.50 |
| CO [g/h] | 126.99 | 179.56 | 28.85 | 268.71 | 547.09 | 79.15 | 1342.52 | 275.08 | 47.21 | 769.15 | 174.67 |
| NOx [g/h] | 24.71 | 34.94 | 5.61 | 52.28 | 106.44 | 15.40 | 261.21 | 53.52 | 9.18 | 149.65 | 33.98 |
| VOC [g/h] | 29.43 | 41.62 | 6.69 | 62.28 | 126.79 | 18.34 | 311.14 | 63.75 | 10.94 | 178.26 | 40.48 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.87 | 15.87 | 15.87 | 15.87 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.305 | 2.164 | 2.698 | 2.596 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1557 | 1557 | 1557 | 1557 |
| d_b, Bicycle Delay [s] | 1.26 | 1.26 | 1.26 | 1.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.060 | 1.970 | 1.995 | 2.350 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.285 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 140 | 44 | 70 | 10 | 24 | 26 | 32 | 343 | 103 | 77 | 304 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 140 | 44 | 70 | 10 | 24 | 26 | 32 | 343 | 103 | 77 | 304 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 12 | 18 | 3 | 6 | 7 | 8 | 90 | 27 | 20 | 80 | 2 |
| Total Analysis Volume [veh/h] | 147 | 46 | 74 | 11 | 25 | 27 | 34 | 361 | 108 | 81 | 320 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 15 | 15 | 3 | 7 | 7 | 6 | 12 | 12 | 9 | 15 | 15 |
| g / C, Green / Cycle | 0.19 | 0.27 | 0.27 | 0.06 | 0.13 | 0.13 | 0.10 | 0.22 | 0.22 | 0.16 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.02 | 0.05 | 0.00 | 0.01 | 0.02 | 0.01 | 0.10 | 0.07 | 0.02 | 0.09 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1879 | 1594 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1611 |
| c, Capacity [veh/h] | 351 | 505 | 428 | 206 | 483 | 215 | 370 | 796 | 354 | 529 | 997 | 444 |
| d1, Uniform Delay [s] | 19.38 | 15.03 | 15.37 | 24.35 | 20.72 | 20.92 | 22.15 | 18.52 | 17.87 | 19.78 | 15.77 | 14.44 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.17 | 0.43 | 0.04 | 0.23 | 1.32 | 0.04 | 0.60 | 0.71 | 0.05 | 0.27 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.42 | 0.09 | 0.17 | 0.05 | 0.05 | 0.13 | 0.09 | 0.45 | 0.31 | 0.15 | 0.32 | 0.02 |
| d, Delay for Lane Group [s/veh] | 19.68 | 15.20 | 15.80 | 24.39 | 20.94 | 22.24 | 22.19 | 19.12 | 18.58 | 19.83 | 16.04 | 14.46 |
| Lane Group LOS | B | B | B | C | C | C | C | B | B | B | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.41 | 0.38 | 0.64 | 0.06 | 0.14 | 0.36 | 0.17 | 1.68 | 1.00 | 0.41 | 1.46 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 35.36 | 9.49 | 15.88 | 1.60 | 3.61 | 9.02 | 4.25 | 41.91 | 24.99 | 10.31 | 36.45 | 1.49 |
| 95th-Percentile Queue Length [veh/ln] | 2.55 | 0.68 | 1.14 | 0.12 | 0.26 | 0.65 | 0.31 | 3.02 | 1.80 | 0.74 | 2.62 | 0.11 |
| 95th-Percentile Queue Length [ft/ln] | 63.65 | 17.08 | 28.58 | 2.88 | 6.50 | 16.24 | 7.65 | 75.43 | 44.98 | 18.57 | 65.62 | 2.68 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.68 | 15.20 | 15.80 | 24.39 | 20.94 | 22.24 | 22.19 | 19.12 | 18.58 | 19.83 | 16.04 | 14.46 |
| Movement LOS | B | B | B | C | C | C | C | B | B | B | B | B |
| d_A, Approach Delay [s/veh] | 17.83 | | | 22.10 | | | 19.21 | | | 16.77 | | |
| Approach LOS | B | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.26 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.285 | | | | | | | | | | | |

**Emissions**

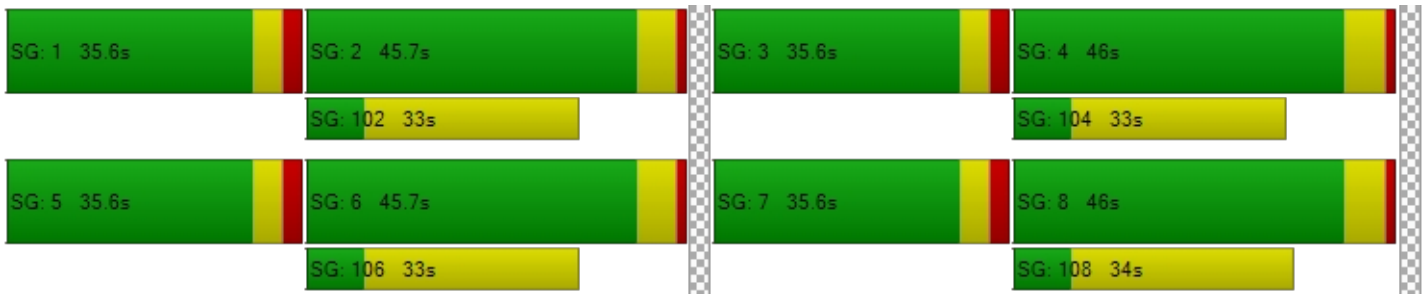
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 149.67 | 46.83 | 75.34 | 11.37 | 25.84 | 27.91 | 17.03 | 180.78 | 54.08 | 40.61 | 160.42 | 3.51 |
| Stops [stops/h] | 93.28 | 25.03 | 41.89 | 8.44 | 19.04 | 23.80 | 22.43 | 221.10 | 65.92 | 54.42 | 192.33 | 3.92 |
| Fuel consumption [US gal/h] | 6.88 | 2.06 | 3.34 | 0.57 | 1.28 | 1.40 | 1.07 | 10.85 | 3.23 | 2.30 | 8.71 | 0.19 |
| CO [g/h] | 480.82 | 143.91 | 233.56 | 39.80 | 89.16 | 98.05 | 74.65 | 758.59 | 225.87 | 160.71 | 608.92 | 13.05 |
| NOx [g/h] | 93.55 | 28.00 | 45.44 | 7.74 | 17.35 | 19.08 | 14.52 | 147.59 | 43.95 | 31.27 | 118.47 | 2.54 |
| VOC [g/h] | 111.43 | 33.35 | 54.13 | 9.22 | 20.66 | 22.72 | 17.30 | 175.81 | 52.35 | 37.25 | 141.12 | 3.02 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 9036.66 | 0.00 | 8680.04 |
| d_p, Pedestrian Delay [s] | 17.40 | 17.40 | 17.40 | 17.40 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.412 | 2.587 | 2.797 | 2.685 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1466 | 1466 | 1466 | 1466 |
| d_b, Bicycle Delay [s] | 1.95 | 1.95 | 1.95 | 1.95 |
| l_b,int, Bicycle LOS Score for Intersection | 1.780 | 1.612 | 1.975 | 1.896 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.497 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 124 | 400 | 46 | 43 | 253 | 27 | 22 | 415 | 249 | 21 | 385 | 75 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 124 | 400 | 46 | 43 | 253 | 27 | 22 | 415 | 249 | 21 | 385 | 75 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 105 | 12 | 11 | 67 | 7 | 6 | 109 | 66 | 6 | 101 | 20 |
| Total Analysis Volume [veh/h] | 131 | 421 | 48 | 45 | 266 | 28 | 23 | 437 | 262 | 22 | 405 | 79 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 14 | 14 | 5 | 11 | 11 | 3 | 20 | 20 | 3 | 20 | 20 |
| g / C, Green / Cycle | 0.15 | 0.25 | 0.25 | 0.09 | 0.19 | 0.19 | 0.05 | 0.34 | 0.34 | 0.05 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.12 | 0.03 | 0.02 | 0.08 | 0.08 | 0.01 | 0.23 | 0.16 | 0.01 | 0.22 | 0.05 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1563 | 1801 | 1888 | 1825 | 1810 | 1897 | 1606 | 1810 | 1883 | 1615 |
| c, Capacity [veh/h] | 274 | 887 | 385 | 162 | 349 | 337 | 98 | 643 | 544 | 95 | 635 | 544 |
| d1, Uniform Delay [s] | 22.78 | 18.88 | 17.20 | 24.92 | 21.16 | 21.18 | 26.57 | 16.66 | 15.32 | 26.67 | 16.43 | 13.56 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.48 | 0.60 | 0.22 | 0.34 | 1.26 | 1.33 | 0.45 | 1.94 | 1.01 | 0.46 | 1.58 | 0.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.48 | 0.47 | 0.12 | 0.28 | 0.43 | 0.43 | 0.23 | 0.68 | 0.48 | 0.23 | 0.64 | 0.15 |
| d, Delay for Lane Group [s/veh] | 23.27 | 19.48 | 17.42 | 25.26 | 22.41 | 22.52 | 27.02 | 18.59 | 16.33 | 27.13 | 18.01 | 13.74 |
| Lane Group LOS | C | B | B | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.48 | 2.14 | 0.45 | 0.53 | 1.68 | 1.66 | 0.29 | 4.43 | 2.40 | 0.28 | 4.00 | 0.63 |
| 50th-Percentile Queue Length [ft/ln] | 37.03 | 53.55 | 11.33 | 13.34 | 42.02 | 41.40 | 7.18 | 110.68 | 60.08 | 6.89 | 100.09 | 15.67 |
| 95th-Percentile Queue Length [veh/ln] | 2.67 | 3.86 | 0.82 | 0.96 | 3.03 | 2.98 | 0.52 | 7.88 | 4.33 | 0.50 | 7.21 | 1.13 |
| 95th-Percentile Queue Length [ft/ln] | 66.65 | 96.39 | 20.39 | 24.02 | 75.64 | 74.51 | 12.93 | 196.95 | 108.14 | 12.41 | 180.16 | 28.20 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.27 | 19.48 | 17.42 | 25.26 | 22.46 | 22.52 | 27.02 | 18.59 | 16.33 | 27.13 | 18.01 | 13.74 |
| Movement LOS | C | B | B | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 20.14 | | | 22.84 | | | 18.04 | | | 17.74 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.30 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.497 | | | | | | | | | | | |

**Emissions**

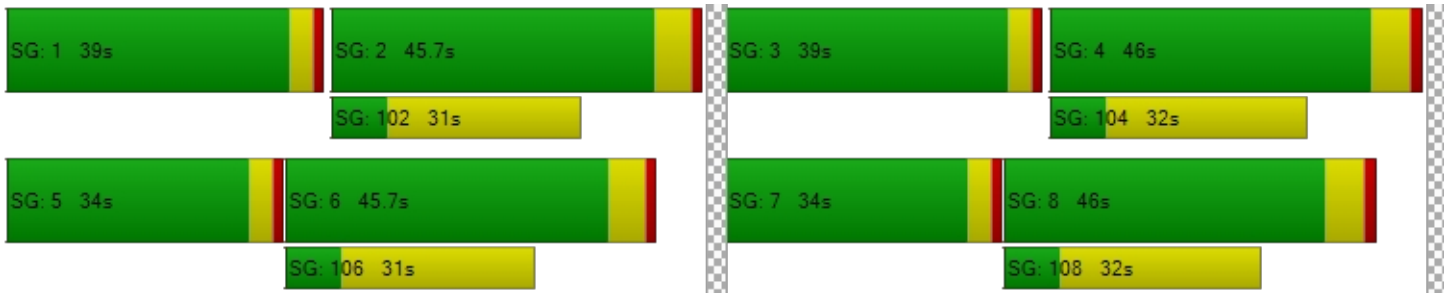
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 68.78 | 221.04 | 25.20 | 45.82 | 151.11 | 148.22 | 1.99 | 37.80 | 22.66 | 13.24 | 243.74 | 47.54 |
| Stops [stops/h] | 91.15 | 263.63 | 27.89 | 32.85 | 103.43 | 101.90 | 17.68 | 272.45 | 147.88 | 16.97 | 246.37 | 38.57 |
| Fuel consumption [US gal/h] | 4.11 | 12.52 | 1.38 | 2.21 | 7.14 | 7.01 | 0.41 | 6.34 | 3.49 | 0.79 | 12.90 | 2.33 |
| CO [g/h] | 287.37 | 875.40 | 96.51 | 154.49 | 499.29 | 490.32 | 28.97 | 442.95 | 243.68 | 54.96 | 901.87 | 162.88 |
| NOx [g/h] | 55.91 | 170.32 | 18.78 | 30.06 | 97.14 | 95.40 | 5.64 | 86.18 | 47.41 | 10.69 | 175.47 | 31.69 |
| VOC [g/h] | 66.60 | 202.88 | 22.37 | 35.81 | 115.71 | 113.64 | 6.71 | 102.66 | 56.48 | 12.74 | 209.02 | 37.75 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.28 | 19.28 | 19.28 | 19.28 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.709 | 2.528 | 2.652 | 2.579 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1368 | 1368 | 1368 | 1368 |
| d_b, Bicycle Delay [s] | 2.93 | 2.93 | 2.93 | 2.93 |
| l_b,int, Bicycle LOS Score for Intersection | 2.055 | 1.839 | 2.751 | 2.395 |
| Bicycle LOS | B | A | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.541 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 146 | 558 | 67 | 77 | 454 | 13 | 15 | 342 | 175 | 36 | 302 | 77 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 146 | 558 | 67 | 77 | 454 | 13 | 15 | 342 | 175 | 36 | 302 | 77 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 152 | 18 | 21 | 123 | 4 | 4 | 93 | 48 | 10 | 82 | 21 |
| Total Analysis Volume [veh/h] | 159 | 607 | 73 | 84 | 493 | 14 | 16 | 372 | 190 | 39 | 328 | 84 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 20 | 20 | 10 | 18 | 18 | 3 | 21 | 21 | 6 | 24 | 24 |
| g / C, Green / Cycle | 0.16 | 0.28 | 0.28 | 0.14 | 0.25 | 0.25 | 0.04 | 0.29 | 0.29 | 0.08 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.18 | 0.18 | 0.05 | 0.14 | 0.14 | 0.01 | 0.20 | 0.12 | 0.02 | 0.17 | 0.05 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1808 | 1810 | 1874 | 1855 | 1810 | 1874 | 1578 | 1761 | 1876 | 1583 |
| c, Capacity [veh/h] | 287 | 522 | 498 | 245 | 473 | 468 | 74 | 545 | 459 | 138 | 615 | 519 |
| d1, Uniform Delay [s] | 28.23 | 23.36 | 23.41 | 28.52 | 23.53 | 23.54 | 33.74 | 22.83 | 20.75 | 31.60 | 19.91 | 17.33 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.67 | 1.46 | 1.57 | 0.83 | 0.95 | 0.97 | 1.42 | 1.52 | 0.60 | 1.11 | 0.72 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.66 | 0.67 | 0.34 | 0.54 | 0.54 | 0.21 | 0.68 | 0.41 | 0.28 | 0.53 | 0.16 |
| d, Delay for Lane Group [s/veh] | 29.90 | 24.82 | 24.98 | 29.34 | 24.48 | 24.51 | 35.16 | 24.34 | 21.35 | 32.71 | 20.63 | 17.47 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.47 | 4.89 | 4.73 | 1.28 | 3.52 | 3.49 | 0.28 | 5.21 | 2.39 | 0.64 | 4.09 | 0.91 |
| 50th-Percentile Queue Length [ft/ln] | 61.67 | 122.29 | 118.37 | 31.93 | 87.91 | 87.26 | 7.10 | 130.30 | 59.74 | 16.03 | 102.30 | 22.64 |
| 95th-Percentile Queue Length [veh/ln] | 4.44 | 8.52 | 8.30 | 2.30 | 6.33 | 6.28 | 0.51 | 8.96 | 4.30 | 1.15 | 7.37 | 1.63 |
| 95th-Percentile Queue Length [ft/ln] | 111.01 | 212.97 | 207.58 | 57.48 | 158.25 | 157.07 | 12.78 | 223.90 | 107.54 | 28.86 | 184.15 | 40.75 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.90 | 24.89 | 24.98 | 29.34 | 24.49 | 24.51 | 35.16 | 24.34 | 21.35 | 32.71 | 20.63 | 17.47 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 25.85 | | | 25.18 | | | 23.66 | | | 21.08 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.30 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.541 | | | | | | | | | | | |

**Emissions**

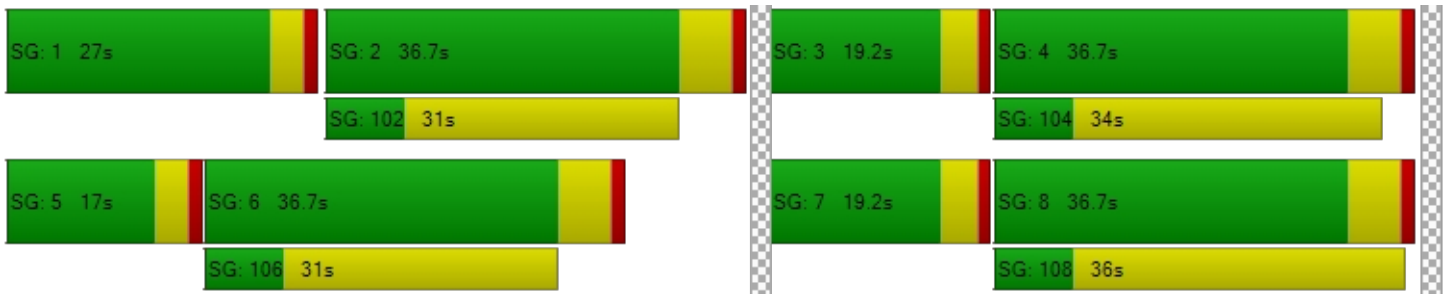
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 84.48 | 184.00 | 177.29 | 44.10 | 133.64 | 132.55 | 1.60 | 37.29 | 19.05 | 18.56 | 156.11 | 39.98 |
| Stops [stops/h] | 122.39 | 242.69 | 234.91 | 63.37 | 174.47 | 173.18 | 14.09 | 258.58 | 118.56 | 31.81 | 203.03 | 44.93 |
| Fuel consumption [US gal/h] | 5.38 | 11.07 | 10.69 | 2.80 | 8.02 | 7.96 | 0.34 | 6.34 | 2.95 | 1.29 | 9.25 | 2.23 |
| CO [g/h] | 376.41 | 774.09 | 747.50 | 195.81 | 560.49 | 556.10 | 24.09 | 442.90 | 206.38 | 90.27 | 646.74 | 155.72 |
| NOx [g/h] | 73.24 | 150.61 | 145.44 | 38.10 | 109.05 | 108.20 | 4.69 | 86.17 | 40.15 | 17.56 | 125.83 | 30.30 |
| VOC [g/h] | 87.24 | 179.40 | 173.24 | 45.38 | 129.90 | 128.88 | 5.58 | 102.65 | 47.83 | 20.92 | 149.89 | 36.09 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.11 | 26.11 | 26.11 | 26.11 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.821 | 2.668 | 2.514 | 2.478 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 854 | 854 | 854 | 854 |
| d_b, Bicycle Delay [s] | 11.90 | 11.90 | 11.90 | 11.91 |
| l_b,int, Bicycle LOS Score for Intersection | 2.252 | 2.047 | 2.513 | 2.304 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 43.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.738 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 413 | 473 | 291 | 313 | 291 | 276 | 396 | 1418 | 354 | 301 | 1100 | 176 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 413 | 473 | 291 | 313 | 291 | 276 | 396 | 1418 | 354 | 301 | 1100 | 176 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 109 | 124 | 77 | 82 | 77 | 73 | 104 | 373 | 93 | 79 | 289 | 46 |
| Total Analysis Volume [veh/h] | 435 | 498 | 306 | 329 | 306 | 291 | 417 | 1493 | 373 | 317 | 1158 | 185 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 28 | 45 | 0 | 19 | 36 | 0 | 24 | 44 | 0 | 24 | 44 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 29 | 29 | 15 | 20 | 20 | 18 | 58 | 58 | 14 | 54 | 54 |
| g / C, Green / Cycle | 0.18 | 0.22 | 0.22 | 0.11 | 0.15 | 0.15 | 0.14 | 0.44 | 0.44 | 0.11 | 0.41 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.14 | 0.19 | 0.10 | 0.06 | 0.11 | 0.12 | 0.29 | 0.23 | 0.09 | 0.22 | 0.12 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2767 | 3478 | 5147 | 1605 | 3495 | 5151 | 1605 |
| c, Capacity [veh/h] | 427 | 795 | 354 | 392 | 787 | 423 | 480 | 2247 | 701 | 375 | 2091 | 651 |
| d1, Uniform Delay [s] | 54.04 | 46.47 | 49.49 | 57.41 | 50.40 | 52.88 | 55.76 | 29.53 | 27.31 | 57.89 | 30.08 | 26.35 |
| k, delay calibration | 0.04 | 0.04 | 0.13 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 17.16 | 0.30 | 7.64 | 1.88 | 0.35 | 2.24 | 1.92 | 1.57 | 2.88 | 2.04 | 1.06 | 1.09 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.02 | 0.63 | 0.86 | 0.84 | 0.39 | 0.69 | 0.87 | 0.66 | 0.53 | 0.85 | 0.55 | 0.28 |
| d, Delay for Lane Group [s/veh] | 71.20 | 46.77 | 57.13 | 59.29 | 50.75 | 55.12 | 57.68 | 31.10 | 30.20 | 59.94 | 31.14 | 27.44 |
| Lane Group LOS | F | D | E | E | D | E | E | C | C | E | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 7.98 | 7.33 | 10.30 | 5.37 | 3.01 | 4.60 | 6.78 | 12.29 | 8.86 | 5.19 | 9.27 | 4.00 |
| 50th-Percentile Queue Length [ft/ln] | 199.61 | 183.18 | 257.44 | 134.26 | 75.28 | 115.01 | 169.42 | 307.29 | 221.39 | 129.87 | 231.67 | 100.05 |
| 95th-Percentile Queue Length [veh/ln] | 12.73 | 11.77 | 15.56 | 9.17 | 5.42 | 8.12 | 11.05 | 18.04 | 13.74 | 8.93 | 14.26 | 7.20 |
| 95th-Percentile Queue Length [ft/ln] | 318.19 | 294.16 | 389.01 | 229.27 | 135.51 | 202.95 | 276.15 | 451.03 | 343.40 | 223.32 | 356.48 | 180.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 71.20 | 46.77 | 57.13 | 59.29 | 50.75 | 55.12 | 57.68 | 31.10 | 30.20 | 59.94 | 31.14 | 27.44 |
| Movement LOS | F | D | E | E | D | E | E | C | C | E | C | C |
| d_A, Approach Delay [s/veh] | 57.90 | | | 55.16 | | | 35.81 | | | 36.23 | | |
| Approach LOS | E | | | E | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 43.34 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.738 | | | | | | | | | | | |

**Emissions**

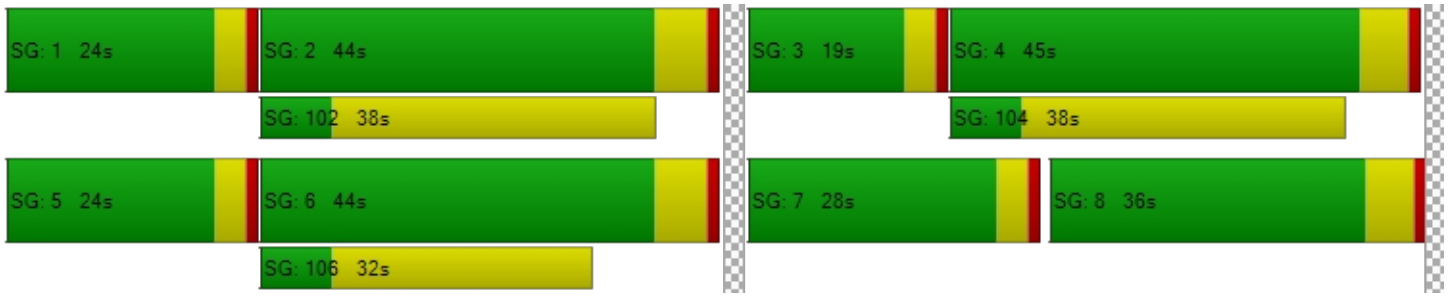
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 31.80 | 36.41 | 22.37 | 174.80 | 162.58 | 154.61 | 47.45 | 169.88 | 42.44 | 158.21 | 577.93 | 92.33 |
| Stops [stops/h] | 435.30 | 399.47 | 280.71 | 292.78 | 246.26 | 250.81 | 369.45 | 1005.19 | 241.40 | 283.22 | 757.82 | 109.09 |
| Fuel consumption [US gal/h] | 11.72 | 9.97 | 7.12 | 13.60 | 11.79 | 11.68 | 11.11 | 27.77 | 6.75 | 12.81 | 36.57 | 5.55 |
| CO [g/h] | 819.02 | 696.75 | 497.39 | 950.73 | 824.44 | 816.57 | 776.91 | 1941.12 | 471.71 | 895.44 | 2556.28 | 388.24 |
| NOx [g/h] | 159.35 | 135.56 | 96.77 | 184.98 | 160.41 | 158.87 | 151.16 | 377.67 | 91.78 | 174.22 | 497.36 | 75.54 |
| VOC [g/h] | 189.82 | 161.48 | 115.27 | 220.34 | 191.07 | 189.25 | 180.06 | 449.87 | 109.32 | 207.53 | 592.44 | 89.98 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.49 | 55.49 | 39.21 | 55.49 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.107 | 3.366 | 3.697 | 3.483 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 595 | 459 | 575 | 575 |
| d_b, Bicycle Delay [s] | 32.58 | 39.25 | 33.50 | 33.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.241 | 2.069 | 2.815 | 2.473 |
| Bicycle LOS | B | B | C | B |

## Sequence

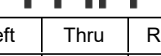
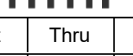
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.606 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 563 | 0 | 771 | 0 | 0 | 0 | 0 | 1405 | 451 | 0 | 1481 | 202 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 563 | 0 | 771 | 0 | 0 | 0 | 0 | 1405 | 451 | 0 | 1481 | 202 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 150 | 0 | 205 | 0 | 0 | 0 | 0 | 374 | 120 | 0 | 394 | 54 |
| Total Analysis Volume [veh/h] | 599 | 0 | 820 | 0 | 0 | 0 | 0 | 1495 | 480 | 0 | 1576 | 215 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 46 | 46 | | 72 | 72 | 72 |
| g / C, Green / Cycle | 0.35 | 0.35 | | 0.54 | 0.54 | 0.54 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.29 | | 0.29 | 0.18 | 0.13 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1475 | 992 | | 2804 | 4680 | 872 |
| d1, Uniform Delay [s] | 32.57 | 39.28 | | 19.29 | 16.76 | 15.81 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.45 | 4.39 | | 0.73 | 0.20 | 0.67 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.83 | | 0.53 | 0.34 | 0.25 |
| d, Delay for Lane Group [s/veh] | 33.02 | 43.67 | | 20.02 | 16.96 | 16.49 |
| Lane Group LOS | C | D | | C | B | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.67 | 12.03 | | 9.42 | 5.12 | 3.43 |
| 50th-Percentile Queue Length [ft/ln] | 116.87 | 300.76 | | 235.43 | 128.07 | 85.67 |
| 95th-Percentile Queue Length [veh/ln] | 8.22 | 17.72 | | 14.45 | 8.83 | 6.17 |
| 95th-Percentile Queue Length [ft/ln] | 205.52 | 442.97 | | 361.25 | 220.87 | 154.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.02 | 0.00 | 43.67 | 0.00 | 0.00 | 0.00 | 0.00 | 20.02 | 0.00 | 0.00 | 16.96 | 16.49 |
| Movement LOS | C | | D | | | | | C | | | B | B |
| d_A, Approach Delay [s/veh] | 39.18 | | | 0.00 | | | 15.38 | | | 16.90 | | |
| Approach LOS | D | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 23.14 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.606 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 78.52 | 107.49 | | 235.25 | 179.33 | 24.46 |
| Stops [stops/h] | 382.69 | 656.57 | | 770.93 | 698.97 | 93.51 |
| Fuel consumption [US gal/h] | 13.76 | 23.08 | | 23.74 | 20.28 | 2.72 |
| CO [g/h] | 961.80 | 1613.17 | | 1659.43 | 1417.32 | 190.31 |
| NOx [g/h] | 187.13 | 313.86 | | 322.86 | 275.76 | 37.03 |
| VOC [g/h] | 222.91 | 373.87 | | 384.59 | 328.48 | 44.11 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.42 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.894 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 753 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.63 | 65.96 | 15.39 | 15.39 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.382 | 2.151 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.530 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 70 | 0 | 374 | 0 | 1797 | 548 | 0 | 1509 | 596 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 70 | 0 | 374 | 0 | 1797 | 548 | 0 | 1509 | 596 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 99 | 0 | 478 | 146 | 0 | 401 | 159 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 74 | 0 | 398 | 0 | 1912 | 583 | 0 | 1605 | 634 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 23 | 23 | 93 | 93 | 93 |
| g / C, Green / Cycle | | 0.18 | 0.18 | 0.71 | 0.71 | 0.71 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.14 | 0.28 | 0.37 | 0.23 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 632 | 513 | 4894 | 1139 | 4925 |
| d1, Uniform Delay [s] | | 44.58 | 50.72 | 7.29 | 8.29 | 6.85 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.20 | 6.17 | 0.24 | 1.64 | 0.18 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.12 | 0.78 | 0.39 | 0.51 | 0.33 |
| d, Delay for Lane Group [s/veh] | | 44.78 | 56.89 | 7.53 | 9.93 | 7.03 |
| Lane Group LOS | | D | E | A | A | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.03 | 6.61 | 4.54 | 6.70 | 3.57 |
| 50th-Percentile Queue Length [ft/ln] | | 25.66 | 165.27 | 113.39 | 167.45 | 89.36 |
| 95th-Percentile Queue Length [veh/ln] | | 1.85 | 10.83 | 8.03 | 10.94 | 6.43 |
| 95th-Percentile Queue Length [ft/ln] | | 46.19 | 270.69 | 200.70 | 273.56 | 160.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 44.78 | 0.00 | 56.89 | 0.00 | 7.53 | 9.93 | 0.00 | 7.03 | 0.00 |
| Movement LOS | | | | D | | E | | A | A | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 54.99 | | | 8.09 | | | 5.12 | | |
| Approach LOS | A | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 11.89 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.530 | | | | | | | | | | | |

**Emissions**

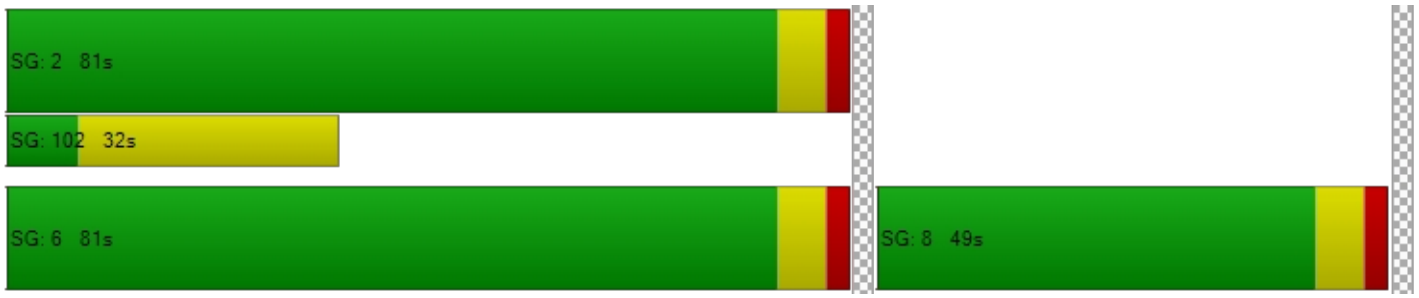
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.40 | 61.33 | 185.14 | 56.45 | 252.56 |
| Stops [stops/h] | | 56.91 | 366.54 | 502.93 | 185.68 | 396.35 |
| Fuel consumption [US gal/h] | | 1.46 | 9.16 | 15.53 | 5.42 | 15.88 |
| CO [g/h] | | 101.92 | 640.06 | 1085.43 | 379.02 | 1110.04 |
| NOx [g/h] | | 19.83 | 124.53 | 211.19 | 73.74 | 215.97 |
| VOC [g/h] | | 23.62 | 148.34 | 251.56 | 87.84 | 257.26 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.017 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1143 | 1143 | |
| d_b, Bicycle Delay [s] | 64.93 | 29.59 | 11.93 | 11.93 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.589 | 2.222 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.014 |

**Intersection Setup**

| Name | Sunnyside | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Sunnyside | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 5 | 340 | 5 | 5 | 450 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 5 | 340 | 5 | 5 | 450 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 85 | 1 | 1 | 113 |
| Total Analysis Volume [veh/h] | 5 | 5 | 340 | 5 | 5 | 450 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 15.42 | 10.31 | 0.00 | 0.00 | 7.97 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 0.07 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 1.64 | 1.64 | 0.00 | 0.00 | 0.21 | 0.21 |
| d_A, Approach Delay [s/veh] | 12.87 | | 0.00 | | 0.09 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.21 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 13.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.597 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 80 | 11 | 31 | 4 | 13 | 9 | 9 | 342 | 70 | 29 | 296 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 80 | 11 | 31 | 4 | 13 | 9 | 9 | 342 | 70 | 29 | 296 | 6 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 3 | 8 | 1 | 3 | 2 | 2 | 91 | 19 | 8 | 79 | 2 |
| Total Analysis Volume [veh/h] | 85 | 12 | 33 | 4 | 14 | 10 | 10 | 364 | 74 | 31 | 315 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 611 | 602 | 751 | 720 |
| Degree of Utilization, x | 0.21 | 0.05 | 0.60 | 0.49 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.80 | 0.15 | 4.01 | 2.71 |
| 95th-Percentile Queue Length [ft] | 20.00 | 3.66 | 100.33 | 67.75 |
| Approach Delay [s/veh] | 10.48 | 9.28 | 14.63 | 12.69 |
| Approach LOS | B | A | B | B |
| Intersection Delay [s/veh] | 13.20 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 28.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.897 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 115 | 98 | 35 | 17 | 90 | 19 | 24 | 364 | 74 | 32 | 337 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 115 | 98 | 35 | 17 | 90 | 19 | 24 | 364 | 74 | 32 | 337 | 15 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 28 | 10 | 5 | 26 | 5 | 7 | 105 | 21 | 9 | 97 | 4 |
| Total Analysis Volume [veh/h] | 132 | 113 | 40 | 20 | 103 | 22 | 28 | 418 | 85 | 37 | 387 | 17 |
| Pedestrian Volume [ped/h] | 5 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 410 | 464 | 409 | 421 | 448 | 462 | 418 | 450 |
| Degree of Utilization, x | 0.60 | 0.09 | 0.35 | 0.07 | 0.56 | 0.54 | 0.09 | 0.90 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.76 | 0.28 | 1.57 | 0.21 | 3.37 | 3.19 | 0.29 | 9.75 |
| 95th-Percentile Queue Length [ft] | 94.02 | 7.05 | 39.33 | 5.31 | 84.32 | 79.82 | 7.24 | 243.84 |
| Approach Delay [s/veh] | 21.90 | | 16.56 | 19.53 | | | 45.85 | |
| Approach LOS | C | | C | C | | | E | |
| Intersection Delay [s/veh] | 27.98 | | | | | | | |
| Intersection LOS | D | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.454 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 116 | 221 | 72 | 14 | 146 | 34 | 44 | 378 | 139 | 37 | 292 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 116 | 221 | 72 | 14 | 146 | 34 | 44 | 378 | 139 | 37 | 292 | 30 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 58 | 19 | 4 | 38 | 9 | 12 | 99 | 37 | 10 | 77 | 8 |
| Total Analysis Volume [veh/h] | 122 | 233 | 76 | 15 | 154 | 36 | 46 | 398 | 146 | 39 | 307 | 32 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 16 | 16 | 2 | 10 | 10 | 5 | 16 | 16 | 5 | 15 | 15 |
| g / C, Green / Cycle | 0.16 | 0.29 | 0.29 | 0.04 | 0.17 | 0.17 | 0.10 | 0.29 | 0.29 | 0.09 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.09 | 0.09 | 0.01 | 0.05 | 0.05 | 0.03 | 0.21 | 0.09 | 0.02 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1709 | 1810 | 1868 | 1729 | 1810 | 1892 | 1549 | 1810 | 1874 | 1581 |
| c, Capacity [veh/h] | 283 | 544 | 499 | 75 | 327 | 302 | 175 | 545 | 446 | 157 | 520 | 439 |
| d1, Uniform Delay [s] | 20.81 | 15.02 | 15.06 | 25.37 | 19.66 | 19.72 | 22.93 | 17.59 | 15.32 | 23.36 | 17.09 | 14.58 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.03 | 0.29 | 0.33 | 1.28 | 0.50 | 0.58 | 0.79 | 1.91 | 0.42 | 0.82 | 1.07 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.29 | 0.30 | 0.20 | 0.29 | 0.31 | 0.26 | 0.73 | 0.33 | 0.25 | 0.59 | 0.07 |
| d, Delay for Lane Group [s/veh] | 21.84 | 15.31 | 15.39 | 26.64 | 20.16 | 20.30 | 23.72 | 19.50 | 15.74 | 24.18 | 18.16 | 14.65 |
| Lane Group LOS | C | B | B | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 1.33 | 1.26 | 0.19 | 0.95 | 0.94 | 0.52 | 3.94 | 1.22 | 0.45 | 2.87 | 0.25 |
| 50th-Percentile Queue Length [ft/ln] | 32.90 | 33.31 | 31.56 | 4.82 | 23.83 | 23.41 | 12.93 | 98.55 | 30.49 | 11.16 | 71.83 | 6.26 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 2.40 | 2.27 | 0.35 | 1.72 | 1.69 | 0.93 | 7.10 | 2.20 | 0.80 | 5.17 | 0.45 |
| 95th-Percentile Queue Length [ft/ln] | 59.23 | 59.95 | 56.81 | 8.68 | 42.89 | 42.14 | 23.27 | 177.40 | 54.88 | 20.08 | 129.29 | 11.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.84 | 15.34 | 15.39 | 26.64 | 20.21 | 20.30 | 23.72 | 19.50 | 15.74 | 24.18 | 18.16 | 14.65 |
| Movement LOS | C | B | B | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 17.19 | | | 20.70 | | | 18.90 | | | 18.49 | | |
| Approach LOS | B | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.57 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.454 | | | | | | | | | | | |

**Emissions**

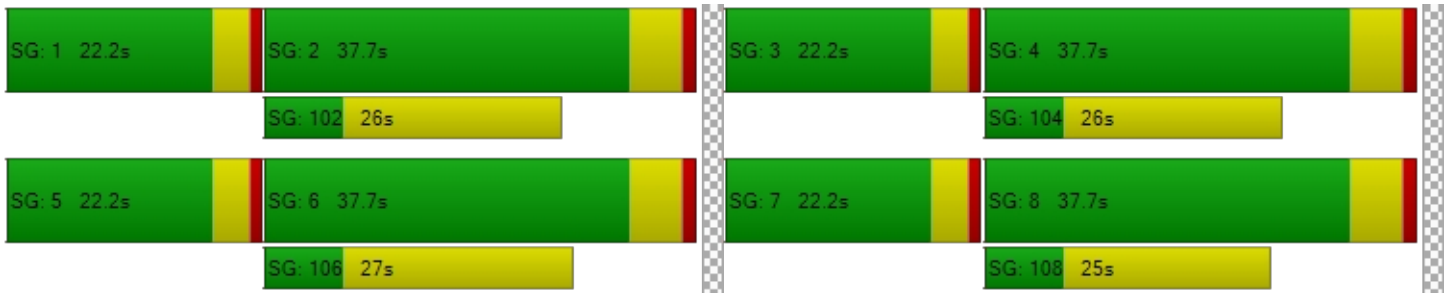
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 65.93 | 85.99 | 80.99 | 7.46 | 47.83 | 46.64 | 21.89 | 189.42 | 69.49 | 19.22 | 151.28 | 15.77 |
| Stops [stops/h] | 86.74 | 87.80 | 83.20 | 12.71 | 62.81 | 61.72 | 34.09 | 259.80 | 80.37 | 29.41 | 189.35 | 16.49 |
| Fuel consumption [US gal/h] | 3.76 | 4.44 | 4.19 | 0.49 | 2.82 | 2.75 | 1.40 | 11.30 | 3.85 | 1.22 | 8.67 | 0.84 |
| CO [g/h] | 262.54 | 310.25 | 292.73 | 34.60 | 196.78 | 192.48 | 97.60 | 790.04 | 269.04 | 85.02 | 606.35 | 58.79 |
| NOx [g/h] | 51.08 | 60.36 | 56.95 | 6.73 | 38.29 | 37.45 | 18.99 | 153.71 | 52.34 | 16.54 | 117.97 | 11.44 |
| VOC [g/h] | 60.85 | 71.90 | 67.84 | 8.02 | 45.61 | 44.61 | 22.62 | 183.10 | 62.35 | 19.70 | 140.53 | 13.62 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.42 | 17.42 | 17.42 | 17.42 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.472 | 2.423 | 2.489 | 2.420 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1172 | 1172 | 1172 | 1172 |
| d_b, Bicycle Delay [s] | 4.69 | 4.69 | 4.69 | 4.69 |
| l_b,int, Bicycle LOS Score for Intersection | 1.915 | 1.729 | 2.533 | 2.183 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.689 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 260 | 266 | 157 | 195 | 195 | 104 | 104 | 1334 | 554 | 111 | 1043 | 106 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 260 | 266 | 157 | 195 | 195 | 104 | 104 | 1334 | 554 | 111 | 1043 | 106 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 68 | 69 | 41 | 51 | 51 | 27 | 27 | 347 | 144 | 29 | 272 | 28 |
| Total Analysis Volume [veh/h] | 271 | 277 | 164 | 203 | 203 | 108 | 108 | 1390 | 577 | 116 | 1086 | 110 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 21 | 21 | 13 | 13 | 13 | 13 | 69 | 69 | 13 | 69 | 69 |
| g / C, Green / Cycle | 0.16 | 0.16 | 0.16 | 0.10 | 0.10 | 0.10 | 0.10 | 0.52 | 0.52 | 0.10 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.08 | 0.10 | 0.06 | 0.06 | 0.07 | 0.03 | 0.27 | 0.36 | 0.03 | 0.21 | 0.07 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 259 | 564 | 253 | 346 | 355 | 159 | 341 | 2709 | 841 | 340 | 2700 | 846 |
| d1, Uniform Delay [s] | 55.53 | 50.69 | 52.11 | 56.96 | 56.91 | 57.57 | 55.56 | 20.49 | 23.38 | 55.65 | 18.95 | 16.05 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 29.36 | 0.53 | 2.24 | 0.59 | 1.16 | 4.07 | 0.20 | 0.70 | 4.53 | 0.22 | 0.45 | 0.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.05 | 0.49 | 0.65 | 0.59 | 0.57 | 0.68 | 0.32 | 0.51 | 0.69 | 0.34 | 0.40 | 0.13 |
| d, Delay for Lane Group [s/veh] | 84.89 | 51.22 | 54.35 | 57.55 | 58.07 | 61.64 | 55.76 | 21.19 | 27.91 | 55.87 | 19.40 | 16.37 |
| Lane Group LOS | F | D | D | E | E | E | E | C | C | E | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.30 | 4.18 | 5.19 | 3.28 | 3.31 | 3.68 | 1.69 | 9.40 | 14.17 | 1.78 | 6.47 | 1.71 |
| 50th-Percentile Queue Length [ft/ln] | 132.45 | 104.43 | 129.79 | 82.01 | 82.64 | 91.89 | 42.35 | 235.07 | 354.31 | 44.57 | 161.81 | 42.78 |
| 95th-Percentile Queue Length [veh/ln] | 9.24 | 7.52 | 8.93 | 5.91 | 5.95 | 6.62 | 3.05 | 14.43 | 20.35 | 3.21 | 10.64 | 3.08 |
| 95th-Percentile Queue Length [ft/ln] | 231.05 | 187.97 | 223.21 | 147.63 | 148.76 | 165.41 | 76.24 | 360.79 | 508.66 | 80.23 | 266.12 | 77.01 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 84.89 | 51.22 | 54.35 | 57.55 | 58.07 | 61.64 | 55.76 | 21.19 | 27.91 | 55.87 | 19.40 | 16.37 |
| Movement LOS | F | D | D | E | E | E | E | C | C | E | B | B |
| d_A, Approach Delay [s/veh] | 64.75 | | | 58.62 | | | 24.86 | | | 22.37 | | |
| Approach LOS | E | | | E | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.07 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.689 | | | | | | | | | | | |

**Emissions**

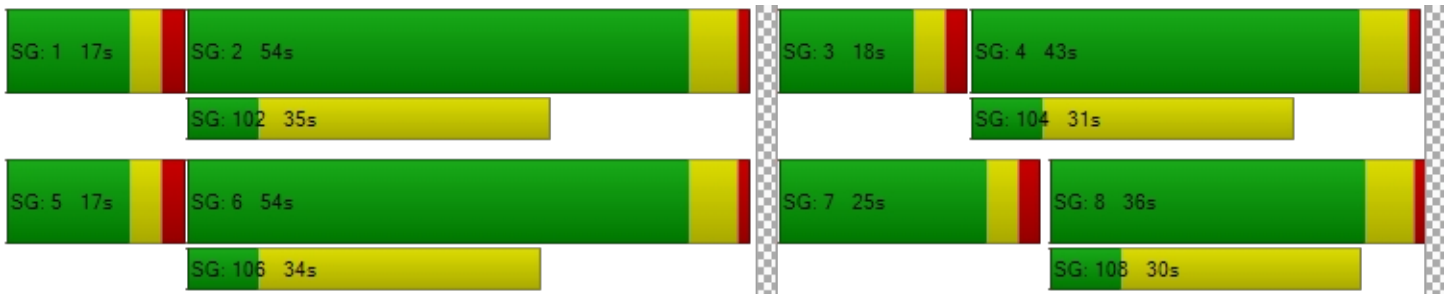
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 28.36 | 28.99 | 17.17 | 109.70 | 109.70 | 58.36 | 53.90 | 693.71 | 287.97 | 13.37 | 125.17 | 12.68 |
| Stops [stops/h] | 288.85 | 227.74 | 141.53 | 178.86 | 180.24 | 100.20 | 92.37 | 768.98 | 386.35 | 97.21 | 529.33 | 46.65 |
| Fuel consumption [US gal/h] | 8.53 | 6.16 | 3.82 | 7.88 | 7.91 | 4.31 | 3.95 | 38.80 | 17.27 | 2.99 | 15.16 | 1.38 |
| CO [g/h] | 596.55 | 430.76 | 266.93 | 550.90 | 552.92 | 301.31 | 276.42 | 2712.10 | 1206.93 | 208.70 | 1059.64 | 96.53 |
| NOx [g/h] | 116.07 | 83.81 | 51.94 | 107.19 | 107.58 | 58.62 | 53.78 | 527.68 | 234.82 | 40.61 | 206.17 | 18.78 |
| VOC [g/h] | 138.26 | 99.83 | 61.86 | 127.68 | 128.15 | 69.83 | 64.06 | 628.56 | 279.72 | 48.37 | 245.58 | 22.37 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.49 | 55.49 | 55.49 | 55.49 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.911 | 2.753 | 3.251 | 3.366 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.00 | 39.20 | 26.56 | 26.56 |
| l_b,int, Bicycle LOS Score for Intersection | 2.147 | 1.984 | 2.701 | 2.281 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 28.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.910 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 427 | 75 | 3 | 0 | 60 | 21 | 19 | 2 | 318 | 0 | 1 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 427 | 75 | 3 | 0 | 60 | 21 | 19 | 2 | 318 | 0 | 1 | 1 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 124 | 22 | 1 | 0 | 17 | 6 | 6 | 1 | 92 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 497 | 87 | 3 | 0 | 70 | 24 | 22 | 2 | 370 | 0 | 1 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 645 | 614 | 676 | 564 |
| Degree of Utilization, x | 0.91 | 0.15 | 0.58 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 11.65 | 0.54 | 3.78 | 0.01 |
| 95th-Percentile Queue Length [ft] | 291.34 | 13.44 | 94.52 | 0.27 |
| Approach Delay [s/veh] | 40.30 | 9.92 | 15.48 | 9.40 |
| Approach LOS | E | A | C | A |
| Intersection Delay [s/veh] | 28.51 | | | |
| Intersection LOS | D | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.013 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 390 | 5 | 5 | 310 | 5 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 390 | 5 | 5 | 310 | 5 | 5 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 98 | 1 | 1 | 78 | 1 | 1 |
| Total Analysis Volume [veh/h] | 390 | 5 | 5 | 310 | 5 | 5 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.10 | 0.00 | 14.23 | 10.64 |
| Movement LOS | A | A | A | A | B | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.01 | 0.01 | 0.06 | 0.06 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.21 | 0.21 | 1.55 | 1.55 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.13 | | 12.43 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 0.23 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.377 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 109 | 119 | 73 | 110 | 112 | 14 | 23 | 276 | 75 | 47 | 240 | 128 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 109 | 119 | 73 | 110 | 112 | 14 | 23 | 276 | 75 | 47 | 240 | 128 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 31 | 19 | 29 | 29 | 4 | 6 | 72 | 20 | 12 | 63 | 33 |
| Total Analysis Volume [veh/h] | 114 | 124 | 76 | 115 | 117 | 15 | 24 | 288 | 78 | 49 | 250 | 133 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 9 | 9 | 7 | 9 | 2 | 10 | 10 | 4 | 12 | 12 |
| g / C, Green / Cycle | 0.15 | 0.20 | 0.20 | 0.15 | 0.20 | 0.05 | 0.23 | 0.23 | 0.08 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.07 | 0.05 | 0.06 | 0.07 | 0.01 | 0.10 | 0.10 | 0.03 | 0.13 | 0.08 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1848 | 1810 | 1900 | 1764 | 1787 | 1900 | 1605 |
| c, Capacity [veh/h] | 273 | 368 | 317 | 273 | 364 | 86 | 430 | 399 | 148 | 497 | 420 |
| d1, Uniform Delay [s] | 17.93 | 16.12 | 15.80 | 17.93 | 16.19 | 21.44 | 15.48 | 15.53 | 20.17 | 14.64 | 13.86 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 0.54 | 0.39 | 0.38 | 0.61 | 0.65 | 1.30 | 1.46 | 0.49 | 1.47 | 0.80 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.42 | 0.34 | 0.24 | 0.42 | 0.36 | 0.28 | 0.44 | 0.45 | 0.33 | 0.50 | 0.32 |
| d, Delay for Lane Group [s/veh] | 18.31 | 16.66 | 16.18 | 18.31 | 16.80 | 22.09 | 16.78 | 16.99 | 20.66 | 16.11 | 14.66 |
| Lane Group LOS | B | B | B | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.93 | 0.96 | 0.58 | 0.94 | 1.03 | 0.23 | 1.54 | 1.48 | 0.43 | 1.86 | 0.93 |
| 50th-Percentile Queue Length [ft/ln] | 23.20 | 23.94 | 14.40 | 23.40 | 25.67 | 5.84 | 38.44 | 37.09 | 10.64 | 46.38 | 23.14 |
| 95th-Percentile Queue Length [veh/ln] | 1.67 | 1.72 | 1.04 | 1.69 | 1.85 | 0.42 | 2.77 | 2.67 | 0.77 | 3.34 | 1.67 |
| 95th-Percentile Queue Length [ft/ln] | 41.76 | 43.09 | 25.93 | 42.13 | 46.20 | 10.50 | 69.19 | 66.76 | 19.14 | 83.49 | 41.66 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 18.31 | 16.66 | 16.18 | 18.31 | 16.80 | 16.80 | 22.09 | 16.86 | 16.99 | 20.66 | 16.11 | 14.66 |
| Movement LOS | B | B | B | B | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 17.14 | | | 17.50 | | | 17.21 | | | 16.18 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 16.92 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.377 | | | | | | | | | | | |

**Emissions**

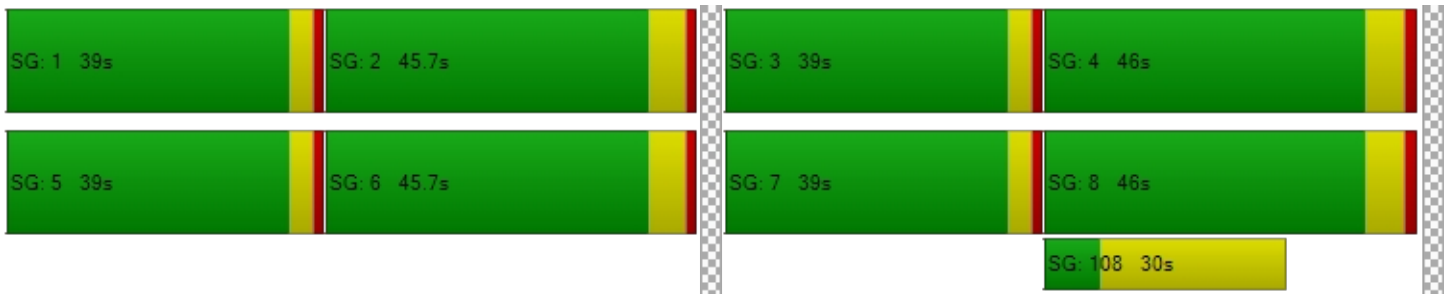
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 57.33 | 62.36 | 38.22 | 57.32 | 65.79 | 11.83 | 92.36 | 88.01 | 12.84 | 65.52 | 34.86 |
| Stops [stops/h] | 71.94 | 74.24 | 44.67 | 72.58 | 79.59 | 18.10 | 119.20 | 115.01 | 32.98 | 143.84 | 71.77 |
| Fuel consumption [US gal/h] | 3.28 | 3.48 | 2.12 | 3.30 | 3.70 | 0.71 | 5.12 | 4.90 | 1.14 | 5.22 | 2.67 |
| CO [g/h] | 229.58 | 243.32 | 147.89 | 230.36 | 258.35 | 49.59 | 357.85 | 342.52 | 79.85 | 365.02 | 186.35 |
| NOx [g/h] | 44.67 | 47.34 | 28.77 | 44.82 | 50.26 | 9.65 | 69.62 | 66.64 | 15.54 | 71.02 | 36.26 |
| VOC [g/h] | 53.21 | 56.39 | 34.27 | 53.39 | 59.87 | 11.49 | 82.94 | 79.38 | 18.51 | 84.60 | 43.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 13.52 | 15.91 | 15.66 | 15.66 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.425 | 2.166 | 2.349 | 2.564 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1723 | 1723 | 1723 | 1723 |
| d_b, Bicycle Delay [s] | 0.45 | 0.45 | 0.45 | 0.45 |
| l_b,int, Bicycle LOS Score for Intersection | 2.078 | 1.967 | 1.881 | 2.272 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.013 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 9 | 309 | 13 | 9 | 247 | 6 | 3 | 3 | 5 | 5 | 7 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 309 | 13 | 9 | 247 | 6 | 3 | 3 | 5 | 5 | 7 | 15 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 80 | 3 | 2 | 64 | 2 | 1 | 1 | 1 | 1 | 2 | 4 |
| Total Analysis Volume [veh/h] | 9 | 322 | 14 | 9 | 257 | 6 | 3 | 3 | 5 | 5 | 7 | 16 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.83 | 0.00 | 0.00 | 8.05 | 0.00 | 0.00 | 14.67 | 14.25 | 9.74 | 14.69 | 14.46 | 10.40 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | B |
| 95th-Percentile Queue Length [veh/ln] | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.07 | 0.07 | 0.07 | 0.17 | 0.17 | 0.17 |
| 95th-Percentile Queue Length [ft/ln] | 0.53 | 0.00 | 0.00 | 0.57 | 0.00 | 0.00 | 1.67 | 1.67 | 1.67 | 4.18 | 4.18 | 4.18 |
| d_A, Approach Delay [s/veh] | 0.20 | | | 0.27 | | | 12.31 | | | 12.18 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 0.94 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.591 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 123 | 37 | 28 | 215 | 32 | 20 | 202 | 87 | 73 | 272 | 32 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 123 | 37 | 28 | 215 | 32 | 20 | 202 | 87 | 73 | 272 | 32 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 33 | 10 | 8 | 58 | 9 | 5 | 55 | 24 | 20 | 74 | 9 |
| Total Analysis Volume [veh/h] | 121 | 134 | 40 | 30 | 234 | 35 | 22 | 220 | 95 | 79 | 296 | 35 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 11 | 11 | 1 | 9 | 1 | 7 | 7 | 2 | 9 |
| g / C, Green / Cycle | 0.09 | 0.29 | 0.29 | 0.03 | 0.23 | 0.02 | 0.19 | 0.19 | 0.06 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.07 | 0.03 | 0.02 | 0.15 | 0.01 | 0.09 | 0.09 | 0.04 | 0.18 |
| s, saturation flow rate [veh/h] | 1810 | 1882 | 1594 | 1810 | 1845 | 1810 | 1900 | 1695 | 1810 | 1865 |
| c, Capacity [veh/h] | 162 | 554 | 469 | 53 | 432 | 40 | 366 | 327 | 110 | 431 |
| d1, Uniform Delay [s] | 16.80 | 10.14 | 9.66 | 18.11 | 12.98 | 18.29 | 13.47 | 13.54 | 17.44 | 13.59 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.60 | 0.32 | 0.11 | 3.50 | 2.09 | 4.16 | 0.63 | 0.77 | 3.29 | 2.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.24 | 0.09 | 0.57 | 0.62 | 0.54 | 0.44 | 0.47 | 0.72 | 0.77 |
| d, Delay for Lane Group [s/veh] | 19.40 | 10.46 | 9.77 | 21.61 | 15.07 | 22.45 | 14.10 | 14.31 | 20.72 | 15.76 |
| Lane Group LOS | B | B | A | C | B | C | B | B | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.89 | 0.60 | 0.17 | 0.27 | 1.86 | 0.19 | 0.93 | 0.89 | 0.62 | 2.06 |
| 50th-Percentile Queue Length [ft/ln] | 22.22 | 15.01 | 4.28 | 6.82 | 46.61 | 4.87 | 23.23 | 22.21 | 15.41 | 51.55 |
| 95th-Percentile Queue Length [veh/ln] | 1.60 | 1.08 | 0.31 | 0.49 | 3.36 | 0.35 | 1.67 | 1.60 | 1.11 | 3.71 |
| 95th-Percentile Queue Length [ft/ln] | 40.00 | 27.01 | 7.70 | 12.28 | 83.90 | 8.77 | 41.81 | 39.98 | 27.74 | 92.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.40 | 10.46 | 9.77 | 21.61 | 15.07 | 15.07 | 22.45 | 14.15 | 14.31 | 20.72 | 15.76 | 15.76 |
| Movement LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 14.03 | | | 15.73 | | | 14.74 | | | 16.72 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.41 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.591 | | | | | | | | | | | |

**Emissions**

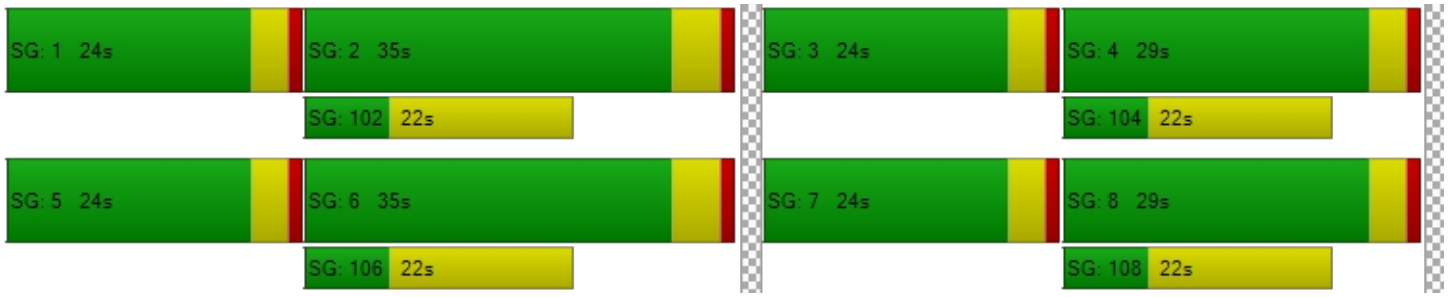
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 60.36 | 66.84 | 19.95 | 15.02 | 134.72 | 10.97 | 80.95 | 76.16 | 79.13 | 331.54 |
| Stops [stops/h] | 85.10 | 57.46 | 16.37 | 26.13 | 178.48 | 18.66 | 88.94 | 85.05 | 59.01 | 197.38 |
| Fuel consumption [US gal/h] | 3.60 | 3.29 | 0.97 | 0.89 | 7.36 | 0.71 | 4.35 | 4.11 | 3.78 | 14.88 |
| CO [g/h] | 251.97 | 230.02 | 67.59 | 62.55 | 514.28 | 49.53 | 303.81 | 287.50 | 264.17 | 1040.14 |
| NOx [g/h] | 49.02 | 44.75 | 13.15 | 12.17 | 100.06 | 9.64 | 59.11 | 55.94 | 51.40 | 202.37 |
| VOC [g/h] | 58.40 | 53.31 | 15.67 | 14.50 | 119.19 | 11.48 | 70.41 | 66.63 | 61.22 | 241.06 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.41 | 9.41 | 9.41 | 9.41 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.453 | 2.047 | 2.367 | 2.334 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1595 | 1595 | 1330 | 1330 |
| d_b, Bicycle Delay [s] | 0.77 | 0.77 | 2.11 | 2.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.046 | 2.053 | 1.838 | 2.236 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.491 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 139 | 536 | 124 | 20 | 392 | 41 | 61 | 254 | 159 | 49 | 181 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 139 | 536 | 124 | 20 | 392 | 41 | 61 | 254 | 159 | 49 | 181 | 21 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 140 | 32 | 5 | 102 | 11 | 16 | 66 | 41 | 13 | 47 | 5 |
| Total Analysis Volume [veh/h] | 145 | 558 | 129 | 21 | 408 | 43 | 64 | 265 | 166 | 51 | 189 | 22 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 16 | 16 | 2 | 10 | 10 | 5 | 11 | 11 | 5 | 10 | 10 |
| g / C, Green / Cycle | 0.16 | 0.32 | 0.32 | 0.05 | 0.20 | 0.20 | 0.11 | 0.22 | 0.22 | 0.09 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.16 | 0.08 | 0.01 | 0.12 | 0.12 | 0.04 | 0.14 | 0.10 | 0.03 | 0.05 | 0.01 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1607 | 1810 | 1888 | 1820 | 1810 | 1888 | 1598 | 1810 | 3618 | 1592 |
| c, Capacity [veh/h] | 282 | 1138 | 509 | 85 | 388 | 374 | 196 | 419 | 355 | 169 | 750 | 330 |
| d1, Uniform Delay [s] | 19.21 | 13.77 | 12.64 | 22.88 | 17.87 | 17.90 | 20.53 | 17.52 | 16.81 | 21.06 | 16.50 | 15.86 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.44 | 0.33 | 0.26 | 1.51 | 1.42 | 1.52 | 0.97 | 1.58 | 0.96 | 0.99 | 0.17 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.51 | 0.49 | 0.25 | 0.25 | 0.59 | 0.60 | 0.33 | 0.63 | 0.47 | 0.30 | 0.25 | 0.07 |
| d, Delay for Lane Group [s/veh] | 20.66 | 14.09 | 12.90 | 24.39 | 19.30 | 19.42 | 21.49 | 19.10 | 17.77 | 22.05 | 16.68 | 15.94 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.38 | 1.98 | 0.86 | 0.25 | 2.25 | 2.20 | 0.68 | 2.60 | 1.55 | 0.51 | 0.75 | 0.17 |
| 50th-Percentile Queue Length [ft/ln] | 34.49 | 49.54 | 21.40 | 6.33 | 56.15 | 55.07 | 16.90 | 64.95 | 38.63 | 12.87 | 18.79 | 4.29 |
| 95th-Percentile Queue Length [veh/ln] | 2.48 | 3.57 | 1.54 | 0.46 | 4.04 | 3.96 | 1.22 | 4.68 | 2.78 | 0.93 | 1.35 | 0.31 |
| 95th-Percentile Queue Length [ft/ln] | 62.08 | 89.17 | 38.52 | 11.39 | 101.07 | 99.12 | 30.42 | 116.91 | 69.53 | 23.17 | 33.81 | 7.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.66 | 14.09 | 12.90 | 24.39 | 19.35 | 19.42 | 21.49 | 19.10 | 17.77 | 22.05 | 16.68 | 15.94 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 15.05 | | | 19.58 | | | 18.96 | | | 17.66 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.36 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.491 | | | | | | | | | | | |

**Emissions**

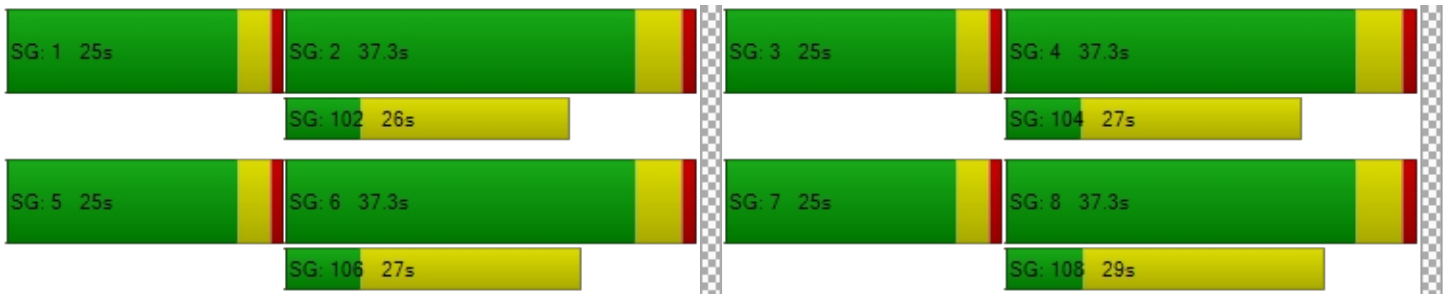
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 28.98 | 111.54 | 25.79 | 10.47 | 113.87 | 111.09 | 31.54 | 130.58 | 81.80 | 5.27 | 19.51 | 2.27 |
| Stops [stops/h] | 100.24 | 287.94 | 62.19 | 18.38 | 163.19 | 160.03 | 49.11 | 188.76 | 112.27 | 37.40 | 109.19 | 12.48 |
| Fuel consumption [US gal/h] | 2.85 | 9.00 | 2.00 | 0.64 | 6.49 | 6.34 | 1.85 | 7.45 | 4.59 | 0.87 | 2.67 | 0.30 |
| CO [g/h] | 199.17 | 629.37 | 139.51 | 44.53 | 453.37 | 443.00 | 129.28 | 520.67 | 320.70 | 61.12 | 186.49 | 21.28 |
| NOx [g/h] | 38.75 | 122.45 | 27.14 | 8.66 | 88.21 | 86.19 | 25.15 | 101.30 | 62.40 | 11.89 | 36.28 | 4.14 |
| VOC [g/h] | 46.16 | 145.86 | 32.33 | 10.32 | 105.07 | 102.67 | 29.96 | 120.67 | 74.32 | 14.17 | 43.22 | 4.93 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.00 | 15.00 | 15.00 | 15.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.774 | 2.483 | 2.436 | 2.464 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1292 | 1292 | 1292 | 1292 |
| d_b, Bicycle Delay [s] | 3.11 | 3.11 | 3.11 | 3.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.246 | 1.949 | 2.376 | 1.776 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.491 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 446 | 825 | 0 | 0 | 438 | 183 | 0 | 0 | 0 | 122 | 0 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 446 | 825 | 0 | 0 | 438 | 183 | 0 | 0 | 0 | 122 | 0 | 14 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 119 | 219 | 0 | 0 | 116 | 49 | 0 | 0 | 0 | 32 | 0 | 4 |
| Total Analysis Volume [veh/h] | 474 | 878 | 0 | 0 | 466 | 195 | 0 | 0 | 0 | 130 | 0 | 15 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 9 | 30 | 15 | 15 | | 7 | 7 |
| g / C, Green / Cycle | 0.18 | 0.60 | 0.31 | 0.31 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.24 | 0.18 | 0.20 | | 0.07 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1691 | | 1787 | 1615 |
| c, Capacity [veh/h] | 644 | 2169 | 577 | 519 | | 247 | 223 |
| d1, Uniform Delay [s] | 19.50 | 5.27 | 14.78 | 15.14 | | 20.30 | 19.00 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.62 | 0.23 | 1.67 | 2.42 | | 3.70 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.40 | 0.57 | 0.64 | | 0.53 | 0.07 |
| d, Delay for Lane Group [s/veh] | 20.12 | 5.50 | 16.44 | 17.57 | | 24.00 | 19.27 |
| Lane Group LOS | C | A | B | B | | C | B |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.22 | 1.24 | 2.74 | 2.89 | | 1.39 | 0.14 |
| 50th-Percentile Queue Length [ft/ln] | 55.52 | 30.93 | 68.62 | 72.20 | | 34.69 | 3.48 |
| 95th-Percentile Queue Length [veh/ln] | 4.00 | 2.23 | 4.94 | 5.20 | | 2.50 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 99.94 | 55.68 | 123.52 | 129.96 | | 62.43 | 6.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.12 | 5.50 | 0.00 | 0.00 | 16.77 | 17.57 | 0.00 | 0.00 | 0.00 | 24.00 | 0.00 | 19.27 |
| Movement LOS | C | A | | | B | B | | | | C | | B |
| d_A, Approach Delay [s/veh] | 10.63 | | | 17.01 | | | 0.00 | | | 23.51 | | |
| Approach LOS | B | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 13.45 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.491 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 51.24 | 94.91 | 66.06 | 66.06 | | 11.17 | 1.29 |
| Stops [stops/h] | 316.20 | 176.16 | 195.39 | 205.59 | | 98.77 | 9.90 |
| Fuel consumption [US gal/h] | 7.63 | 6.43 | 5.80 | 6.00 | | 2.84 | 0.29 |
| CO [g/h] | 533.26 | 449.19 | 405.42 | 419.56 | | 198.75 | 19.99 |
| NOx [g/h] | 103.75 | 87.40 | 78.88 | 81.63 | | 38.67 | 3.89 |
| VOC [g/h] | 123.59 | 104.10 | 93.96 | 97.24 | | 46.06 | 4.63 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.66 | 22.66 | 15.48 | 15.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.910 | 2.682 | 2.008 | 1.812 |
| Crosswalk LOS | C | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1780 | 1780 | 0 | 1186 |
| d_b, Bicycle Delay [s] | 0.31 | 0.31 | 25.29 | 4.18 |
| l_b,int, Bicycle LOS Score for Intersection | 2.675 | 2.105 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 55.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.832 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 893 | 311 | 23 | 540 | 0 | 386 | 0 | 587 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 893 | 311 | 23 | 540 | 0 | 386 | 0 | 587 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 233 | 81 | 6 | 141 | 0 | 101 | 0 | 153 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 930 | 324 | 24 | 563 | 0 | 402 | 0 | 611 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 3 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.03 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.36 | 0.01 | 0.16 | 0.12 | 0.38 | |
| s, saturation flow rate [veh/h] | 1889 | 1732 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 917 | 841 | 53 | 2040 | 1037 | 478 | |
| d1, Uniform Delay [s] | 19.79 | 20.73 | 47.65 | 10.84 | 27.82 | 35.06 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.12 | 5.97 | 2.29 | 0.34 | 0.51 | 140.78 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.75 | 0.46 | 0.28 | 0.39 | 1.28 | |
| d, Delay for Lane Group [s/veh] | 23.91 | 26.70 | 49.94 | 11.17 | 28.32 | 175.83 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 11.32 | 12.15 | 0.60 | 2.87 | 3.59 | 29.21 | |
| 50th-Percentile Queue Length [ft/ln] | 282.94 | 303.74 | 15.06 | 71.83 | 89.63 | 730.23 | |
| 95th-Percentile Queue Length [veh/ln] | 16.83 | 17.87 | 1.08 | 5.17 | 6.45 | 43.73 | |
| 95th-Percentile Queue Length [ft/ln] | 420.87 | 446.65 | 27.10 | 129.30 | 161.33 | 1093.28 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 24.81 | 26.70 | 49.94 | 11.17 | 0.00 | 28.32 | 0.00 | 175.83 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 25.30 | | | 12.76 | | | 117.30 | | | 0.00 | | |
| Approach LOS | C | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 55.37 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.832 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 41.61 | 41.61 | 2.59 | 60.86 | 47.78 | 72.62 | |
| Stops [stops/h] | 407.61 | 437.58 | 21.69 | 206.97 | 258.24 | 1052.01 | |
| Fuel consumption [US gal/h] | 8.54 | 9.20 | 0.60 | 5.94 | 8.71 | 43.83 | |
| CO [g/h] | 597.29 | 642.75 | 42.12 | 415.17 | 608.96 | 3063.63 | |
| NOx [g/h] | 116.21 | 125.06 | 8.19 | 80.78 | 118.48 | 596.07 | |
| VOC [g/h] | 138.43 | 148.96 | 9.76 | 96.22 | 141.13 | 710.03 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.906 | 2.847 | 2.549 | 1.889 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.594 | 2.044 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.007 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 0 | 1 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 5 | 0 | 5 | 3 | 0 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.63 | 8.38 | 0.00 | 0.00 | 7.24 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.04 | 0.04 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 0.88 | 0.88 | 0.00 | 0.00 | 0.14 | 0.14 |
| d_A, Approach Delay [s/veh] | 8.53 | | 0.00 | | 7.24 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.20 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.015 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 11 | 13 | 321 | 403 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 11 | 13 | 321 | 403 | 2 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 3 | 4 | 88 | 111 | 1 |
| Total Analysis Volume [veh/h] | 0 | 12 | 14 | 353 | 443 | 2 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.02 | 9.64 | 8.28 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.16 | 1.16 | 0.96 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.64 | | 0.32 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.28 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.096 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 12 | 265 | 62 | 12 | 343 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 12 | 265 | 62 | 12 | 343 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 3 | 70 | 16 | 3 | 90 |
| Total Analysis Volume [veh/h] | 49 | 13 | 279 | 65 | 13 | 361 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.10 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.85 | 9.84 | 0.00 | 0.00 | 7.97 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.37 | 0.37 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 9.28 | 9.28 | 0.00 | 0.00 | 0.80 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.22 | | 0.00 | | 0.28 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.10 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.284 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 145 | 1 | 54 | 0 | 1 | 0 | 1 | 173 | 91 | 19 | 224 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 145 | 1 | 54 | 0 | 1 | 0 | 1 | 173 | 91 | 19 | 224 | 0 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 0 | 14 | 0 | 0 | 0 | 0 | 46 | 24 | 5 | 59 | 0 |
| Total Analysis Volume [veh/h] | 153 | 1 | 57 | 0 | 1 | 0 | 1 | 182 | 96 | 20 | 236 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 12 | 3 | 1 | 11 | 11 | 3 | 14 |
| g / C, Green / Cycle | 0.27 | 0.27 | 0.07 | 0.02 | 0.25 | 0.25 | 0.07 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.04 | 0.00 | 0.00 | 0.05 | 0.06 | 0.01 | 0.12 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1900 | 1810 | 3600 | 1591 | 1659 | 1894 |
| c, Capacity [veh/h] | 484 | 432 | 129 | 44 | 891 | 394 | 120 | 560 |
| d1, Uniform Delay [s] | 13.62 | 12.92 | 20.18 | 22.12 | 13.85 | 13.98 | 20.22 | 13.16 |
| k, delay calibration | 0.04 | 0.04 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.14 | 0.05 | 0.05 | 0.08 | 0.24 | 0.68 | 0.24 | 1.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.32 | 0.13 | 0.01 | 0.02 | 0.20 | 0.24 | 0.17 | 0.42 |
| d, Delay for Lane Group [s/veh] | 13.76 | 12.97 | 20.23 | 22.19 | 14.09 | 14.66 | 20.46 | 14.24 |
| Lane Group LOS | B | B | C | C | B | B | C | B |
| Critical Lane Group | Yes | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.12 | 0.39 | 0.01 | 0.01 | 0.59 | 0.68 | 0.17 | 1.59 |
| 50th-Percentile Queue Length [ft/ln] | 27.99 | 9.81 | 0.27 | 0.24 | 14.85 | 16.88 | 4.32 | 39.75 |
| 95th-Percentile Queue Length [veh/ln] | 2.02 | 0.71 | 0.02 | 0.02 | 1.07 | 1.22 | 0.31 | 2.86 |
| 95th-Percentile Queue Length [ft/ln] | 50.39 | 17.67 | 0.49 | 0.44 | 26.73 | 30.39 | 7.78 | 71.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.76 | 13.76 | 12.97 | 20.23 | 20.23 | 20.23 | 22.19 | 14.09 | 14.66 | 20.46 | 14.24 | 14.24 |
| Movement LOS | B | B | B | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 13.55 | | | 20.23 | | | 14.32 | | | 14.73 | | |
| Approach LOS | B | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 14.25 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.284 | | | | | | | | | | | |

**Emissions**

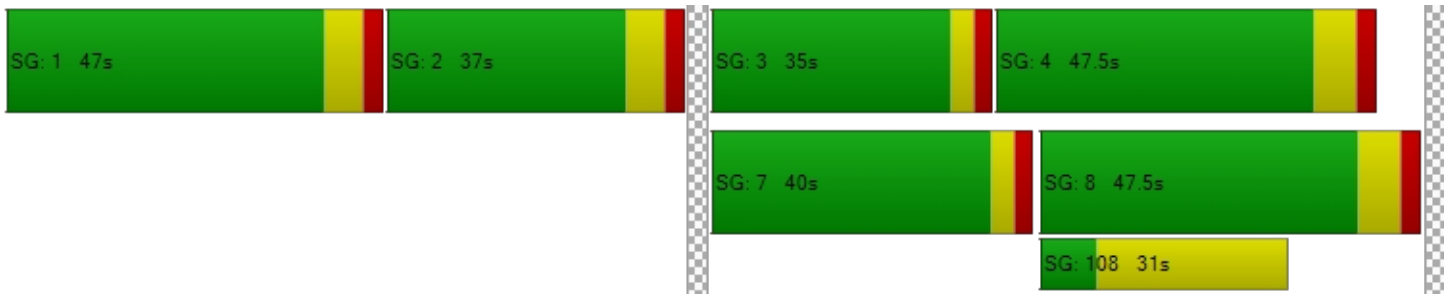
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 153.45 | 56.80 | 0.03 | 0.37 | 67.11 | 35.40 | 10.10 | 119.23 |
| Stops [stops/h] | 87.04 | 30.52 | 0.85 | 0.75 | 92.34 | 52.50 | 13.44 | 123.59 |
| Fuel consumption [US gal/h] | 7.23 | 2.66 | 0.01 | 0.03 | 4.19 | 2.28 | 0.63 | 6.57 |
| CO [g/h] | 505.33 | 185.74 | 0.70 | 1.99 | 292.67 | 159.22 | 43.90 | 459.53 |
| NOx [g/h] | 98.32 | 36.14 | 0.14 | 0.39 | 56.94 | 30.98 | 8.54 | 89.41 |
| VOC [g/h] | 117.11 | 43.05 | 0.16 | 0.46 | 67.83 | 36.90 | 10.17 | 106.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 13.46 | 17.11 | 16.69 | 16.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.173 | 1.688 | 2.487 | 2.302 |
| Crosswalk LOS | B | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1727 | 1296 | 1727 | 1727 |
| d_b, Bicycle Delay [s] | 0.43 | 2.87 | 0.43 | 0.43 |
| l_b,int, Bicycle LOS Score for Intersection | 1.908 | 1.561 | 1.790 | 1.982 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.417 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 129 | 403 | 123 | 0 | 229 | 66 | 155 | 138 | 116 | 78 | 92 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 129 | 403 | 123 | 0 | 229 | 66 | 155 | 138 | 116 | 78 | 92 | 4 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 112 | 34 | 0 | 64 | 18 | 43 | 38 | 32 | 22 | 26 | 1 |
| Total Analysis Volume [veh/h] | 143 | 448 | 137 | 0 | 254 | 73 | 172 | 153 | 129 | 87 | 102 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Maximum Recall | No | No | | No | No | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 18 | 18 | 0 | 10 | 10 | 8 | 21 | 21 | 12 | 12 | 12 |
| g / C, Green / Cycle | 0.15 | 0.32 | 0.32 | 0.00 | 0.18 | 0.18 | 0.15 | 0.38 | 0.38 | 0.23 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.12 | 0.09 | 0.00 | 0.07 | 0.05 | 0.10 | 0.08 | 0.08 | 0.08 | 0.05 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1115 | 1867 | 1615 |
| c, Capacity [veh/h] | 264 | 1174 | 522 | 0 | 640 | 288 | 275 | 713 | 608 | 279 | 421 | 364 |
| d1, Uniform Delay [s] | 21.41 | 14.08 | 13.49 | 0.00 | 19.68 | 19.15 | 21.45 | 11.35 | 11.34 | 22.18 | 17.17 | 16.27 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.64 | 0.27 | 0.35 | 0.00 | 0.53 | 0.61 | 0.87 | 0.19 | 0.21 | 0.79 | 0.37 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.54 | 0.38 | 0.26 | 0.00 | 0.40 | 0.25 | 0.62 | 0.21 | 0.21 | 0.31 | 0.24 | 0.01 |
| d, Delay for Lane Group [s/veh] | 22.05 | 14.35 | 13.84 | 0.00 | 20.21 | 19.76 | 22.32 | 11.54 | 11.56 | 22.97 | 17.54 | 16.29 |
| Lane Group LOS | C | B | B | A | C | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.45 | 1.68 | 1.01 | 0.00 | 1.22 | 0.71 | 1.94 | 1.11 | 0.94 | 0.96 | 0.91 | 0.03 |
| 50th-Percentile Queue Length [ft/ln] | 36.37 | 41.91 | 25.18 | 0.00 | 30.53 | 17.64 | 48.59 | 27.78 | 23.53 | 23.95 | 22.87 | 0.85 |
| 95th-Percentile Queue Length [veh/ln] | 2.62 | 3.02 | 1.81 | 0.00 | 2.20 | 1.27 | 3.50 | 2.00 | 1.69 | 1.72 | 1.65 | 0.06 |
| 95th-Percentile Queue Length [ft/ln] | 65.47 | 75.44 | 45.33 | 0.00 | 54.96 | 31.76 | 87.47 | 50.00 | 42.35 | 43.11 | 41.17 | 1.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.05 | 14.35 | 13.84 | 0.00 | 20.21 | 19.76 | 22.32 | 11.54 | 11.56 | 22.97 | 17.54 | 16.29 |
| Movement LOS | C | B | B | A | C | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 15.77 | | | 20.11 | | | 15.63 | | | 19.96 | | |
| Approach LOS | B | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.04 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.417 | | | | | | | | | | | |

**Emissions**

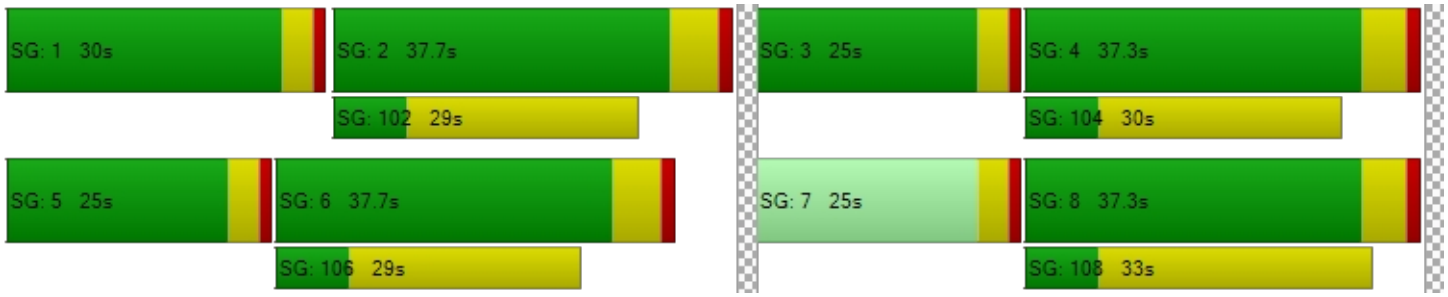
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 65.46 | 205.07 | 62.71 | 0.00 | 253.09 | 72.74 | 172.28 | 153.25 | 129.21 | 43.64 | 51.16 | 2.01 |
| Stops [stops/h] | 96.59 | 222.60 | 66.87 | 0.00 | 162.17 | 46.85 | 129.04 | 73.76 | 62.47 | 63.60 | 60.73 | 2.25 |
| Fuel consumption [US gal/h] | 4.32 | 11.59 | 3.51 | 0.00 | 12.01 | 3.45 | 8.59 | 7.08 | 5.97 | 2.69 | 2.87 | 0.11 |
| CO [g/h] | 301.71 | 810.36 | 245.52 | 0.00 | 839.47 | 241.06 | 600.17 | 494.58 | 417.14 | 188.27 | 200.82 | 7.69 |
| NOx [g/h] | 58.70 | 157.67 | 47.77 | 0.00 | 163.33 | 46.90 | 116.77 | 96.23 | 81.16 | 36.63 | 39.07 | 1.50 |
| VOC [g/h] | 69.92 | 187.81 | 56.90 | 0.00 | 194.56 | 55.87 | 139.10 | 114.62 | 96.68 | 43.63 | 46.54 | 1.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.23 | 17.23 | 17.23 | 17.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.873 | 2.682 | 2.291 | 2.279 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1180 | 1180 | 1180 | 1180 |
| d_b, Bicycle Delay [s] | 4.56 | 4.56 | 4.56 | 4.56 |
| l_b,int, Bicycle LOS Score for Intersection | 2.160 | 1.829 | 2.309 | 1.878 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 6.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 70 | 568 | 197 | 59 | 387 | 41 | 43 | 60 | 153 | 161 | 48 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 70 | 568 | 197 | 59 | 387 | 41 | 43 | 60 | 153 | 161 | 48 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 153 | 53 | 16 | 104 | 11 | 12 | 16 | 41 | 43 | 13 | 23 |
| Total Analysis Volume [veh/h] | 75 | 611 | 212 | 63 | 416 | 44 | 46 | 65 | 165 | 173 | 52 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 179 | | | 310 | | | 668 | | | 737 | | |
| Exiting Flow Rate [veh/h] | 771 | | | 755 | | | 173 | | | 350 | | |
| Demand Flow Rate [veh/h] | 70 | 568 | 197 | 59 | 387 | 41 | 43 | 60 | 153 | 161 | 48 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 75 | 611 | 212 | 63 | 416 | 44 | 46 | 65 | 165 | 173 | 52 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.97 |
| Entry Flow Rate [veh/h] | 425 | 482 | 251 | 282 | 115 | 169 | 176 | 154 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1207 | 1207 | 1016 | 1092 | 731 | 805 | 686 | 759 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1198 | 1192 | 998 | 1076 | 710 | 789 | 657 | 734 |
| X, volume / capacity | 0.35 | 0.40 | 0.25 | 0.26 | 0.16 | 0.21 | 0.26 | 0.20 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 1.61 | 1.95 | 0.97 | 1.03 | 0.55 | 0.79 | 1.01 | 0.76 |
| 95th-Percentile Queue Length [ft] | 40.15 | 48.84 | 24.29 | 25.76 | 13.81 | 19.65 | 25.37 | 18.91 |
| Approach Delay [s/veh] | 6.72 | | 5.90 | | 6.81 | | 7.95 | |
| Approach LOS | A | | A | | A | | A | |
| Intersection Delay [s/veh] | 6.71 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 5.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.312 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 708 | 641 | 0 | 430 | 236 | 0 | 0 | 0 | 47 | 0 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 708 | 641 | 0 | 430 | 236 | 0 | 0 | 0 | 47 | 0 | 26 |
| Peak Hour Factor | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 1.0000 | 1.0000 | 0.8900 | 1.0000 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 199 | 180 | 0 | 121 | 66 | 0 | 0 | 0 | 13 | 0 | 7 |
| Total Analysis Volume [veh/h] | 0 | 796 | 720 | 0 | 483 | 265 | 0 | 0 | 0 | 53 | 0 | 29 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| l1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| l2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 31 | 31 | 31 | | 31 | 31 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 14 | 14 | 14 | | 4 | 4 |
| g / C, Green / Cycle | 0.45 | 0.45 | 0.45 | | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.13 | 0.17 | | 0.03 | 0.02 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 1626 | 1621 | 726 | | 241 | 219 |
| d1, Uniform Delay [s] | 5.93 | 5.34 | 5.53 | | 11.87 | 11.72 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.43 | 0.19 | 0.57 | | 0.97 | 0.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.49 | 0.30 | 0.37 | | 0.22 | 0.13 |
| d, Delay for Lane Group [s/veh] | 6.36 | 5.53 | 6.11 | | 12.84 | 12.30 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.66 | 0.35 | 0.47 | | 0.25 | 0.13 |
| 50th-Percentile Queue Length [ft/ln] | 16.49 | 8.76 | 11.63 | | 6.20 | 3.36 |
| 95th-Percentile Queue Length [veh/ln] | 1.19 | 0.63 | 0.84 | | 0.45 | 0.24 |
| 95th-Percentile Queue Length [ft/ln] | 29.68 | 15.76 | 20.94 | | 11.16 | 6.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.36 | 0.00 | 0.00 | 5.53 | 6.11 | 0.00 | 0.00 | 0.00 | 12.84 | 0.00 | 12.30 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.52 | | | 5.73 | | | 0.00 | | | 12.65 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 5.00 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.312 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 91.06 | 47.65 | 26.14 | | 3.75 | 2.05 |
| Stops [stops/h] | 155.03 | 82.31 | 54.69 | | 29.15 | 15.78 |
| Fuel consumption [US gal/h] | 6.08 | 3.20 | 1.91 | | 0.81 | 0.43 |
| CO [g/h] | 424.93 | 223.70 | 133.19 | | 56.30 | 30.36 |
| NOx [g/h] | 82.68 | 43.52 | 25.91 | | 10.95 | 5.91 |
| VOC [g/h] | 98.48 | 51.84 | 30.87 | | 13.05 | 7.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.37 | 12.37 | 6.29 | 6.29 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.648 | 2.718 | 1.775 | 1.920 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2285 | 2285 | 0 | 1306 |
| d_b, Bicycle Delay [s] | 0.31 | 0.31 | 15.32 | 1.85 |
| l_b,int, Bicycle LOS Score for Intersection | 2.216 | 2.177 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 100.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.031 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 995 | 77 | 26 | 472 | 0 | 326 | 0 | 866 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 995 | 77 | 26 | 472 | 0 | 326 | 0 | 866 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 276 | 21 | 7 | 131 | 0 | 91 | 0 | 241 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1106 | 86 | 29 | 524 | 0 | 362 | 0 | 962 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 38 | 38 | 3 | 47 | 40 | 40 | |
| g / C, Green / Cycle | 0.38 | 0.38 | 0.03 | 0.47 | 0.40 | 0.40 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.31 | 0.32 | 0.02 | 0.15 | 0.20 | 0.60 | |
| s, saturation flow rate [veh/h] | 1892 | 1845 | 1810 | 3595 | 1801 | 1607 | |
| c, Capacity [veh/h] | 724 | 706 | 61 | 1703 | 722 | 645 | |
| d1, Uniform Delay [s] | 27.74 | 28.07 | 47.32 | 16.17 | 22.40 | 29.88 | |
| k, delay calibration | 0.27 | 0.28 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 5.88 | 7.09 | 2.10 | 0.18 | 1.15 | 229.84 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.84 | 0.47 | 0.31 | 0.50 | 1.49 | |
| d, Delay for Lane Group [s/veh] | 33.62 | 35.17 | 49.42 | 16.35 | 23.55 | 259.72 | |
| Lane Group LOS | C | D | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.95 | 13.30 | 0.72 | 3.42 | 5.92 | 54.65 | |
| 50th-Percentile Queue Length [ft/ln] | 323.87 | 332.59 | 17.98 | 85.56 | 147.92 | 1366.26 | |
| 95th-Percentile Queue Length [veh/ln] | 18.86 | 19.29 | 1.29 | 6.16 | 9.91 | 83.89 | |
| 95th-Percentile Queue Length [ft/ln] | 471.44 | 482.13 | 32.36 | 154.00 | 247.66 | 2097.36 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 34.33 | 35.17 | 49.42 | 16.35 | 0.00 | 23.55 | 0.00 | 259.72 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | D | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 34.39 | | | 18.09 | | | 195.15 | | | 0.00 | | |
| Approach LOS | C | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 100.81 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.031 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.28 | 48.28 | 3.32 | 59.94 | 28.31 | 75.23 | |
| Stops [stops/h] | 468.00 | 480.60 | 25.98 | 247.26 | 213.75 | 1974.27 | |
| Fuel consumption [US gal/h] | 11.55 | 11.90 | 0.73 | 6.87 | 6.65 | 90.02 | |
| CO [g/h] | 807.44 | 831.48 | 50.91 | 480.42 | 465.01 | 6292.55 | |
| NOx [g/h] | 157.10 | 161.78 | 9.91 | 93.47 | 90.47 | 1224.30 | |
| VOC [g/h] | 187.13 | 192.70 | 11.80 | 111.34 | 107.77 | 1458.36 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.58 | 46.58 | 39.43 | 39.43 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.122 | 2.957 | 2.903 | 1.776 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 903 | 702 | 803 | 0 |
| d_b, Bicycle Delay [s] | 14.99 | 20.97 | 17.85 | 49.83 |
| l_b,int, Bicycle LOS Score for Intersection | 2.543 | 2.016 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.068 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 0 | 13 | 0 | 0 | 0 | 6 | 219 | 23 | 11 | 180 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 0 | 13 | 0 | 0 | 0 | 6 | 219 | 23 | 11 | 180 | 3 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 0 | 4 | 0 | 0 | 0 | 2 | 64 | 7 | 3 | 52 | 1 |
| Total Analysis Volume [veh/h] | 35 | 0 | 15 | 0 | 0 | 0 | 7 | 255 | 27 | 13 | 209 | 3 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.07 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.31 | 13.29 | 9.43 | 11.65 | 13.05 | 8.85 | 7.64 | 0.00 | 0.00 | 7.82 | 0.00 | 0.00 |
| Movement LOS | B | B | A | B | B | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.22 | 0.22 | 0.22 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 5.46 | 5.46 | 5.46 | 0.00 | 0.00 | 0.00 | 0.39 | 0.00 | 0.00 | 0.76 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.45 | | | 11.19 | | | 0.19 | | | 0.45 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 1.29 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.367 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 2 | 0 | 0 | 0 | 0 | 124 | 251 | 9 | 4 | 1 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 0 | 0 | 0 | 0 | 124 | 251 | 9 | 4 | 1 | 2 | 0 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 0 | 0 | 0 | 0 | 35 | 71 | 3 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 2 | 0 | 0 | 0 | 0 | 141 | 285 | 10 | 5 | 1 | 2 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 3 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 724 | 894 | 818 | 782 |
| Degree of Utilization, x | 0.00 | 0.16 | 0.37 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.01 | 0.56 | 1.69 | 0.01 |
| 95th-Percentile Queue Length [ft] | 0.21 | 13.96 | 42.32 | 0.29 |
| Approach Delay [s/veh] | 7.99 | 7.78 | 9.93 | 7.62 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 9.22 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.239 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 76 | 5 | 1 | 124 | 75 | 6 | 157 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 76 | 5 | 1 | 124 | 75 | 6 | 157 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 2 | 0 | 39 | 24 | 2 | 50 |
| Total Analysis Volume [veh/h] | 96 | 6 | 1 | 157 | 95 | 8 | 199 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 6 | 0 | 9 | 9 | 0 | 9 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.00 | 0.33 | 0.33 | 0.02 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.00 | 0.00 | 0.04 | 0.06 | 0.00 | 0.11 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 1880 |
| c, Capacity [veh/h] | 383 | 342 | 4 | 1189 | 525 | 35 | 650 |
| d1, Uniform Delay [s] | 8.94 | 8.50 | 13.58 | 6.42 | 6.53 | 13.17 | 6.52 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.13 | 0.01 | 12.10 | 0.07 | 0.23 | 1.22 | 0.36 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.25 | 0.02 | 0.25 | 0.13 | 0.18 | 0.23 | 0.31 |
| d, Delay for Lane Group [s/veh] | 9.07 | 8.51 | 25.68 | 6.49 | 6.76 | 14.39 | 6.89 |
| Lane Group LOS | A | A | C | A | A | B | A |
| Critical Lane Group | Yes | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.32 | 0.02 | 0.02 | 0.11 | 0.16 | 0.05 | 0.52 |
| 50th-Percentile Queue Length [ft/ln] | 8.08 | 0.48 | 0.42 | 2.87 | 4.00 | 1.20 | 13.01 |
| 95th-Percentile Queue Length [veh/ln] | 0.58 | 0.03 | 0.03 | 0.21 | 0.29 | 0.09 | 0.94 |
| 95th-Percentile Queue Length [ft/ln] | 14.54 | 0.86 | 0.76 | 5.16 | 7.20 | 2.16 | 23.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.07 | 8.51 | 25.68 | 6.49 | 6.76 | 14.39 | 6.89 |
| Movement LOS | A | A | C | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.03 | | 6.67 | | | 7.18 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 7.28 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.239 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 71.85 | 4.49 | 0.50 | 78.55 | 47.53 | 10.39 | 258.34 |
| Stops [stops/h] | 42.97 | 2.54 | 2.25 | 30.50 | 21.28 | 6.38 | 69.18 |
| Fuel consumption [US gal/h] | 3.37 | 0.21 | 0.06 | 3.31 | 2.05 | 0.49 | 11.30 |
| CO [g/h] | 235.72 | 14.63 | 3.95 | 231.09 | 143.23 | 33.99 | 789.59 |
| NOx [g/h] | 45.86 | 2.85 | 0.77 | 44.96 | 27.87 | 6.61 | 153.63 |
| VOC [g/h] | 54.63 | 3.39 | 0.92 | 53.56 | 33.19 | 7.88 | 183.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.77 | 10.09 | 10.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.927 | 2.428 | 2.171 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1625 | 2364 | 2364 |
| d_b, Bicycle Delay [s] | 0.48 | 0.45 | 0.45 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.768 | 1.901 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.687 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 246 | 8 | 11 | 30 | 34 | 457 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 246 | 8 | 11 | 30 | 34 | 457 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 2 | 3 | 8 | 9 | 122 |
| Total Analysis Volume [veh/h] | 262 | 9 | 12 | 32 | 36 | 486 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 562 | 692 | 551 | 586 | 760 |
| Degree of Utilization, x | 0.47 | 0.01 | 0.02 | 0.05 | 0.69 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 2.46 | 0.04 | 0.07 | 0.17 | 5.55 |
| 95th-Percentile Queue Length [ft] | 61.51 | 0.99 | 1.67 | 4.32 | 138.77 |
| Approach Delay [s/veh] | 14.37 | | 9.25 | | 17.47 |
| Approach LOS | B | | A | | C |
| Intersection Delay [s/veh] | 16.03 | | | | |
| Intersection LOS | C | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.480 |

**Intersection Setup**

| Name | SR 168 | | | SR 168 | | | Owen Mountain | | | Tollhouse | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 | 415.00 | 100.00 | 415.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | SR 168 | | | SR 168 | | | Owen Mountain | | | Tollhouse | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 442 | 534 | 94 | 4 | 299 | 4 | 2 | 20 | 237 | 49 | 31 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 6.50 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 442 | 534 | 94 | 4 | 299 | 4 | 2 | 20 | 237 | 49 | 31 | 4 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 118 | 142 | 25 | 1 | 80 | 1 | 1 | 5 | 63 | 13 | 8 | 1 |
| Total Analysis Volume [veh/h] | 470 | 568 | 100 | 4 | 318 | 4 | 2 | 21 | 252 | 52 | 33 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 5 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 40 | 0 | 15 | 40 | 0 | 15 | 20 | 15 | 15 | 20 | 0 |
| Amber [s] | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 4.8 | 0.0 |
| All red [s] | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 | 3.6 | 2.4 | 2.4 | 3.6 | 2.4 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 61 | 0 | 0 | 61 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 | 6.0 | 5.2 | 4.8 | 6.0 | 5.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 18 | 10 | 10 | 18 | 0 |
| Vehicle Extension [s] | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 5.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 |
| L, Total Lost Time per Cycle [s] | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 |
| g_i, Effective Green Time [s] | 13 | 25 | 25 | 1 | 13 | 13 | 0 | 18 | 18 | 7 | 24 | 24 |
| g / C, Green / Cycle | 0.16 | 0.31 | 0.31 | 0.01 | 0.16 | 0.16 | 0.01 | 0.22 | 0.22 | 0.09 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.16 | 0.06 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 0.16 | 0.03 | 0.01 | 0.00 |
| s, saturation flow rate [veh/h] | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 | 1810 | 1825 | 1605 | 1810 | 3432 | 1615 |
| c, Capacity [veh/h] | 567 | 1119 | 493 | 20 | 581 | 263 | 11 | 404 | 355 | 155 | 1034 | 487 |
| d1, Uniform Delay [s] | 32.96 | 22.76 | 20.44 | 39.80 | 31.23 | 28.51 | 40.18 | 24.91 | 29.21 | 34.93 | 20.01 | 19.87 |
| k, delay calibration | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 | 0.11 | 0.31 | 0.32 | 0.11 | 0.28 | 0.28 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.18 | 2.28 | 1.28 | 4.72 | 5.07 | 0.15 | 8.31 | 0.15 | 7.43 | 1.25 | 0.03 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.51 | 0.20 | 0.20 | 0.55 | 0.02 | 0.19 | 0.05 | 0.71 | 0.33 | 0.03 | 0.01 |
| d, Delay for Lane Group [s/veh] | 36.14 | 25.04 | 21.72 | 44.52 | 36.30 | 28.65 | 48.48 | 25.06 | 36.63 | 36.19 | 20.04 | 19.89 |
| Lane Group LOS | D | C | C | D | D | C | D | C | D | D | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.59 | 4.60 | 1.52 | 0.10 | 3.20 | 0.07 | 0.06 | 0.33 | 5.11 | 1.00 | 0.22 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 114.80 | 115.12 | 37.99 | 2.60 | 79.92 | 1.87 | 1.59 | 8.21 | 127.72 | 25.05 | 5.46 | 1.35 |
| 95th-Percentile Queue Length [veh/ln] | 8.11 | 8.12 | 2.74 | 0.19 | 5.75 | 0.13 | 0.11 | 0.59 | 8.82 | 1.80 | 0.39 | 0.10 |
| 95th-Percentile Queue Length [ft/ln] | 202.66 | 203.10 | 68.38 | 4.69 | 143.86 | 3.36 | 2.86 | 14.77 | 220.39 | 45.08 | 9.83 | 2.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.14 | 25.04 | 21.72 | 44.52 | 36.30 | 28.65 | 48.48 | 25.06 | 36.63 | 36.19 | 20.04 | 19.89 |
| Movement LOS | D | C | C | D | D | C | D | C | D | D | C | B |
| d_A, Approach Delay [s/veh] | 29.33 | | | 36.31 | | | 35.84 | | | 29.47 | | |
| Approach LOS | C | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.56 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.480 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 64.95 | 78.50 | 13.82 | 4.99 | 396.61 | 4.99 | 0.55 | 5.76 | 69.10 | 4.46 | 2.83 | 0.34 |
| Stops [stops/h] | 407.92 | 409.06 | 67.49 | 4.63 | 283.99 | 3.32 | 2.82 | 14.58 | 226.92 | 44.50 | 19.41 | 2.39 |
| Fuel consumption [US gal/h] | 8.38 | 8.39 | 1.38 | 0.27 | 20.25 | 0.25 | 0.06 | 0.42 | 5.98 | 0.81 | 0.36 | 0.04 |
| CO [g/h] | 586.04 | 586.16 | 96.73 | 18.67 | 1415.14 | 17.27 | 4.05 | 29.69 | 417.78 | 56.79 | 25.06 | 3.04 |
| NOx [g/h] | 114.02 | 114.05 | 18.82 | 3.63 | 275.33 | 3.36 | 0.79 | 5.78 | 81.28 | 11.05 | 4.87 | 0.59 |
| VOC [g/h] | 135.82 | 135.85 | 22.42 | 4.33 | 327.97 | 4.00 | 0.94 | 6.88 | 96.82 | 13.16 | 5.81 | 0.71 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 30.27 | 30.27 | 30.27 | 30.27 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.833 | 2.593 | 2.446 | 2.336 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 987 | 987 | 494 | 494 |
| d_b, Bicycle Delay [s] | 10.40 | 10.40 | 22.99 | 22.99 |
| l_b,int, Bicycle LOS Score for Intersection | 2.498 | 1.829 | 2.013 | 1.633 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.202 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 39 | 2 | 51 | 25 | 65 | 155 | 361 | 31 | 1 | 208 | 47 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 39 | 2 | 51 | 25 | 65 | 155 | 361 | 31 | 1 | 208 | 47 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 11 | 1 | 14 | 7 | 18 | 42 | 98 | 8 | 0 | 57 | 13 |
| Total Analysis Volume [veh/h] | 18 | 42 | 2 | 55 | 27 | 71 | 168 | 392 | 34 | 1 | 226 | 51 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 12 | 6 | 15 | 15 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.17 | 0.10 | 0.23 | 0.23 | 0.14 | 0.28 | 0.28 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.02 | 0.01 | 0.04 | 0.05 | 0.11 | 0.02 | 0.00 | 0.06 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1809 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 313 | 341 | 430 | 366 | 501 | 1013 | 457 | 7 | 523 | 425 |
| d1, Uniform Delay [s] | 31.16 | 23.65 | 27.95 | 20.50 | 21.14 | 26.07 | 19.49 | 17.73 | 33.53 | 26.14 | 24.91 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 0.70 | 0.08 | 0.35 | 1.47 | 0.15 | 0.52 | 0.15 | 3.79 | 1.20 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.14 | 0.16 | 0.06 | 0.19 | 0.34 | 0.39 | 0.07 | 0.15 | 0.43 | 0.12 |
| d, Delay for Lane Group [s/veh] | 31.68 | 24.34 | 28.03 | 20.84 | 22.60 | 26.21 | 20.01 | 17.87 | 37.31 | 27.35 | 25.18 |
| Lane Group LOS | C | C | C | C | C | C | C | B | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.28 | 0.63 | 0.37 | 0.33 | 0.94 | 1.17 | 2.39 | 0.38 | 0.02 | 1.47 | 0.31 |
| 50th-Percentile Queue Length [ft/ln] | 7.11 | 15.70 | 9.25 | 8.35 | 23.55 | 29.25 | 59.70 | 9.60 | 0.53 | 36.74 | 7.82 |
| 95th-Percentile Queue Length [veh/ln] | 0.51 | 1.13 | 0.67 | 0.60 | 1.70 | 2.11 | 4.30 | 0.69 | 0.04 | 2.65 | 0.56 |
| 95th-Percentile Queue Length [ft/ln] | 12.80 | 28.26 | 16.64 | 15.03 | 42.39 | 52.65 | 107.46 | 17.27 | 0.95 | 66.13 | 14.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.68 | 24.34 | 24.34 | 28.03 | 20.84 | 22.60 | 26.21 | 20.01 | 17.87 | 37.31 | 27.35 | 25.18 |
| Movement LOS | C | C | C | C | C | C | C | C | B | D | C | C |
| d_A, Approach Delay [s/veh] | 26.47 | | | 24.24 | | | 21.64 | | | 26.99 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.65 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.202 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.33 | 3.26 | 71.40 | 35.05 | 92.17 | 209.53 | 488.91 | 42.41 | 0.17 | 39.09 | 8.82 |
| Stops [stops/h] | 15.21 | 33.59 | 39.56 | 17.86 | 50.38 | 125.15 | 255.41 | 20.53 | 1.13 | 157.19 | 33.47 |
| Fuel consumption [US gal/h] | 0.25 | 0.54 | 3.31 | 1.56 | 4.19 | 10.21 | 23.13 | 1.98 | 0.04 | 6.73 | 1.44 |
| CO [g/h] | 17.82 | 37.59 | 231.51 | 109.22 | 292.64 | 713.91 | 1617.05 | 138.59 | 3.02 | 470.36 | 100.94 |
| NOx [g/h] | 3.47 | 7.31 | 45.04 | 21.25 | 56.94 | 138.90 | 314.62 | 26.97 | 0.59 | 91.51 | 19.64 |
| VOC [g/h] | 4.13 | 8.71 | 53.66 | 25.31 | 67.82 | 165.46 | 374.77 | 32.12 | 0.70 | 109.01 | 23.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.56 | 23.56 | 23.56 | 23.56 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.964 | 2.549 | 2.705 | 2.797 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 594 | 594 | 891 | 891 |
| d_b, Bicycle Delay [s] | 16.63 | 16.63 | 10.34 | 10.34 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.812 | 2.050 | 1.789 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

# Appendix F

## Level of Service Calculation Sheets – Near-Term Conditions

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Near Term No Project AM.pdf

Scenario 9 Near Term AM No Proj
7/5/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.647 | 29.8 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.547 | 27.3 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Thru | 0.539 | 27.6 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | EB Left | 0.011 | 26.0 | D |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | WB Right | 0.925 | 29.5 | D |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.646 | 25.7 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Right | 0.625 | 25.9 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.739 | 31.1 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 0.790 | 36.5 | D |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.710 | 39.0 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.454 | 18.6 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.682 | 21.1 | C |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 1.083 | 49.7 | E |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Thru | 1.257 | 86.0 | F |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 0.997 | 89.6 | F |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.479 | 30.0 | C |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 0.990 | 38.5 | E |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.035 | 18.0 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.561 | 19.9 | B |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | WB Left | 0.039 | 13.4 | B |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.570 | 15.1 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.937 | 80.4 | F |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.801 | 25.9 | C |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.723 | 27.5 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.019 | 8.7 | A |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.025 | 20.3 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.495 | 37.2 | E |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.595 | 20.1 | C |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.666 | 23.8 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | SB Left | | 11.4 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.513 | 6.9 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.050 | 101.0 | F |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.235 | 17.2 | C |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Right | 0.506 | 10.4 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.374 | 8.3 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | SB Left | 1.103 | 68.5 | F |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Left | 0.569 | 39.2 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.307 | 26.6 | C |
| 43 | Shephed Ave & Project Access South | Unknown | ? | | ? | ? | ? |
| 44 | Behymer Ave & Project Access North | Unknown | ? | | ? | ? | ? |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.647 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 458 | 449 | 18 | 56 | 485 | 82 | 20 | 67 | 317 | 2 | 204 | 52 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 458 | 449 | 18 | 56 | 485 | 82 | 20 | 67 | 317 | 2 | 204 | 52 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 149 | 146 | 6 | 18 | 157 | 27 | 6 | 22 | 103 | 1 | 66 | 17 |
| Total Analysis Volume [veh/h] | 595 | 583 | 23 | 73 | 630 | 106 | 26 | 87 | 412 | 3 | 265 | 68 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 16 | 31 | 31 | 7 | 20 | 20 | 4 | 25 | 25 | 1 | 21 | 21 |
| g / C, Green / Cycle | 0.20 | 0.37 | 0.37 | 0.08 | 0.24 | 0.24 | 0.04 | 0.30 | 0.30 | 0.01 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.16 | 0.01 | 0.04 | 0.12 | 0.07 | 0.01 | 0.05 | 0.26 | 0.00 | 0.14 | 0.04 |
| s, saturation flow rate [veh/h] | 3475 | 3560 | 1615 | 1759 | 5065 | 1573 | 1810 | 1877 | 1603 | 1810 | 1894 | 1565 |
| c, Capacity [veh/h] | 682 | 1312 | 595 | 138 | 1208 | 375 | 79 | 559 | 478 | 12 | 480 | 397 |
| d1, Uniform Delay [s] | 32.58 | 19.94 | 16.91 | 37.06 | 27.69 | 26.00 | 38.80 | 21.62 | 27.74 | 41.34 | 27.09 | 24.36 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.32 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.41 | 0.77 | 0.09 | 1.17 | 1.13 | 1.32 | 0.89 | 0.30 | 12.65 | 4.12 | 1.70 | 0.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.87 | 0.44 | 0.04 | 0.53 | 0.52 | 0.28 | 0.33 | 0.16 | 0.86 | 0.25 | 0.55 | 0.17 |
| d, Delay for Lane Group [s/veh] | 33.99 | 20.71 | 17.00 | 38.23 | 28.82 | 27.32 | 39.70 | 21.92 | 40.39 | 45.46 | 28.79 | 24.70 |
| Lane Group LOS | C | C | B | D | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.46 | 3.92 | 0.27 | 1.38 | 3.45 | 1.71 | 0.51 | 1.21 | 8.73 | 0.07 | 4.67 | 1.06 |
| 50th-Percentile Queue Length [ft/ln] | 136.59 | 98.11 | 6.69 | 34.60 | 86.31 | 42.85 | 12.77 | 30.19 | 218.27 | 1.85 | 116.81 | 26.60 |
| 95th-Percentile Queue Length [veh/ln] | 9.30 | 7.06 | 0.48 | 2.49 | 6.21 | 3.08 | 0.92 | 2.17 | 13.58 | 0.13 | 8.22 | 1.92 |
| 95th-Percentile Queue Length [ft/ln] | 232.42 | 176.60 | 12.03 | 62.27 | 155.36 | 77.12 | 22.98 | 54.34 | 339.42 | 3.33 | 205.44 | 47.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.99 | 20.71 | 17.00 | 38.23 | 28.82 | 27.32 | 39.70 | 21.92 | 40.39 | 45.46 | 28.79 | 24.70 |
| Movement LOS | C | C | B | D | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 27.22 | | | 29.47 | | | 37.30 | | | 28.11 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.647 | | | | | | | | | | | |

**Emissions**

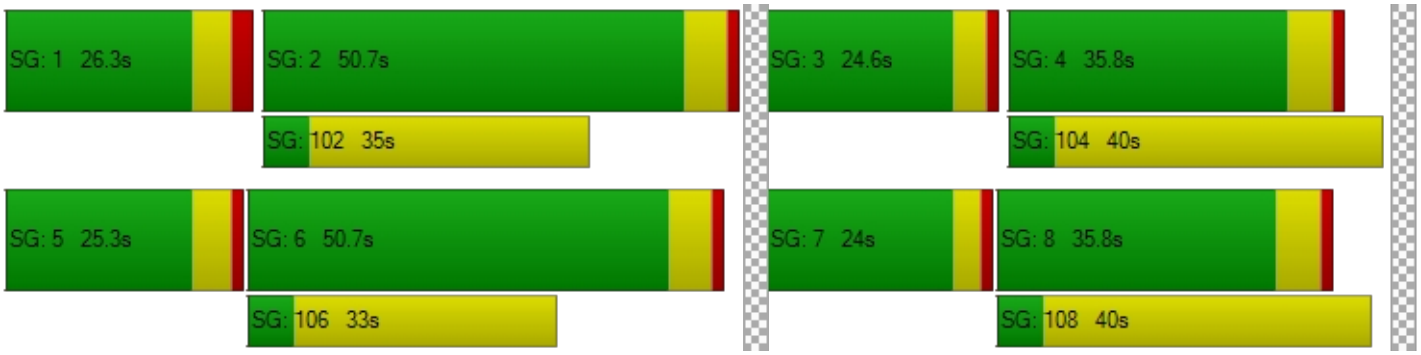
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 300.36 | 294.30 | 11.61 | 7.19 | 62.05 | 10.44 | 2.59 | 8.67 | 41.04 | 3.11 | 274.95 | 70.55 |
| Stops [stops/h] | 471.17 | 338.45 | 11.53 | 59.67 | 446.61 | 73.90 | 22.02 | 52.07 | 376.47 | 3.19 | 201.47 | 45.88 |
| Fuel consumption [US gal/h] | 21.41 | 17.51 | 0.65 | 1.72 | 12.63 | 2.07 | 0.57 | 1.33 | 9.47 | 0.17 | 13.98 | 3.50 |
| CO [g/h] | 1496.31 | 1223.79 | 45.11 | 120.55 | 882.76 | 144.93 | 40.02 | 93.15 | 662.23 | 12.13 | 977.50 | 244.64 |
| NOx [g/h] | 291.13 | 238.10 | 8.78 | 23.46 | 171.75 | 28.20 | 7.79 | 18.12 | 128.85 | 2.36 | 190.19 | 47.60 |
| VOC [g/h] | 346.78 | 283.62 | 10.46 | 27.94 | 204.59 | 33.59 | 9.28 | 21.59 | 153.48 | 2.81 | 226.54 | 56.70 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.23 | 33.23 | 33.23 | 33.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.179 | 2.937 | 2.734 | 2.255 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1078 | 1078 | 719 | 719 |
| d_b, Bicycle Delay [s] | 8.87 | 8.87 | 17.13 | 17.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.550 | 2.005 | 2.426 | 2.114 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.547 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 134 | 662 | 26 | 73 | 672 | 64 | 77 | 131 | 258 | 25 | 156 | 124 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 134 | 662 | 26 | 73 | 672 | 64 | 77 | 131 | 258 | 25 | 156 | 124 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 186 | 7 | 21 | 189 | 18 | 22 | 37 | 72 | 7 | 44 | 35 |
| Total Analysis Volume [veh/h] | 151 | 744 | 29 | 82 | 755 | 72 | 87 | 147 | 290 | 28 | 175 | 139 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 9 | 24 | 24 | 7 | 22 | 22 | 7 | 22 | 22 | 4 | 18 |
| g / C, Green / Cycle | 0.11 | 0.31 | 0.31 | 0.08 | 0.28 | 0.28 | 0.09 | 0.28 | 0.28 | 0.05 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.15 | 0.02 | 0.05 | 0.15 | 0.04 | 0.05 | 0.08 | 0.18 | 0.02 | 0.18 |
| s, saturation flow rate [veh/h] | 1747 | 5127 | 1567 | 1711 | 5090 | 1615 | 1772 | 1888 | 1577 | 1758 | 1744 |
| c, Capacity [veh/h] | 189 | 1575 | 481 | 145 | 1444 | 458 | 153 | 533 | 445 | 82 | 388 |
| d1, Uniform Delay [s] | 34.47 | 22.24 | 19.37 | 34.84 | 23.86 | 21.27 | 34.76 | 22.13 | 25.01 | 36.56 | 29.21 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.93 | 0.72 | 0.17 | 1.29 | 0.96 | 0.51 | 1.23 | 0.34 | 1.95 | 0.90 | 8.70 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.47 | 0.06 | 0.57 | 0.52 | 0.16 | 0.57 | 0.28 | 0.65 | 0.34 | 0.81 |
| d, Delay for Lane Group [s/veh] | 37.40 | 22.95 | 19.54 | 36.13 | 24.82 | 21.79 | 35.98 | 22.47 | 26.96 | 37.45 | 37.91 |
| Lane Group LOS | D | C | B | D | C | C | D | C | C | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.76 | 3.42 | 0.36 | 1.46 | 3.65 | 0.96 | 1.58 | 2.03 | 4.66 | 0.53 | 6.37 |
| 50th-Percentile Queue Length [ft/ln] | 69.09 | 85.47 | 9.00 | 36.39 | 91.36 | 24.12 | 39.54 | 50.76 | 116.41 | 13.35 | 159.32 |
| 95th-Percentile Queue Length [veh/ln] | 4.97 | 6.15 | 0.65 | 2.62 | 6.58 | 1.74 | 2.85 | 3.65 | 8.20 | 0.96 | 10.51 |
| 95th-Percentile Queue Length [ft/ln] | 124.36 | 153.84 | 16.20 | 65.50 | 164.45 | 43.42 | 71.18 | 91.37 | 204.89 | 24.03 | 262.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.40 | 22.95 | 19.54 | 36.13 | 24.82 | 21.79 | 35.98 | 22.47 | 26.96 | 37.45 | 37.91 | 37.91 |
| Movement LOS | D | C | B | D | C | C | D | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 25.21 | | | 25.60 | | | 27.20 | | | 37.87 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 27.33 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.547 | | | | | | | | | | | |

**Emissions**

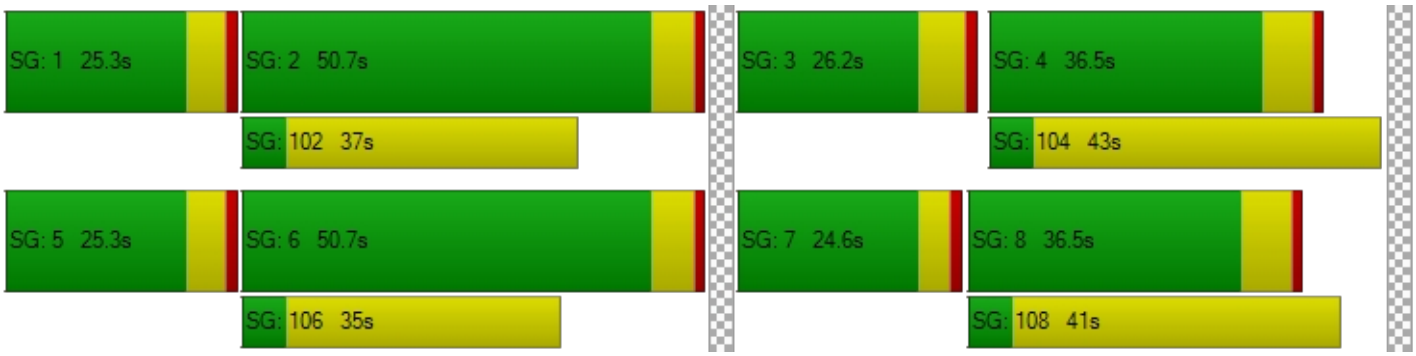
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 152.97 | 753.72 | 29.38 | 41.39 | 381.13 | 36.35 | 9.47 | 15.99 | 31.55 | 29.05 | 325.75 |
| Stops [stops/h] | 125.88 | 467.19 | 16.40 | 66.31 | 499.41 | 43.95 | 72.05 | 92.49 | 212.12 | 24.32 | 290.30 |
| Fuel consumption [US gal/h] | 8.20 | 35.89 | 1.35 | 3.01 | 24.24 | 2.21 | 1.68 | 2.15 | 4.81 | 1.54 | 17.44 |
| CO [g/h] | 573.48 | 2508.54 | 94.43 | 210.19 | 1694.56 | 154.55 | 117.71 | 150.53 | 335.88 | 107.90 | 1218.79 |
| NOx [g/h] | 111.58 | 488.07 | 18.37 | 40.89 | 329.70 | 30.07 | 22.90 | 29.29 | 65.35 | 20.99 | 237.13 |
| VOC [g/h] | 132.91 | 581.38 | 21.88 | 48.71 | 392.73 | 35.82 | 27.28 | 34.89 | 77.84 | 25.01 | 282.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.03 | 31.03 | 31.03 | 31.03 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.126 | 3.102 | 2.426 | 2.130 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1139 | 1139 | 759 | 759 |
| d_b, Bicycle Delay [s] | 7.33 | 7.33 | 15.21 | 15.21 |
| l_b,int, Bicycle LOS Score for Intersection | 2.068 | 2.060 | 2.424 | 2.124 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.539 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 680 | 125 | 157 | 1356 | 181 | 125 | 276 | 69 | 146 | 297 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 680 | 125 | 157 | 1356 | 181 | 125 | 276 | 69 | 146 | 297 | 116 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 189 | 35 | 44 | 377 | 50 | 35 | 77 | 19 | 41 | 83 | 32 |
| Total Analysis Volume [veh/h] | 123 | 756 | 139 | 174 | 1507 | 201 | 139 | 307 | 77 | 162 | 330 | 129 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 34 | 34 | 8 | 34 | 34 | 8 | 12 | 12 | 8 | 13 | 13 |
| g / C, Green / Cycle | 0.09 | 0.39 | 0.39 | 0.09 | 0.40 | 0.40 | 0.09 | 0.14 | 0.14 | 0.09 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.15 | 0.09 | 0.05 | 0.30 | 0.13 | 0.04 | 0.09 | 0.05 | 0.05 | 0.09 | 0.08 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1544 | 3467 | 3526 | 1559 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 304 | 2013 | 634 | 312 | 2016 | 611 | 310 | 489 | 216 | 319 | 549 | 245 |
| d1, Uniform Delay [s] | 37.60 | 18.87 | 17.60 | 37.94 | 22.61 | 18.27 | 37.66 | 35.43 | 34.00 | 37.79 | 34.41 | 33.98 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.32 | 0.38 | 0.56 | 0.58 | 1.83 | 1.01 | 0.38 | 3.11 | 2.33 | 0.47 | 1.46 | 2.41 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.40 | 0.38 | 0.22 | 0.56 | 0.75 | 0.33 | 0.45 | 0.63 | 0.36 | 0.51 | 0.60 | 0.53 |
| d, Delay for Lane Group [s/veh] | 37.92 | 19.25 | 18.16 | 38.52 | 24.44 | 19.28 | 38.03 | 38.55 | 36.33 | 38.25 | 35.87 | 36.40 |
| Lane Group LOS | D | B | B | D | C | B | D | D | D | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.18 | 3.29 | 1.75 | 1.69 | 8.05 | 2.66 | 1.34 | 3.08 | 1.52 | 1.57 | 3.14 | 2.51 |
| 50th-Percentile Queue Length [ft/ln] | 29.45 | 82.15 | 43.82 | 42.29 | 201.14 | 66.56 | 33.39 | 76.92 | 37.98 | 39.13 | 78.59 | 62.63 |
| 95th-Percentile Queue Length [veh/ln] | 2.12 | 5.91 | 3.16 | 3.05 | 12.70 | 4.79 | 2.40 | 5.54 | 2.73 | 2.82 | 5.66 | 4.51 |
| 95th-Percentile Queue Length [ft/ln] | 53.01 | 147.86 | 78.88 | 76.13 | 317.44 | 119.82 | 60.10 | 138.46 | 68.36 | 70.44 | 141.46 | 112.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.92 | 19.25 | 18.16 | 38.52 | 24.44 | 19.28 | 38.03 | 38.55 | 36.33 | 38.25 | 35.87 | 36.40 |
| Movement LOS | D | B | B | D | C | B | D | D | D | D | D | D |
| d_A, Approach Delay [s/veh] | 21.36 | | | 25.19 | | | 38.08 | | | 36.60 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 27.64 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.539 | | | | | | | | | | | |

**Emissions**

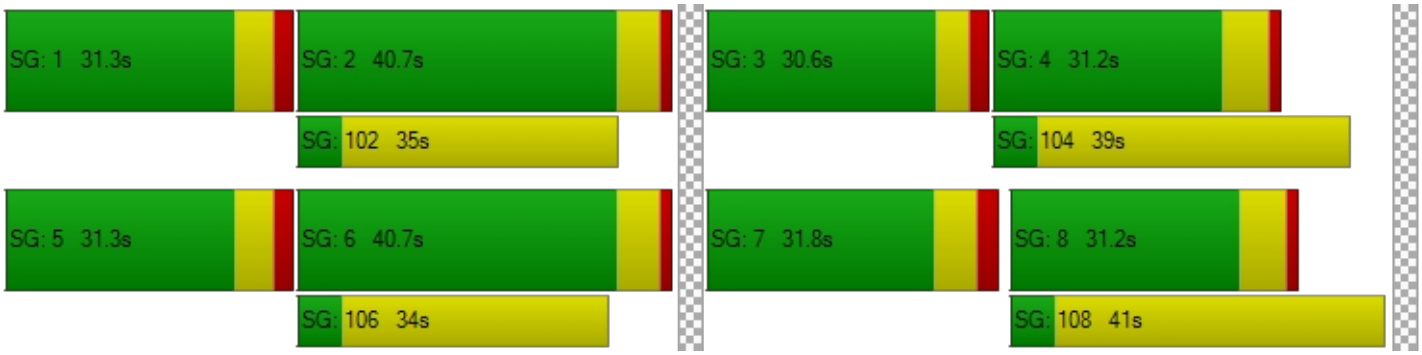
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 20.07 | 123.35 | 22.68 | 176.27 | 1526.69 | 203.63 | 18.16 | 40.11 | 10.06 | 167.84 | 341.90 | 133.65 |
| Stops [stops/h] | 97.46 | 407.80 | 72.52 | 139.97 | 998.54 | 110.15 | 110.51 | 254.57 | 62.84 | 129.51 | 260.09 | 103.63 |
| Fuel consumption [US gal/h] | 3.12 | 13.35 | 2.39 | 9.42 | 73.95 | 9.30 | 3.38 | 7.66 | 1.87 | 8.87 | 17.85 | 7.02 |
| CO [g/h] | 217.89 | 933.32 | 166.82 | 658.16 | 5169.03 | 649.97 | 236.28 | 535.38 | 130.77 | 620.00 | 1247.79 | 490.84 |
| NOx [g/h] | 42.39 | 181.59 | 32.46 | 128.05 | 1005.70 | 126.46 | 45.97 | 104.16 | 25.44 | 120.63 | 242.78 | 95.50 |
| VOC [g/h] | 50.50 | 216.31 | 38.66 | 152.53 | 1197.97 | 150.64 | 54.76 | 124.08 | 30.31 | 143.69 | 289.19 | 113.76 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 8852.46 | 0.00 | 421.37 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.98 | 34.98 | 34.98 | 34.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.348 | 3.374 | 2.867 | 2.977 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 804 | 804 | 575 | 575 |
| d_b, Bicycle Delay [s] | 15.55 | 15.55 | 22.13 | 22.10 |
| l_b,int, Bicycle LOS Score for Intersection | 2.120 | 2.595 | 1.991 | 2.072 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 26.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.011 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 267 | 158 | 0 | 0 | 95 | 4 | 2 | 0 | 101 | 0 | 1 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 267 | 158 | 0 | 0 | 95 | 4 | 2 | 0 | 101 | 0 | 1 | 0 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 81 | 48 | 0 | 0 | 29 | 1 | 1 | 0 | 31 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 326 | 193 | 0 | 0 | 116 | 5 | 2 | 0 | 123 | 0 | 1 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.13 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.89 | 0.00 | 0.00 | 7.59 | 0.00 | 0.00 | 26.00 | 24.30 | 9.57 | 30.75 | 23.77 | 9.31 |
| Movement LOS | A | A | A | A | A | A | D | C | A | D | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.66 | 0.66 | 0.66 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.50 | 0.02 | 0.02 | 0.02 |
| 95th-Percentile Queue Length [ft/ln] | 16.53 | 16.53 | 16.53 | 0.00 | 0.00 | 0.00 | 12.53 | 12.53 | 12.53 | 0.39 | 0.39 | 0.39 |
| d_A, Approach Delay [s/veh] | 4.96 | | | 0.00 | | | 9.84 | | | 23.77 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 4.99 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 29.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.925 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 66 | 182 | 19 | 152 | 76 | 4 | 3 | 140 | 56 | 19 | 237 | 251 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 66 | 182 | 19 | 152 | 76 | 4 | 3 | 140 | 56 | 19 | 237 | 251 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 48 | 5 | 40 | 20 | 1 | 1 | 37 | 15 | 5 | 63 | 67 |
| Total Analysis Volume [veh/h] | 70 | 194 | 20 | 162 | 81 | 4 | 3 | 149 | 60 | 20 | 252 | 267 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 498 | 483 | 506 | 583 |
| Degree of Utilization, x | 0.57 | 0.51 | 0.42 | 0.93 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.52 | 2.86 | 2.05 | 11.75 |
| 95th-Percentile Queue Length [ft] | 88.09 | 71.58 | 51.24 | 293.85 |
| Approach Delay [s/veh] | 19.42 | 18.00 | 15.15 | 45.80 |
| Approach LOS | C | C | C | E |
| Intersection Delay [s/veh] | 29.53 | | | |
| Intersection LOS | D | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.646 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 97 | 199 | 37 | 153 | 330 | 42 | 29 | 496 | 309 | 20 | 292 | 105 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 97 | 199 | 37 | 153 | 330 | 42 | 29 | 496 | 309 | 20 | 292 | 105 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 59 | 11 | 45 | 97 | 12 | 9 | 146 | 91 | 6 | 86 | 31 |
| Total Analysis Volume [veh/h] | 114 | 234 | 44 | 180 | 388 | 49 | 34 | 584 | 364 | 24 | 344 | 124 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 21 | 21 | 11 | 22 | 6 | 23 | 23 | 4 | 21 | 21 |
| g / C, Green / Cycle | 0.13 | 0.28 | 0.28 | 0.14 | 0.29 | 0.07 | 0.30 | 0.30 | 0.06 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.13 | 0.03 | 0.10 | 0.24 | 0.02 | 0.17 | 0.23 | 0.01 | 0.18 | 0.08 |
| s, saturation flow rate [veh/h] | 1774 | 1855 | 1517 | 1794 | 1839 | 1711 | 3512 | 1599 | 1810 | 1879 | 1568 |
| c, Capacity [veh/h] | 236 | 526 | 430 | 257 | 540 | 128 | 1062 | 484 | 105 | 537 | 448 |
| d1, Uniform Delay [s] | 30.20 | 22.09 | 19.88 | 30.70 | 24.62 | 32.83 | 21.95 | 23.67 | 33.80 | 23.49 | 20.84 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.53 | 0.59 | 0.10 | 3.47 | 2.96 | 1.09 | 0.45 | 2.39 | 1.09 | 1.28 | 0.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.48 | 0.44 | 0.10 | 0.70 | 0.81 | 0.26 | 0.55 | 0.75 | 0.23 | 0.64 | 0.28 |
| d, Delay for Lane Group [s/veh] | 31.73 | 22.68 | 19.98 | 34.17 | 27.57 | 33.92 | 22.40 | 26.06 | 34.89 | 24.78 | 21.17 |
| Lane Group LOS | C | C | B | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.87 | 3.13 | 0.53 | 3.11 | 6.84 | 0.58 | 3.83 | 5.38 | 0.42 | 4.86 | 1.54 |
| 50th-Percentile Queue Length [ft/ln] | 46.65 | 78.29 | 13.19 | 77.65 | 171.04 | 14.40 | 95.77 | 134.55 | 10.42 | 121.62 | 38.39 |
| 95th-Percentile Queue Length [veh/ln] | 3.36 | 5.64 | 0.95 | 5.59 | 11.13 | 1.04 | 6.90 | 9.19 | 0.75 | 8.48 | 2.76 |
| 95th-Percentile Queue Length [ft/ln] | 83.98 | 140.92 | 23.74 | 139.76 | 278.28 | 25.92 | 172.38 | 229.67 | 18.76 | 212.06 | 69.11 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.73 | 22.68 | 19.98 | 34.17 | 27.57 | 27.57 | 33.92 | 22.40 | 26.06 | 34.89 | 24.78 | 21.17 |
| Movement LOS | C | C | B | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 25.01 | | | 29.50 | | | 24.16 | | | 24.36 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.66 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.646 | | | | | | | | | | | |

**Emissions**

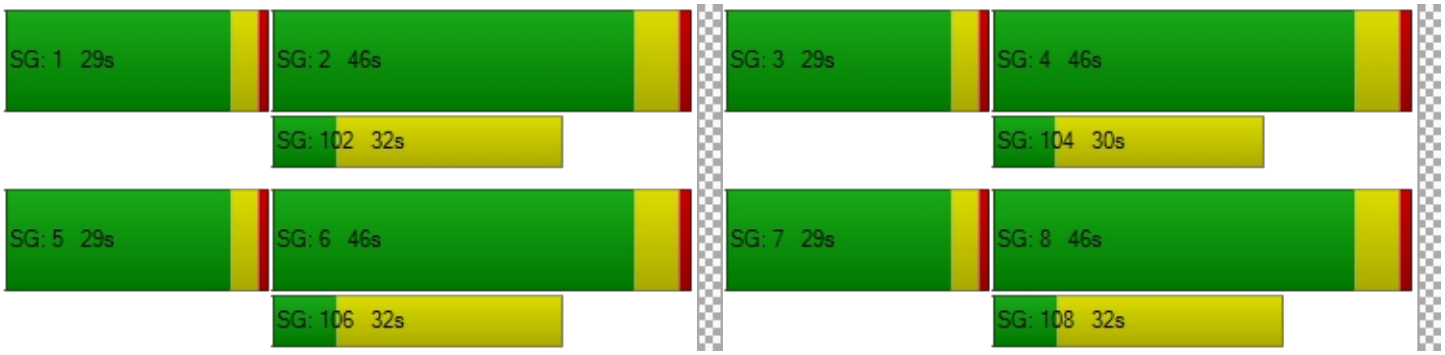
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 13.65 | 28.01 | 5.27 | 180.85 | 439.06 | 35.23 | 605.06 | 377.13 | 12.02 | 172.27 | 62.10 |
| Stops [stops/h] | 89.56 | 150.28 | 25.32 | 149.05 | 328.34 | 27.64 | 367.67 | 258.29 | 20.01 | 233.47 | 73.70 |
| Fuel consumption [US gal/h] | 2.32 | 3.91 | 0.67 | 9.30 | 21.58 | 1.84 | 28.57 | 18.52 | 0.88 | 11.09 | 3.75 |
| CO [g/h] | 161.98 | 273.21 | 47.13 | 650.34 | 1508.76 | 128.52 | 1996.92 | 1294.90 | 61.51 | 775.00 | 261.78 |
| NOx [g/h] | 31.52 | 53.16 | 9.17 | 126.53 | 293.55 | 25.01 | 388.53 | 251.94 | 11.97 | 150.79 | 50.93 |
| VOC [g/h] | 37.54 | 63.32 | 10.92 | 150.72 | 349.67 | 29.79 | 462.81 | 300.10 | 14.26 | 179.61 | 60.67 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 3247.94 | 0.00 | 12413.75 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.31 | 27.31 | 27.31 | 27.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.548 | 2.422 | 2.846 | 2.712 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1066 | 1066 | 1066 | 1066 |
| d_b, Bicycle Delay [s] | 8.17 | 8.17 | 8.17 | 8.17 |
| l_b,int, Bicycle LOS Score for Intersection | 2.206 | 2.578 | 2.370 | 2.371 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 20 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 20 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 20 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.625 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 135 | 56 | 95 | 19 | 71 | 67 | 35 | 556 | 420 | 220 | 233 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 135 | 56 | 95 | 19 | 71 | 67 | 35 | 556 | 420 | 220 | 233 | 48 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 17 | 29 | 6 | 21 | 20 | 11 | 167 | 127 | 66 | 70 | 14 |
| Total Analysis Volume [veh/h] | 163 | 67 | 114 | 23 | 86 | 81 | 42 | 670 | 506 | 265 | 281 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 18 | 18 | 6 | 12 | 12 | 8 | 34 | 34 | 12 | 38 | 38 |
| g / C, Green / Cycle | 0.13 | 0.21 | 0.21 | 0.07 | 0.14 | 0.14 | 0.09 | 0.40 | 0.40 | 0.14 | 0.44 | 0.44 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.04 | 0.08 | 0.01 | 0.02 | 0.05 | 0.01 | 0.19 | 0.32 | 0.08 | 0.08 | 0.04 |
| s, saturation flow rate [veh/h] | 1788 | 1705 | 1449 | 3514 | 3618 | 1578 | 3428 | 3618 | 1587 | 3514 | 3509 | 1613 |
| c, Capacity [veh/h] | 239 | 358 | 304 | 241 | 524 | 228 | 320 | 1442 | 633 | 477 | 1548 | 711 |
| d1, Uniform Delay [s] | 35.29 | 27.77 | 28.96 | 37.32 | 32.02 | 32.94 | 35.57 | 18.97 | 22.69 | 34.53 | 14.51 | 13.85 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.26 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.28 | 0.56 | 1.71 | 0.06 | 0.75 | 4.71 | 0.07 | 0.34 | 5.58 | 0.38 | 0.08 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.19 | 0.37 | 0.10 | 0.16 | 0.35 | 0.13 | 0.46 | 0.80 | 0.56 | 0.18 | 0.08 |
| d, Delay for Lane Group [s/veh] | 36.57 | 28.33 | 30.67 | 37.38 | 32.77 | 37.65 | 35.64 | 19.31 | 28.27 | 34.91 | 14.60 | 13.92 |
| Lane Group LOS | D | C | C | D | C | D | D | B | C | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.13 | 1.11 | 2.02 | 0.22 | 0.82 | 1.78 | 0.38 | 4.37 | 8.76 | 2.55 | 1.60 | 0.64 |
| 50th-Percentile Queue Length [ft/ln] | 78.21 | 27.82 | 50.51 | 5.61 | 20.50 | 44.58 | 9.49 | 109.37 | 219.03 | 63.68 | 40.03 | 15.95 |
| 95th-Percentile Queue Length [veh/ln] | 5.63 | 2.00 | 3.64 | 0.40 | 1.48 | 3.21 | 0.68 | 7.81 | 13.62 | 4.59 | 2.88 | 1.15 |
| 95th-Percentile Queue Length [ft/ln] | 140.78 | 50.08 | 90.91 | 10.10 | 36.91 | 80.24 | 17.08 | 195.13 | 340.39 | 114.63 | 72.05 | 28.71 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.57 | 28.33 | 30.67 | 37.38 | 32.77 | 37.65 | 35.64 | 19.31 | 28.27 | 34.91 | 14.60 | 13.92 |
| Movement LOS | D | C | C | D | C | D | D | B | C | C | B | B |
| d_A, Approach Delay [s/veh] | 33.01 | | | 35.41 | | | 23.60 | | | 23.44 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.89 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.625 | | | | | | | | | | | |

**Emissions**

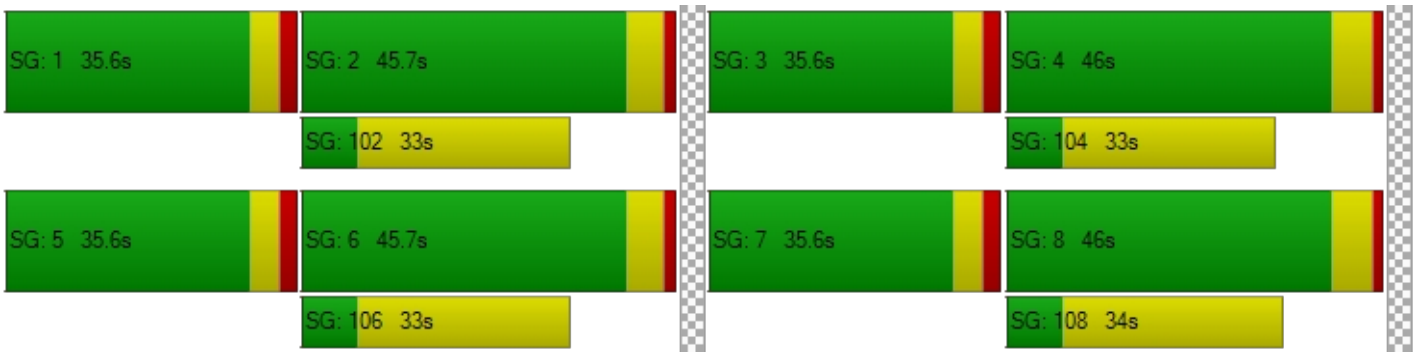
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 165.96 | 68.21 | 116.07 | 23.77 | 88.90 | 83.73 | 21.03 | 335.52 | 253.39 | 132.85 | 140.87 | 29.08 |
| Stops [stops/h] | 131.98 | 46.95 | 85.23 | 18.93 | 69.20 | 75.23 | 32.02 | 369.12 | 369.61 | 214.93 | 135.10 | 26.91 |
| Fuel consumption [US gal/h] | 8.54 | 3.31 | 5.75 | 1.26 | 4.62 | 4.48 | 1.50 | 19.54 | 17.07 | 8.54 | 7.38 | 1.51 |
| CO [g/h] | 597.12 | 231.25 | 401.90 | 87.95 | 322.61 | 313.36 | 104.88 | 1365.52 | 1193.24 | 596.87 | 515.87 | 105.55 |
| NOx [g/h] | 116.18 | 44.99 | 78.20 | 17.11 | 62.77 | 60.97 | 20.41 | 265.68 | 232.16 | 116.13 | 100.37 | 20.54 |
| VOC [g/h] | 138.39 | 53.60 | 93.15 | 20.38 | 74.77 | 72.62 | 24.31 | 316.47 | 276.54 | 138.33 | 119.56 | 24.46 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5495.33 | 3581.51 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.38 | 32.38 | 32.38 | 32.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.648 | 2.640 | 2.995 | 2.787 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 937 | 937 | 937 | 937 |
| d_b, Bicycle Delay [s] | 12.04 | 12.04 | 12.04 | 12.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.843 | 1.716 | 2.564 | 2.058 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.739 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 54 | 353 | 22 | 91 | 668 | 42 | 33 | 619 | 151 | 7 | 466 | 107 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 54 | 353 | 22 | 91 | 668 | 42 | 33 | 619 | 151 | 7 | 466 | 107 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 101 | 6 | 26 | 192 | 12 | 9 | 178 | 43 | 2 | 134 | 31 |
| Total Analysis Volume [veh/h] | 62 | 406 | 25 | 105 | 768 | 48 | 38 | 711 | 174 | 8 | 536 | 123 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 25 | 25 | 9 | 26 | 26 | 6 | 39 | 39 | 2 | 35 | 35 |
| g / C, Green / Cycle | 0.09 | 0.27 | 0.27 | 0.10 | 0.29 | 0.29 | 0.07 | 0.43 | 0.43 | 0.02 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.12 | 0.02 | 0.06 | 0.22 | 0.22 | 0.02 | 0.38 | 0.11 | 0.00 | 0.28 | 0.08 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1478 | 1724 | 1874 | 1836 | 1810 | 1858 | 1592 | 1810 | 1886 | 1598 |
| c, Capacity [veh/h] | 155 | 957 | 406 | 176 | 543 | 532 | 123 | 795 | 681 | 37 | 717 | 607 |
| d1, Uniform Delay [s] | 39.45 | 27.19 | 24.44 | 39.22 | 29.54 | 29.54 | 40.52 | 24.23 | 16.79 | 44.04 | 24.53 | 19.02 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.39 | 0.17 | 0.04 | 0.24 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.62 | 0.46 | 0.10 | 1.21 | 3.35 | 3.42 | 0.52 | 11.91 | 0.30 | 1.09 | 3.46 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.40 | 0.42 | 0.06 | 0.60 | 0.76 | 0.76 | 0.31 | 0.89 | 0.26 | 0.22 | 0.75 | 0.20 |
| d, Delay for Lane Group [s/veh] | 40.07 | 27.65 | 24.53 | 40.43 | 32.89 | 32.96 | 41.04 | 36.14 | 17.09 | 45.13 | 27.99 | 19.26 |
| Lane Group LOS | D | C | C | D | C | C | D | D | B | D | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.28 | 3.46 | 0.39 | 2.20 | 8.13 | 7.97 | 0.80 | 15.22 | 2.19 | 0.18 | 9.78 | 1.66 |
| 50th-Percentile Queue Length [ft/ln] | 32.09 | 86.61 | 9.69 | 55.09 | 203.27 | 199.36 | 19.90 | 380.51 | 54.80 | 4.55 | 244.53 | 41.45 |
| 95th-Percentile Queue Length [veh/ln] | 2.31 | 6.24 | 0.70 | 3.97 | 12.81 | 12.61 | 1.43 | 21.62 | 3.95 | 0.33 | 14.91 | 2.98 |
| 95th-Percentile Queue Length [ft/ln] | 57.75 | 155.89 | 17.44 | 99.16 | 320.17 | 315.14 | 35.81 | 540.46 | 98.64 | 8.19 | 372.76 | 74.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.07 | 27.65 | 24.53 | 40.43 | 32.92 | 32.96 | 41.04 | 36.14 | 17.09 | 45.13 | 27.99 | 19.26 |
| Movement LOS | D | C | C | D | C | C | D | D | B | D | C | B |
| d_A, Approach Delay [s/veh] | 29.05 | | | 33.78 | | | 32.75 | | | 26.59 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.09 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.739 | | | | | | | | | | | |

**Emissions**

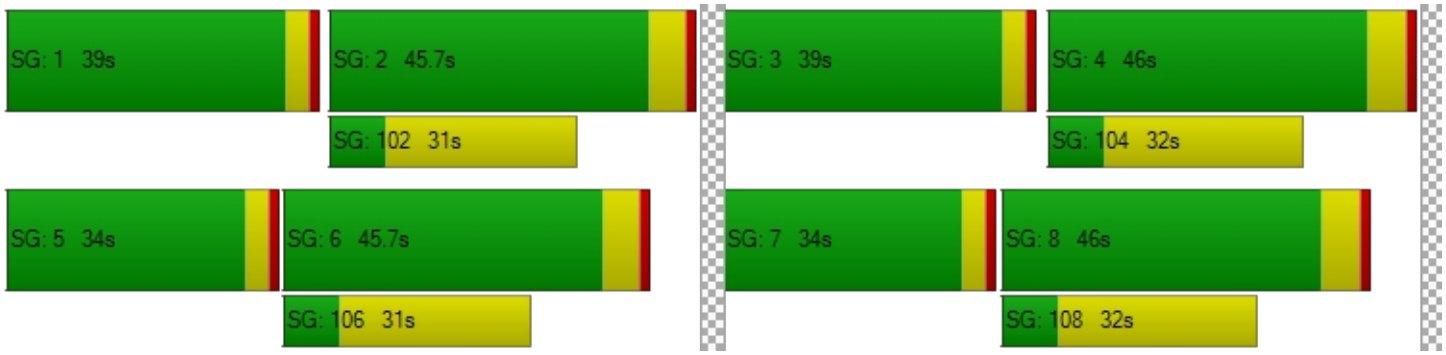
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 32.55 | 213.16 | 13.13 | 106.90 | 419.70 | 411.10 | 3.29 | 61.50 | 15.05 | 4.81 | 322.58 | 74.02 |
| Stops [stops/h] | 50.67 | 273.52 | 15.30 | 86.99 | 320.98 | 314.81 | 31.42 | 600.86 | 86.54 | 7.18 | 386.14 | 65.46 |
| Fuel consumption [US gal/h] | 2.25 | 12.99 | 0.76 | 5.61 | 21.14 | 20.71 | 0.82 | 14.81 | 2.20 | 0.33 | 18.91 | 3.83 |
| CO [g/h] | 157.37 | 908.14 | 53.47 | 392.13 | 1477.39 | 1447.87 | 57.36 | 1035.01 | 153.56 | 22.91 | 1321.89 | 267.95 |
| NOx [g/h] | 30.62 | 176.69 | 10.40 | 76.29 | 287.45 | 281.70 | 11.16 | 201.37 | 29.88 | 4.46 | 257.19 | 52.13 |
| VOC [g/h] | 36.47 | 210.47 | 12.39 | 90.88 | 342.40 | 335.56 | 13.29 | 239.87 | 35.59 | 5.31 | 306.36 | 62.10 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.26 | 35.26 | 35.26 | 35.26 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.805 | 2.735 | 2.759 | 2.741 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 877 | 877 | 877 | 877 |
| d_b, Bicycle Delay [s] | 14.37 | 14.37 | 14.37 | 14.37 |
| l_b,int, Bicycle LOS Score for Intersection | 1.966 | 2.319 | 3.083 | 2.660 |
| Bicycle LOS | A | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.790 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 71 | 472 | 52 | 184 | 663 | 15 | 13 | 369 | 232 | 22 | 649 | 37 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 71 | 472 | 52 | 184 | 663 | 15 | 13 | 369 | 232 | 22 | 649 | 37 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 133 | 15 | 52 | 186 | 4 | 4 | 104 | 65 | 6 | 182 | 10 |
| Total Analysis Volume [veh/h] | 80 | 530 | 58 | 207 | 745 | 17 | 15 | 415 | 261 | 25 | 729 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 20 | 20 | 12 | 22 | 22 | 3 | 31 | 31 | 5 | 33 | 33 |
| g / C, Green / Cycle | 0.12 | 0.24 | 0.24 | 0.14 | 0.26 | 0.26 | 0.04 | 0.37 | 0.37 | 0.06 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.16 | 0.16 | 0.12 | 0.20 | 0.20 | 0.01 | 0.23 | 0.17 | 0.01 | 0.39 | 0.03 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1762 | 1791 | 1891 | 1876 | 1810 | 1835 | 1548 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 219 | 436 | 419 | 255 | 489 | 485 | 69 | 684 | 577 | 101 | 732 | 625 |
| d1, Uniform Delay [s] | 33.81 | 29.05 | 29.10 | 34.83 | 28.86 | 28.86 | 39.07 | 21.29 | 19.78 | 37.86 | 25.47 | 15.98 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.22 | 0.12 | 0.12 | 0.11 | 0.17 | 0.11 | 0.11 | 0.49 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.02 | 1.91 | 2.03 | 11.85 | 3.04 | 3.07 | 1.55 | 1.34 | 0.56 | 1.26 | 32.05 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.68 | 0.69 | 0.81 | 0.78 | 0.78 | 0.22 | 0.61 | 0.45 | 0.25 | 1.00 | 0.07 |
| d, Delay for Lane Group [s/veh] | 34.83 | 30.96 | 31.13 | 46.69 | 31.90 | 31.93 | 40.62 | 22.63 | 20.34 | 39.13 | 57.52 | 16.03 |
| Lane Group LOS | C | C | C | D | C | C | D | C | C | D | E | B |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.47 | 5.28 | 5.14 | 4.67 | 6.97 | 6.92 | 0.31 | 6.15 | 3.53 | 0.50 | 19.14 | 0.46 |
| 50th-Percentile Queue Length [ft/ln] | 36.80 | 132.03 | 128.45 | 116.69 | 174.18 | 172.91 | 7.85 | 153.67 | 88.32 | 12.53 | 478.42 | 11.60 |
| 95th-Percentile Queue Length [veh/ln] | 2.65 | 9.05 | 8.86 | 8.21 | 11.30 | 11.23 | 0.56 | 10.21 | 6.36 | 0.90 | 26.31 | 0.84 |
| 95th-Percentile Queue Length [ft/ln] | 66.25 | 226.25 | 221.38 | 205.27 | 282.40 | 280.73 | 14.12 | 255.32 | 158.98 | 22.56 | 657.78 | 20.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.83 | 31.04 | 31.13 | 46.69 | 31.91 | 31.93 | 40.62 | 22.63 | 20.34 | 39.13 | 57.52 | 16.03 |
| Movement LOS | C | C | C | D | C | C | D | C | C | D | E | B |
| d_A, Approach Delay [s/veh] | 31.50 | | | 35.07 | | | 22.15 | | | 54.75 | | |
| Approach LOS | C | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.47 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.790 | | | | | | | | | | | |

**Emissions**

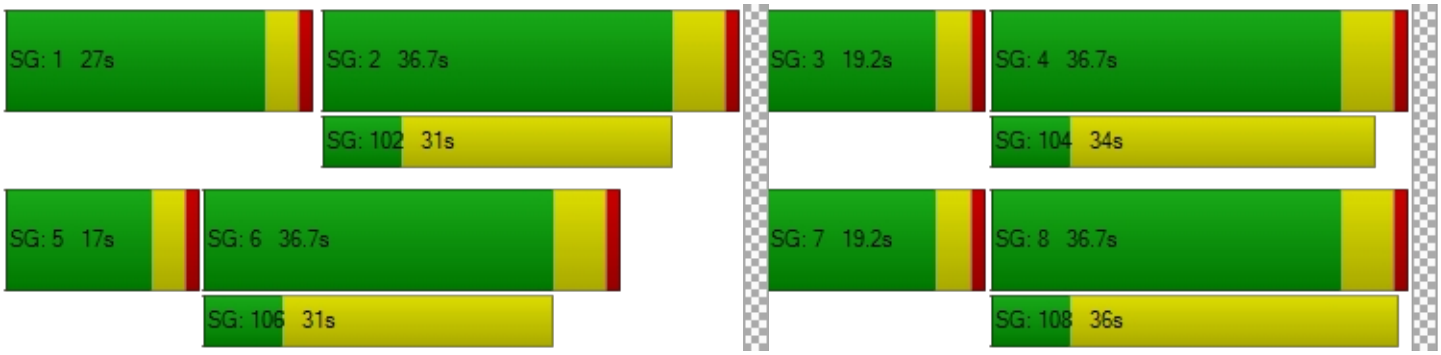
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.50 | 158.66 | 153.75 | 108.68 | 200.82 | 199.25 | 1.50 | 41.60 | 26.17 | 11.90 | 346.96 | 19.99 |
| Stops [stops/h] | 63.37 | 227.34 | 221.18 | 200.93 | 299.93 | 297.73 | 13.51 | 264.61 | 152.08 | 21.58 | 823.80 | 19.98 |
| Fuel consumption [US gal/h] | 2.81 | 10.15 | 9.85 | 8.19 | 13.10 | 13.00 | 0.34 | 6.63 | 3.87 | 0.88 | 30.67 | 1.07 |
| CO [g/h] | 196.55 | 709.25 | 688.77 | 572.49 | 915.41 | 908.51 | 24.01 | 463.23 | 270.38 | 61.18 | 2143.72 | 74.84 |
| NOx [g/h] | 38.24 | 137.99 | 134.01 | 111.39 | 178.11 | 176.76 | 4.67 | 90.13 | 52.61 | 11.90 | 417.09 | 14.56 |
| VOC [g/h] | 45.55 | 164.37 | 159.63 | 132.68 | 212.16 | 210.56 | 5.57 | 107.36 | 62.66 | 14.18 | 496.83 | 17.34 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.54 | 31.54 | 31.54 | 31.54 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.863 | 2.751 | 2.681 | 2.666 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 741 | 741 | 741 | 741 |
| d_b, Bicycle Delay [s] | 16.56 | 16.56 | 16.56 | 16.56 |
| l_b,int, Bicycle LOS Score for Intersection | 2.111 | 2.359 | 2.700 | 2.873 |
| Bicycle LOS | B | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.710 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 187 | 264 | 128 | 77 | 451 | 643 | 227 | 991 | 240 | 132 | 1260 | 253 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 187 | 264 | 128 | 77 | 451 | 643 | 227 | 991 | 240 | 132 | 1260 | 253 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 50 | 71 | 34 | 21 | 121 | 173 | 61 | 266 | 65 | 35 | 339 | 68 |
| Total Analysis Volume [veh/h] | 201 | 284 | 138 | 83 | 485 | 691 | 244 | 1066 | 258 | 142 | 1355 | 272 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 38 | 38 | 13 | 37 | 37 | 13 | 50 | 50 | 13 | 50 | 50 |
| g / C, Green / Cycle | 0.11 | 0.29 | 0.29 | 0.10 | 0.29 | 0.29 | 0.10 | 0.38 | 0.38 | 0.10 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.08 | 0.09 | 0.02 | 0.09 | 0.24 | 0.07 | 0.21 | 0.16 | 0.04 | 0.27 | 0.17 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1546 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 369 | 1019 | 448 | 352 | 1458 | 806 | 338 | 1934 | 607 | 343 | 1936 | 604 |
| d1, Uniform Delay [s] | 55.00 | 35.76 | 36.09 | 53.65 | 36.83 | 44.10 | 56.80 | 31.38 | 29.56 | 55.02 | 33.86 | 29.95 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.05 | 0.14 | 0.13 | 0.15 | 3.12 | 1.10 | 1.14 | 2.17 | 0.30 | 2.13 | 2.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.54 | 0.28 | 0.31 | 0.24 | 0.33 | 0.86 | 0.72 | 0.55 | 0.43 | 0.41 | 0.70 | 0.45 |
| d, Delay for Lane Group [s/veh] | 55.47 | 35.81 | 36.24 | 53.78 | 36.98 | 47.23 | 57.91 | 32.51 | 31.73 | 55.31 | 36.00 | 32.37 |
| Lane Group LOS | E | D | D | D | D | D | E | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.11 | 3.46 | 3.40 | 1.23 | 4.00 | 10.53 | 3.86 | 8.63 | 6.13 | 2.16 | 11.94 | 6.56 |
| 50th-Percentile Queue Length [ft/ln] | 77.78 | 86.38 | 84.99 | 30.85 | 99.96 | 263.29 | 96.54 | 215.79 | 153.29 | 54.01 | 298.44 | 164.00 |
| 95th-Percentile Queue Length [veh/ln] | 5.60 | 6.22 | 6.12 | 2.22 | 7.20 | 15.85 | 6.95 | 13.45 | 10.19 | 3.89 | 17.60 | 10.76 |
| 95th-Percentile Queue Length [ft/ln] | 140.00 | 155.49 | 152.99 | 55.53 | 179.93 | 396.34 | 173.78 | 336.25 | 254.81 | 97.23 | 440.10 | 269.01 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 55.47 | 35.81 | 36.24 | 53.78 | 36.98 | 47.23 | 57.91 | 32.51 | 31.73 | 55.31 | 36.00 | 32.37 |
| Movement LOS | E | D | D | D | D | D | E | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 42.25 | | | 43.71 | | | 36.34 | | | 36.99 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 39.04 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.710 | | | | | | | | | | | |

**Emissions**

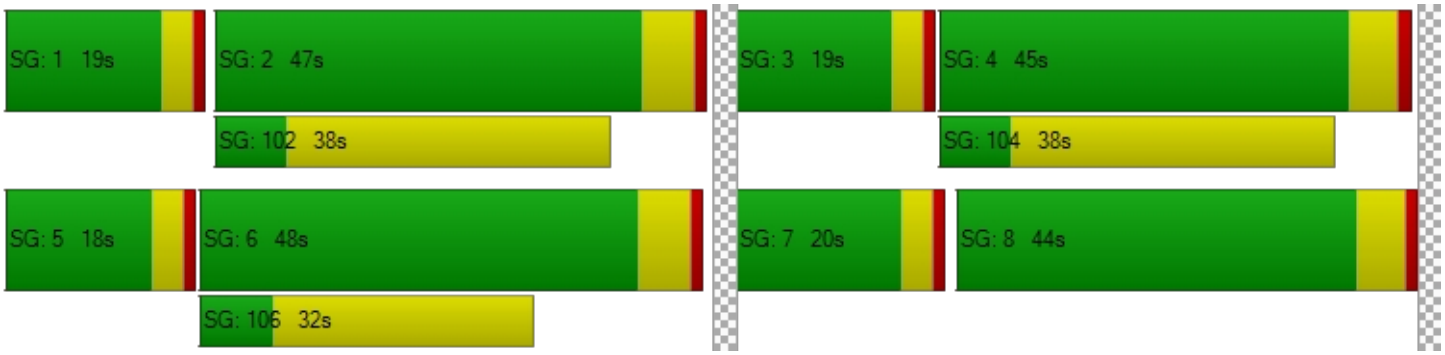
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 14.69 | 20.76 | 10.09 | 44.10 | 257.68 | 367.13 | 27.76 | 121.30 | 29.36 | 70.87 | 676.24 | 135.75 |
| Stops [stops/h] | 172.12 | 191.17 | 94.05 | 68.27 | 331.84 | 582.67 | 213.66 | 716.34 | 169.62 | 119.54 | 990.72 | 181.47 |
| Fuel consumption [US gal/h] | 4.49 | 4.69 | 2.30 | 3.27 | 16.61 | 26.47 | 6.48 | 20.12 | 4.78 | 5.51 | 45.42 | 8.70 |
| CO [g/h] | 313.55 | 327.91 | 160.97 | 228.48 | 1160.89 | 1850.20 | 453.17 | 1406.16 | 334.20 | 385.41 | 3175.13 | 608.19 |
| NOx [g/h] | 61.01 | 63.80 | 31.32 | 44.45 | 225.87 | 359.98 | 88.17 | 273.59 | 65.02 | 74.99 | 617.76 | 118.33 |
| VOC [g/h] | 72.67 | 76.00 | 37.31 | 52.95 | 269.05 | 428.80 | 105.03 | 325.89 | 77.45 | 89.32 | 735.87 | 140.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.53 | 54.53 | 32.40 | 54.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.988 | 3.370 | 3.647 | 3.363 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 645 | 630 |
| d_b, Bicycle Delay [s] | 31.72 | 32.40 | 29.85 | 30.53 |
| l_b,int, Bicycle LOS Score for Intersection | 1.902 | 2.252 | 2.422 | 2.533 |
| Bicycle LOS | A | B | B | B |

## Sequence

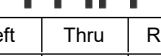
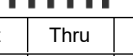
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.454 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 485 | 0 | 0 | 0 | 0 | 966 | 239 | 0 | 1979 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 485 | 0 | 0 | 0 | 0 | 966 | 239 | 0 | 1979 | 64 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 129 | 0 | 0 | 0 | 0 | 257 | 64 | 0 | 526 | 17 |
| Total Analysis Volume [veh/h] | 486 | 0 | 516 | 0 | 0 | 0 | 0 | 1028 | 254 | 0 | 2105 | 68 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 31 | 31 | | 85 | 85 | 85 |
| g / C, Green / Cycle | 0.24 | 0.24 | | 0.66 | 0.66 | 0.66 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.19 | | 0.20 | 0.25 | 0.04 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1217 | 652 | | 3321 | 5580 | 1048 |
| d1, Uniform Delay [s] | 41.93 | 46.66 | | 9.59 | 10.16 | 7.98 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 5.30 | | 0.24 | 0.20 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.40 | 0.79 | | 0.31 | 0.38 | 0.06 |
| d, Delay for Lane Group [s/veh] | 42.46 | 51.96 | | 9.83 | 10.35 | 8.10 |
| Lane Group LOS | D | D | | A | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.27 | 7.95 | | 3.87 | 5.00 | 0.66 |
| 50th-Percentile Queue Length [ft/ln] | 106.83 | 198.69 | | 96.81 | 125.05 | 16.55 |
| 95th-Percentile Queue Length [veh/ln] | 7.66 | 12.57 | | 6.97 | 8.67 | 1.19 |
| 95th-Percentile Queue Length [ft/ln] | 191.58 | 314.28 | | 174.25 | 216.75 | 29.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.46 | 0.00 | 51.96 | 0.00 | 0.00 | 0.00 | 0.00 | 9.83 | 0.00 | 0.00 | 10.35 | 8.10 |
| Movement LOS | D | | D | | | | | A | | | B | A |
| d_A, Approach Delay [s/veh] | 47.35 | | | 0.00 | | | 7.98 | | | 10.28 | | |
| Approach LOS | D | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.56 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.454 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 67.64 | | 161.76 | 239.52 | 7.74 |
| Stops [stops/h] | 355.38 | 440.65 | | 322.03 | 693.32 | 18.35 |
| Fuel consumption [US gal/h] | 12.93 | 15.90 | | 11.61 | 21.27 | 0.61 |
| CO [g/h] | 903.87 | 1111.64 | | 811.29 | 1486.50 | 42.32 |
| NOx [g/h] | 175.86 | 216.28 | | 157.85 | 289.22 | 8.23 |
| VOC [g/h] | 209.48 | 257.63 | | 188.02 | 344.51 | 9.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.769 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.125 | 2.277 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.682 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 92 | 0 | 776 | 0 | 1128 | 546 | 0 | 1621 | 855 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 92 | 0 | 776 | 0 | 1128 | 546 | 0 | 1621 | 855 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 24 | 0 | 202 | 0 | 294 | 142 | 0 | 422 | 223 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 96 | 0 | 808 | 0 | 1175 | 569 | 0 | 1689 | 891 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 39 | 39 | 77 | 77 | 77 |
| g / C, Green / Cycle | | 0.30 | 0.30 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.03 | 0.28 | 0.17 | 0.37 | 0.25 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1053 | 864 | 3983 | 919 | 4006 |
| d1, Uniform Delay [s] | | 32.43 | 44.00 | 13.08 | 17.05 | 14.39 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.09 | 11.52 | 0.19 | 3.13 | 0.33 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.09 | 0.93 | 0.29 | 0.62 | 0.42 |
| d, Delay for Lane Group [s/veh] | | 32.52 | 55.52 | 13.27 | 20.19 | 14.72 |
| Lane Group LOS | | C | E | B | C | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.11 | 13.93 | 4.02 | 10.83 | 6.37 |
| 50th-Percentile Queue Length [ft/ln] | | 27.81 | 348.26 | 100.62 | 270.72 | 159.30 |
| 95th-Percentile Queue Length [veh/ln] | | 2.00 | 20.05 | 7.24 | 16.23 | 10.51 |
| 95th-Percentile Queue Length [ft/ln] | | 50.05 | 501.29 | 181.11 | 405.63 | 262.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 32.52 | 0.00 | 55.52 | 0.00 | 13.27 | 20.19 | 0.00 | 14.72 | 0.00 |
| Movement LOS | | | | C | | E | | B | C | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 53.08 | | | 15.53 | | | 9.77 | | |
| Approach LOS | A | | | D | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 21.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.682 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 14.79 | 124.51 | 113.78 | 55.10 | 265.78 |
| Stops [stops/h] | | 61.64 | 771.95 | 446.05 | 300.03 | 706.20 |
| Fuel consumption [US gal/h] | | 1.58 | 18.52 | 12.62 | 7.96 | 22.95 |
| CO [g/h] | | 110.78 | 1294.45 | 882.14 | 556.16 | 1604.22 |
| NOx [g/h] | | 21.55 | 251.85 | 171.63 | 108.21 | 312.12 |
| VOC [g/h] | | 25.67 | 300.00 | 204.44 | 128.90 | 371.79 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.010 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1173 | 1173 |
| d_b, Bicycle Delay [s] | 64.97 | 30.98 | 11.11 | 11.11 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.279 | 2.256 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 49.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.083 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 48 | 39 | 26 | 2 | 135 | 74 | 21 | 486 | 153 | 32 | 317 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 48 | 39 | 26 | 2 | 135 | 74 | 21 | 486 | 153 | 32 | 317 | 24 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 10 | 7 | 1 | 34 | 19 | 5 | 124 | 39 | 8 | 81 | 6 |
| Total Analysis Volume [veh/h] | 49 | 40 | 27 | 2 | 138 | 76 | 21 | 496 | 156 | 33 | 323 | 24 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 485 | 522 | 673 | 577 |
| Degree of Utilization, x | 0.24 | 0.41 | 1.08 | 0.66 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.92 | 2.01 | 19.44 | 4.83 |
| 95th-Percentile Queue Length [ft] | 23.11 | 50.29 | 486.12 | 120.76 |
| Approach Delay [s/veh] | 12.74 | 14.68 | 83.88 | 20.43 |
| Approach LOS | B | B | F | C |
| Intersection Delay [s/veh] | 49.72 | | | |
| Intersection LOS | E | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 86.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.257 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 134 | 85 | 19 | 56 | 314 | 67 | 21 | 349 | 328 | 31 | 348 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 134 | 85 | 19 | 56 | 314 | 67 | 21 | 349 | 328 | 31 | 348 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 22 | 5 | 15 | 83 | 18 | 6 | 92 | 86 | 8 | 92 | 2 |
| Total Analysis Volume [veh/h] | 141 | 89 | 20 | 59 | 331 | 71 | 22 | 367 | 345 | 33 | 366 | 7 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 323 | 363 | 461 | 358 | 379 | 404 | 341 | 373 |
| Degree of Utilization, x | 0.71 | 0.06 | 1.26 | 0.06 | 0.94 | 0.88 | 0.10 | 1.03 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 5.15 | 0.17 | 20.30 | 0.20 | 10.21 | 8.93 | 0.32 | 12.63 |
| 95th-Percentile Queue Length [ft] | 128.83 | 4.37 | 507.38 | 4.89 | 255.16 | 223.29 | 7.98 | 315.76 |
| Approach Delay [s/veh] | 35.37 | | 164.91 | 55.39 | | | 83.00 | |
| Approach LOS | E | | F | F | | | F | |
| Intersection Delay [s/veh] | 86.02 | | | | | | | |
| Intersection LOS | F | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 89.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.997 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 14 | 166 | 24 | 144 | 442 | 166 | 132 | 351 | 178 | 34 | 803 | 73 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 14 | 166 | 24 | 144 | 442 | 166 | 132 | 351 | 178 | 34 | 803 | 73 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 53 | 8 | 46 | 140 | 53 | 42 | 111 | 56 | 11 | 254 | 23 |
| Total Analysis Volume [veh/h] | 18 | 210 | 30 | 182 | 559 | 210 | 167 | 444 | 225 | 43 | 1016 | 92 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 16 | 16 | 11 | 24 | 24 | 10 | 37 | 37 | 7 | 34 | 34 |
| g / C, Green / Cycle | 0.04 | 0.19 | 0.19 | 0.13 | 0.27 | 0.27 | 0.12 | 0.42 | 0.42 | 0.08 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.07 | 0.10 | 0.22 | 0.22 | 0.09 | 0.23 | 0.15 | 0.02 | 0.54 | 0.06 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1767 | 1737 | 1849 | 1670 | 1785 | 1894 | 1521 | 1775 | 1891 | 1585 |
| c, Capacity [veh/h] | 74 | 348 | 331 | 225 | 506 | 457 | 211 | 803 | 645 | 137 | 724 | 607 |
| d1, Uniform Delay [s] | 40.68 | 31.07 | 31.14 | 37.23 | 29.69 | 29.73 | 37.74 | 19.05 | 17.12 | 38.40 | 27.14 | 17.76 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.16 | 0.16 | 0.11 | 0.19 | 0.11 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.69 | 0.59 | 0.66 | 6.77 | 4.22 | 4.85 | 6.58 | 1.06 | 0.32 | 1.30 | 189.45 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.24 | 0.35 | 0.36 | 0.81 | 0.80 | 0.80 | 0.79 | 0.55 | 0.35 | 0.31 | 1.40 | 0.15 |
| d, Delay for Lane Group [s/veh] | 42.37 | 31.67 | 31.79 | 43.99 | 33.91 | 34.58 | 44.32 | 20.11 | 17.44 | 39.70 | 216.58 | 17.88 |
| Lane Group LOS | D | C | C | D | C | C | D | C | B | D | F | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.40 | 2.20 | 2.16 | 4.02 | 7.89 | 7.25 | 3.69 | 6.30 | 2.82 | 0.88 | 51.58 | 1.14 |
| 50th-Percentile Queue Length [ft/ln] | 9.96 | 54.89 | 54.00 | 100.40 | 197.32 | 181.36 | 92.31 | 157.60 | 70.51 | 22.11 | 1289.42 | 28.45 |
| 95th-Percentile Queue Length [veh/ln] | 0.72 | 3.95 | 3.89 | 7.23 | 12.50 | 11.67 | 6.65 | 10.42 | 5.08 | 1.59 | 77.40 | 2.05 |
| 95th-Percentile Queue Length [ft/ln] | 17.93 | 98.80 | 97.20 | 180.71 | 312.50 | 291.79 | 166.17 | 260.54 | 126.93 | 39.80 | 1935.11 | 51.22 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.37 | 31.72 | 31.79 | 43.99 | 34.10 | 34.58 | 44.32 | 20.11 | 17.44 | 39.70 | 216.58 | 17.88 |
| Movement LOS | D | C | C | D | C | C | D | C | B | D | F | B |
| d_A, Approach Delay [s/veh] | 32.47 | | | 36.10 | | | 24.23 | | | 194.09 | | |
| Approach LOS | C | | | D | | | C | | | F | | |
| d_I, Intersection Delay [s/veh] | 89.60 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 0.997 | | | | | | | | | | | |

**Emissions**

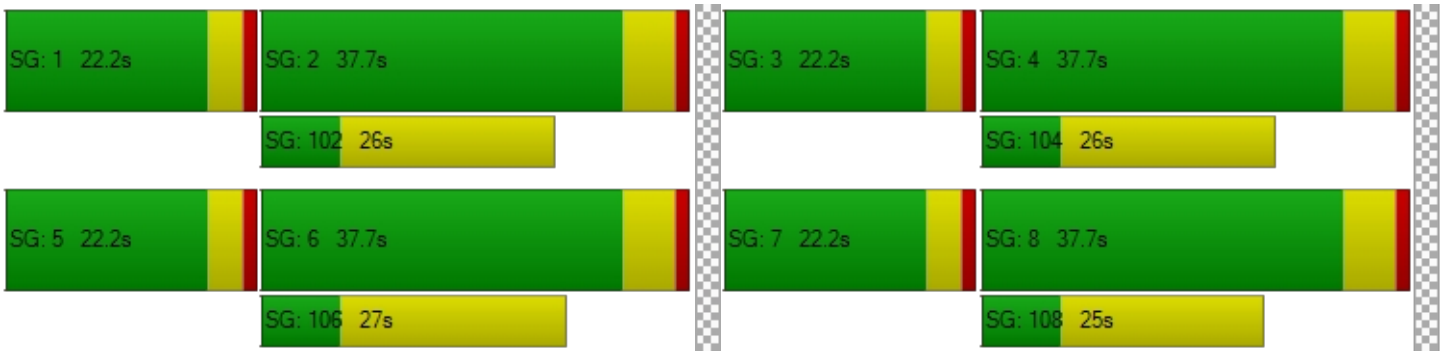
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.73 | 65.50 | 64.19 | 90.50 | 200.40 | 181.98 | 79.48 | 211.32 | 107.09 | 21.19 | 500.66 | 45.33 |
| Stops [stops/h] | 16.34 | 90.03 | 88.57 | 164.67 | 323.63 | 297.46 | 151.41 | 258.49 | 115.66 | 36.27 | 2114.86 | 46.67 |
| Fuel consumption [US gal/h] | 0.66 | 4.01 | 3.94 | 6.78 | 13.67 | 12.51 | 6.11 | 12.27 | 5.91 | 1.52 | 88.23 | 2.47 |
| CO [g/h] | 46.42 | 280.43 | 275.25 | 473.83 | 955.82 | 874.59 | 427.31 | 857.98 | 412.92 | 106.57 | 6167.14 | 172.58 |
| NOx [g/h] | 9.03 | 54.56 | 53.55 | 92.19 | 185.97 | 170.16 | 83.14 | 166.93 | 80.34 | 20.74 | 1199.90 | 33.58 |
| VOC [g/h] | 10.76 | 64.99 | 63.79 | 109.82 | 221.52 | 202.69 | 99.03 | 198.84 | 95.70 | 24.70 | 1429.29 | 40.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.59 | 33.59 | 33.59 | 33.59 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.580 | 2.713 | 2.890 | 2.790 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 729 | 729 | 729 | 729 |
| d_b, Bicycle Delay [s] | 17.74 | 17.73 | 17.73 | 17.73 |
| l_b,int, Bicycle LOS Score for Intersection | 1.772 | 2.344 | 2.939 | 3.459 |
| Bicycle LOS | A | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.479 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 106 | 108 | 78 | 196 | 304 | 185 | 63 | 695 | 311 | 99 | 1202 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 106 | 108 | 78 | 196 | 304 | 185 | 63 | 695 | 311 | 99 | 1202 | 23 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 29 | 21 | 53 | 82 | 50 | 17 | 187 | 84 | 27 | 323 | 6 |
| Total Analysis Volume [veh/h] | 114 | 116 | 84 | 211 | 327 | 199 | 68 | 747 | 334 | 106 | 1292 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 19 | 19 | 13 | 19 | 19 | 12 | 59 | 59 | 13 | 60 | 60 |
| g / C, Green / Cycle | 0.11 | 0.16 | 0.16 | 0.11 | 0.16 | 0.16 | 0.10 | 0.49 | 0.49 | 0.11 | 0.50 | 0.50 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.03 | 0.06 | 0.06 | 0.10 | 0.13 | 0.02 | 0.15 | 0.21 | 0.03 | 0.25 | 0.02 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1523 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 356 | 542 | 243 | 358 | 505 | 257 | 346 | 2510 | 777 | 366 | 2558 | 785 |
| d1, Uniform Delay [s] | 49.63 | 43.92 | 44.88 | 51.01 | 47.17 | 48.28 | 49.79 | 18.11 | 19.61 | 49.56 | 20.09 | 15.26 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.16 | 0.67 | 0.57 | 1.12 | 4.01 | 0.10 | 0.30 | 1.73 | 0.16 | 0.72 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.32 | 0.21 | 0.35 | 0.59 | 0.65 | 0.77 | 0.20 | 0.30 | 0.43 | 0.29 | 0.51 | 0.03 |
| d, Delay for Lane Group [s/veh] | 49.82 | 44.08 | 45.55 | 51.58 | 48.30 | 52.29 | 49.89 | 18.42 | 21.34 | 49.72 | 20.81 | 15.33 |
| Lane Group LOS | D | D | D | D | D | D | D | B | C | D | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.57 | 1.50 | 2.24 | 3.06 | 4.66 | 5.99 | 0.95 | 4.16 | 6.31 | 1.44 | 7.71 | 0.35 |
| 50th-Percentile Queue Length [ft/ln] | 39.29 | 37.39 | 56.04 | 76.38 | 116.53 | 149.87 | 23.69 | 103.94 | 157.72 | 36.11 | 192.68 | 8.72 |
| 95th-Percentile Queue Length [veh/ln] | 2.83 | 2.69 | 4.03 | 5.50 | 8.20 | 10.01 | 1.71 | 7.48 | 10.43 | 2.60 | 12.26 | 0.63 |
| 95th-Percentile Queue Length [ft/ln] | 70.72 | 67.30 | 100.87 | 137.49 | 205.05 | 250.26 | 42.65 | 187.09 | 260.70 | 65.00 | 306.50 | 15.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.82 | 44.08 | 45.55 | 51.58 | 48.30 | 52.29 | 49.89 | 18.42 | 21.34 | 49.72 | 20.81 | 15.33 |
| Movement LOS | D | D | D | D | D | D | D | B | C | D | C | B |
| d_A, Approach Delay [s/veh] | 46.56 | | | 50.32 | | | 21.13 | | | 22.86 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.95 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.479 | | | | | | | | | | | |

**Emissions**

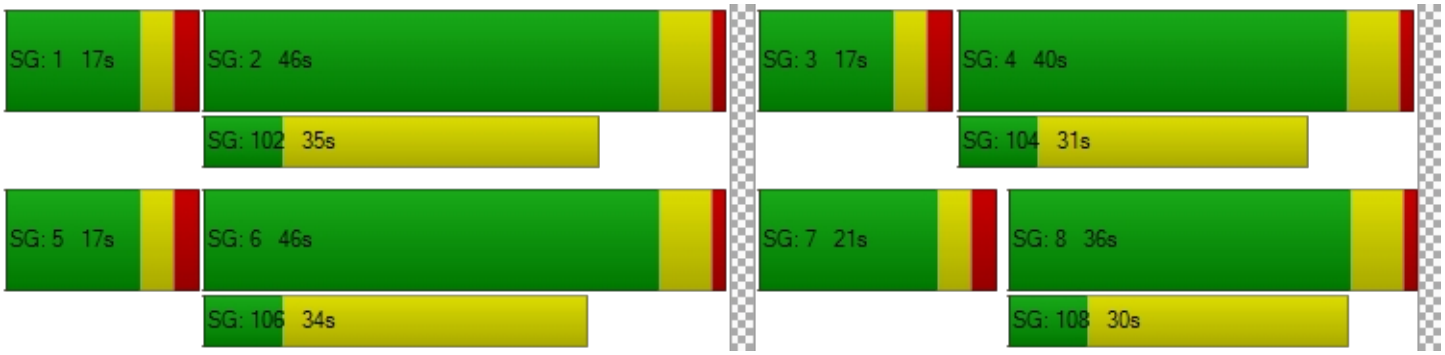
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 11.93 | 12.14 | 8.79 | 114.02 | 176.70 | 107.53 | 33.94 | 372.81 | 166.69 | 12.22 | 148.92 | 2.88 |
| Stops [stops/h] | 94.23 | 89.68 | 67.20 | 183.19 | 279.49 | 179.72 | 56.83 | 373.94 | 189.13 | 86.61 | 693.18 | 10.46 |
| Fuel consumption [US gal/h] | 2.51 | 2.36 | 1.75 | 7.92 | 12.03 | 7.54 | 2.40 | 20.21 | 9.36 | 2.57 | 19.19 | 0.31 |
| CO [g/h] | 175.37 | 164.70 | 122.58 | 553.64 | 841.03 | 526.86 | 167.85 | 1412.86 | 654.08 | 179.51 | 1341.65 | 21.44 |
| NOx [g/h] | 34.12 | 32.04 | 23.85 | 107.72 | 163.63 | 102.51 | 32.66 | 274.89 | 127.26 | 34.93 | 261.04 | 4.17 |
| VOC [g/h] | 40.64 | 38.17 | 28.41 | 128.31 | 194.92 | 122.10 | 38.90 | 327.44 | 151.59 | 41.60 | 310.94 | 4.97 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.54 | 49.54 | 49.54 | 49.54 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.808 | 2.739 | 3.161 | 3.264 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 505 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.64 | 33.56 | 26.50 | 26.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.819 | 2.168 | 2.192 | 2.342 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 38.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.990 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 492 | 123 | 2 | 0 | 59 | 16 | 12 | 1 | 294 | 2 | 6 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 492 | 123 | 2 | 0 | 59 | 16 | 12 | 1 | 294 | 2 | 6 | 1 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 135 | 34 | 1 | 0 | 16 | 4 | 3 | 0 | 81 | 1 | 2 | 0 |
| Total Analysis Volume [veh/h] | 541 | 135 | 2 | 0 | 65 | 18 | 13 | 1 | 323 | 2 | 7 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 685 | 609 | 657 | 537 |
| Degree of Utilization, x | 0.99 | 0.14 | 0.51 | 0.02 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 15.53 | 0.47 | 2.94 | 0.06 |
| 95th-Percentile Queue Length [ft] | 388.37 | 11.75 | 73.51 | 1.42 |
| Approach Delay [s/veh] | 54.53 | 9.84 | 14.10 | 9.83 |
| Approach LOS | F | A | B | A |
| Intersection Delay [s/veh] | 38.48 | | | |
| Intersection LOS | E | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.035 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 467 | 10 | 10 | 453 | 10 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 467 | 10 | 10 | 453 | 10 | 10 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 117 | 3 | 3 | 113 | 3 | 3 |
| Total Analysis Volume [veh/h] | 467 | 10 | 10 | 453 | 10 | 10 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.03 | 0.02 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.33 | 0.00 | 18.05 | 11.59 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.02 | 0.02 | 0.16 | 0.16 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.42 | 0.42 | 4.08 | 4.08 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.18 | | 14.82 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 0.40 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.561 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 143 | 89 | 40 | 252 | 159 | 18 | 20 | 506 | 8 | 58 | 254 | 359 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 143 | 89 | 40 | 252 | 159 | 18 | 20 | 506 | 8 | 58 | 254 | 359 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 23 | 10 | 66 | 41 | 5 | 5 | 132 | 2 | 15 | 66 | 93 |
| Total Analysis Volume [veh/h] | 149 | 93 | 42 | 263 | 166 | 19 | 21 | 527 | 8 | 60 | 265 | 374 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 9 | 9 | 10 | 11 | 2 | 18 | 18 | 5 | 20 | 20 |
| g / C, Green / Cycle | 0.14 | 0.15 | 0.15 | 0.18 | 0.19 | 0.04 | 0.30 | 0.30 | 0.09 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.05 | 0.03 | 0.15 | 0.10 | 0.01 | 0.14 | 0.14 | 0.03 | 0.14 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1831 | 1810 | 1870 | 1860 | 1782 | 1900 | 1586 |
| c, Capacity [veh/h] | 256 | 285 | 237 | 323 | 350 | 73 | 570 | 567 | 154 | 667 | 556 |
| d1, Uniform Delay [s] | 23.26 | 21.91 | 21.40 | 22.80 | 21.08 | 27.01 | 16.35 | 16.35 | 25.03 | 14.19 | 15.98 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.78 | 0.66 | 0.35 | 1.91 | 1.24 | 0.81 | 1.13 | 1.13 | 0.60 | 0.72 | 2.63 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.33 | 0.18 | 0.81 | 0.53 | 0.29 | 0.47 | 0.47 | 0.39 | 0.40 | 0.67 |
| d, Delay for Lane Group [s/veh] | 24.04 | 22.57 | 21.76 | 24.71 | 22.32 | 27.82 | 17.48 | 17.49 | 25.63 | 14.91 | 18.61 |
| Lane Group LOS | C | C | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.71 | 1.03 | 0.46 | 3.13 | 2.06 | 0.27 | 2.63 | 2.62 | 0.70 | 2.18 | 3.65 |
| 50th-Percentile Queue Length [ft/ln] | 42.84 | 25.87 | 11.42 | 78.26 | 51.50 | 6.82 | 65.72 | 65.47 | 17.53 | 54.39 | 91.34 |
| 95th-Percentile Queue Length [veh/ln] | 3.08 | 1.86 | 0.82 | 5.63 | 3.71 | 0.49 | 4.73 | 4.71 | 1.26 | 3.92 | 6.58 |
| 95th-Percentile Queue Length [ft/ln] | 77.11 | 46.57 | 20.56 | 140.87 | 92.70 | 12.28 | 118.29 | 117.85 | 31.55 | 97.91 | 164.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.04 | 22.57 | 21.76 | 24.71 | 22.32 | 22.32 | 27.82 | 17.48 | 17.49 | 25.63 | 14.91 | 18.61 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 23.22 | | | 23.72 | | | 17.87 | | | 17.81 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.93 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.561 | | | | | | | | | | | |

**Emissions**

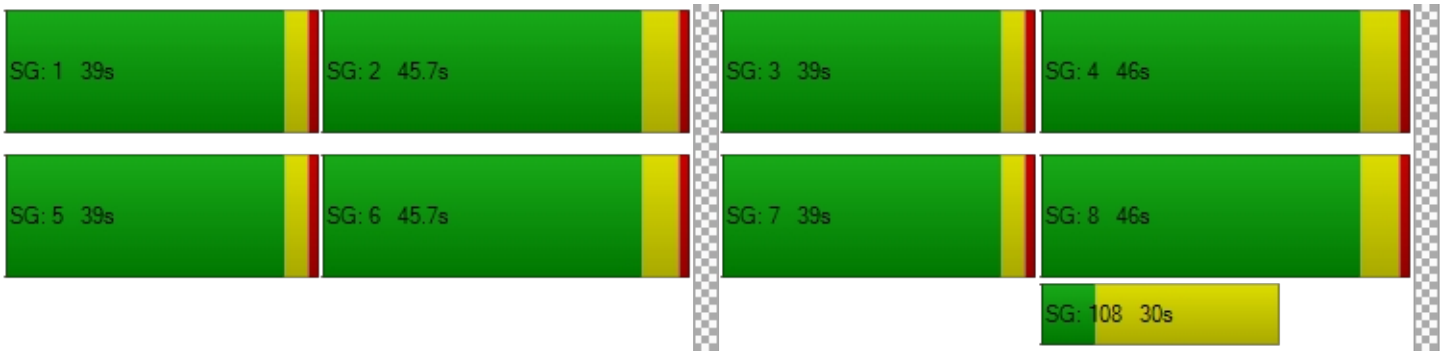
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 74.93 | 46.77 | 21.12 | 131.08 | 92.21 | 10.35 | 132.11 | 131.55 | 15.73 | 69.46 | 98.02 |
| Stops [stops/h] | 106.74 | 64.46 | 28.46 | 194.99 | 128.31 | 17.00 | 163.73 | 163.12 | 43.67 | 135.52 | 227.57 |
| Fuel consumption [US gal/h] | 4.62 | 2.83 | 1.26 | 8.24 | 5.60 | 0.66 | 7.29 | 7.26 | 1.51 | 5.21 | 8.19 |
| CO [g/h] | 323.24 | 197.94 | 88.34 | 576.00 | 391.17 | 45.89 | 509.88 | 507.79 | 105.55 | 364.19 | 572.66 |
| NOx [g/h] | 62.89 | 38.51 | 17.19 | 112.07 | 76.11 | 8.93 | 99.20 | 98.80 | 20.54 | 70.86 | 111.42 |
| VOC [g/h] | 74.91 | 45.87 | 20.47 | 133.49 | 90.66 | 10.64 | 118.17 | 117.69 | 24.46 | 84.41 | 132.72 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.94 | 21.45 | 21.19 | 21.19 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.427 | 2.377 | 2.432 | 2.777 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1384 | 1384 | 1384 | 1384 |
| d_b, Bicycle Delay [s] | 2.74 | 2.74 | 2.74 | 2.74 |
| l_b,int, Bicycle LOS Score for Intersection | 2.028 | 2.299 | 2.018 | 2.713 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.039 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 163 | 8 | 21 | 229 | 10 | 3 | 5 | 6 | 16 | 7 | 45 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 163 | 8 | 21 | 229 | 10 | 3 | 5 | 6 | 16 | 7 | 45 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 45 | 2 | 6 | 63 | 3 | 1 | 1 | 2 | 4 | 2 | 12 |
| Total Analysis Volume [veh/h] | 3 | 179 | 9 | 23 | 252 | 11 | 3 | 5 | 7 | 18 | 8 | 49 |
| Pedestrian Volume [ped/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.04 | 0.02 | 0.06 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.94 | 0.00 | 0.00 | 7.62 | 0.00 | 0.00 | 13.28 | 12.86 | 9.72 | 13.40 | 13.39 | 9.93 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 | 0.38 | 0.38 | 0.38 |
| 95th-Percentile Queue Length [ft/ln] | 0.18 | 0.00 | 0.00 | 1.25 | 0.00 | 0.00 | 2.02 | 2.02 | 2.02 | 9.54 | 9.54 | 9.54 |
| d_A, Approach Delay [s/veh] | 0.12 | | | 0.61 | | | 11.48 | | | 11.14 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 2.13 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.570 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 44 | 121 | 37 | 18 | 208 | 60 | 26 | 283 | 110 | 97 | 272 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 44 | 121 | 37 | 18 | 208 | 60 | 26 | 283 | 110 | 97 | 272 | 30 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 33 | 10 | 5 | 57 | 16 | 7 | 77 | 30 | 26 | 74 | 8 |
| Total Analysis Volume [veh/h] | 48 | 132 | 40 | 20 | 226 | 65 | 28 | 308 | 120 | 105 | 296 | 33 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 2 | 10 | 10 | 1 | 9 | 1 | 7 | 7 | 3 | 9 |
| g / C, Green / Cycle | 0.04 | 0.28 | 0.28 | 0.02 | 0.25 | 0.03 | 0.19 | 0.19 | 0.08 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.07 | 0.03 | 0.01 | 0.16 | 0.02 | 0.12 | 0.12 | 0.06 | 0.18 |
| s, saturation flow rate [veh/h] | 1765 | 1859 | 1578 | 1772 | 1815 | 1691 | 1868 | 1695 | 1794 | 1842 |
| c, Capacity [veh/h] | 76 | 515 | 437 | 37 | 462 | 47 | 355 | 322 | 139 | 441 |
| d1, Uniform Delay [s] | 17.31 | 10.35 | 9.87 | 17.84 | 12.18 | 17.68 | 13.70 | 13.75 | 16.62 | 12.95 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.14 | 0.37 | 0.13 | 4.55 | 2.02 | 4.37 | 1.35 | 1.59 | 3.09 | 1.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.26 | 0.09 | 0.54 | 0.63 | 0.59 | 0.62 | 0.64 | 0.75 | 0.75 |
| d, Delay for Lane Group [s/veh] | 20.45 | 10.72 | 10.00 | 22.39 | 14.20 | 22.04 | 15.05 | 15.34 | 19.71 | 14.84 |
| Lane Group LOS | C | B | A | C | B | C | B | B | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.37 | 0.59 | 0.17 | 0.19 | 1.89 | 0.24 | 1.31 | 1.24 | 0.77 | 1.90 |
| 50th-Percentile Queue Length [ft/ln] | 9.26 | 14.79 | 4.28 | 4.74 | 47.20 | 5.93 | 32.69 | 31.02 | 19.20 | 47.58 |
| 95th-Percentile Queue Length [veh/ln] | 0.67 | 1.07 | 0.31 | 0.34 | 3.40 | 0.43 | 2.35 | 2.23 | 1.38 | 3.43 |
| 95th-Percentile Queue Length [ft/ln] | 16.67 | 26.63 | 7.70 | 8.53 | 84.96 | 10.67 | 58.84 | 55.83 | 34.56 | 85.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.45 | 10.72 | 10.00 | 22.39 | 14.20 | 14.20 | 22.04 | 15.13 | 15.34 | 19.71 | 14.84 | 14.84 |
| Movement LOS | C | B | A | C | B | B | C | B | B | B | B | B |
| d_A, Approach Delay [s/veh] | 12.71 | | | 14.73 | | | 15.61 | | | 16.02 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.09 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.570 | | | | | | | | | | | |

**Emissions**

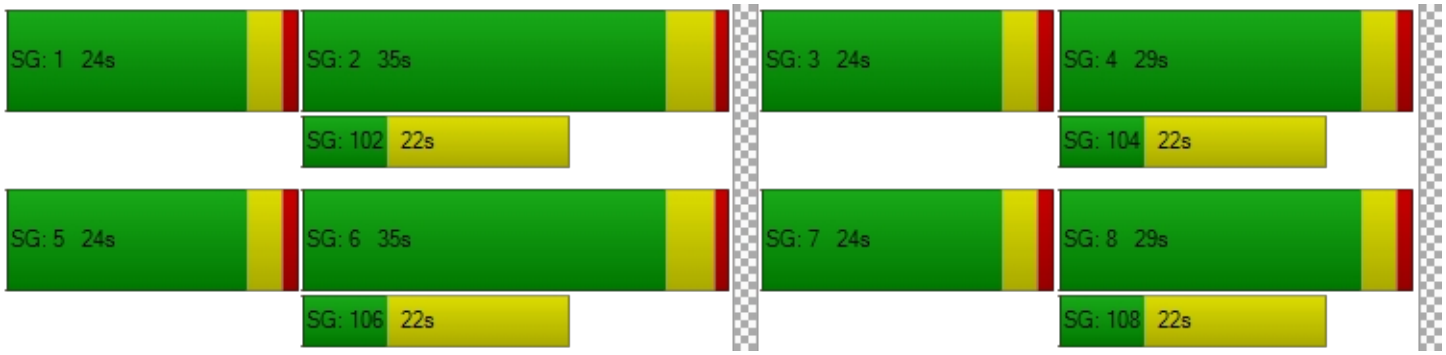
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 23.94 | 65.84 | 19.95 | 10.02 | 145.74 | 13.97 | 110.53 | 102.95 | 105.17 | 329.53 |
| Stops [stops/h] | 36.47 | 58.23 | 16.84 | 18.66 | 185.81 | 23.33 | 128.69 | 122.11 | 75.59 | 187.29 |
| Fuel consumption [US gal/h] | 1.47 | 3.27 | 0.97 | 0.61 | 7.87 | 0.89 | 6.07 | 5.69 | 4.97 | 14.62 |
| CO [g/h] | 103.02 | 228.51 | 68.13 | 42.40 | 549.92 | 62.51 | 424.11 | 397.84 | 347.13 | 1021.80 |
| NOx [g/h] | 20.04 | 44.46 | 13.26 | 8.25 | 106.99 | 12.16 | 82.52 | 77.41 | 67.54 | 198.81 |
| VOC [g/h] | 23.88 | 52.96 | 15.79 | 9.83 | 127.45 | 14.49 | 98.29 | 92.20 | 80.45 | 236.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 8.94 | 8.94 | 8.94 | 8.94 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.441 | 2.049 | 2.393 | 2.369 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1640 | 1640 | 1367 | 1367 |
| d_b, Bicycle Delay [s] | 0.59 | 0.59 | 1.83 | 1.83 |
| l_b,int, Bicycle LOS Score for Intersection | 1.923 | 2.073 | 1.936 | 2.276 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 80.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.937 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 495 | 231 | 57 | 58 | 577 | 73 | 21 | 230 | 318 | 77 | 337 | 25 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 495 | 231 | 57 | 58 | 577 | 73 | 21 | 230 | 318 | 77 | 337 | 25 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 146 | 68 | 17 | 17 | 170 | 21 | 6 | 68 | 94 | 23 | 99 | 7 |
| Total Analysis Volume [veh/h] | 582 | 272 | 67 | 68 | 679 | 86 | 25 | 271 | 374 | 91 | 396 | 29 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 38 | 38 | 8 | 24 | 24 | 4 | 26 | 26 | 8 | 30 | 30 |
| g / C, Green / Cycle | 0.22 | 0.39 | 0.39 | 0.08 | 0.25 | 0.25 | 0.05 | 0.27 | 0.27 | 0.09 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.32 | 0.08 | 0.04 | 0.04 | 0.21 | 0.21 | 0.01 | 0.14 | 0.23 | 0.05 | 0.11 | 0.02 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1562 | 1751 | 1867 | 1794 | 1810 | 1883 | 1595 | 1785 | 3589 | 1612 |
| c, Capacity [veh/h] | 392 | 1381 | 615 | 138 | 474 | 456 | 83 | 517 | 438 | 153 | 1128 | 507 |
| d1, Uniform Delay [s] | 37.48 | 19.11 | 18.41 | 42.36 | 33.75 | 33.76 | 44.27 | 29.49 | 32.97 | 42.26 | 25.36 | 22.97 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.18 | 0.18 | 0.11 | 0.11 | 0.23 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 231.01 | 0.07 | 0.08 | 2.70 | 5.83 | 6.11 | 1.98 | 0.82 | 9.79 | 3.64 | 0.19 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.48 | 0.20 | 0.11 | 0.49 | 0.82 | 0.82 | 0.30 | 0.52 | 0.85 | 0.59 | 0.35 | 0.06 |
| d, Delay for Lane Group [s/veh] | 268.50 | 19.18 | 18.49 | 45.06 | 39.59 | 39.87 | 46.26 | 30.31 | 42.75 | 45.90 | 25.54 | 23.02 |
| Lane Group LOS | F | B | B | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 33.81 | 1.87 | 0.89 | 1.63 | 9.14 | 8.82 | 0.62 | 5.32 | 9.21 | 2.15 | 3.30 | 0.44 |
| 50th-Percentile Queue Length [ft/ln] | 845.28 | 46.63 | 22.30 | 40.85 | 228.40 | 220.59 | 15.41 | 132.96 | 230.35 | 53.65 | 82.44 | 11.01 |
| 95th-Percentile Queue Length [veh/ln] | 51.93 | 3.36 | 1.61 | 2.94 | 14.09 | 13.70 | 1.11 | 9.10 | 14.19 | 3.86 | 5.94 | 0.79 |
| 95th-Percentile Queue Length [ft/ln] | 1298.28 | 83.93 | 40.15 | 73.52 | 352.32 | 342.38 | 27.74 | 227.52 | 354.81 | 96.57 | 148.40 | 19.81 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 268.50 | 19.18 | 18.49 | 45.06 | 39.71 | 39.87 | 46.26 | 30.31 | 42.75 | 45.90 | 25.54 | 23.02 |
| Movement LOS | F | B | B | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 176.68 | | | 40.16 | | | 37.85 | | | 28.99 | | |
| Approach LOS | F | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 80.44 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 0.937 | | | | | | | | | | | |

**Emissions**

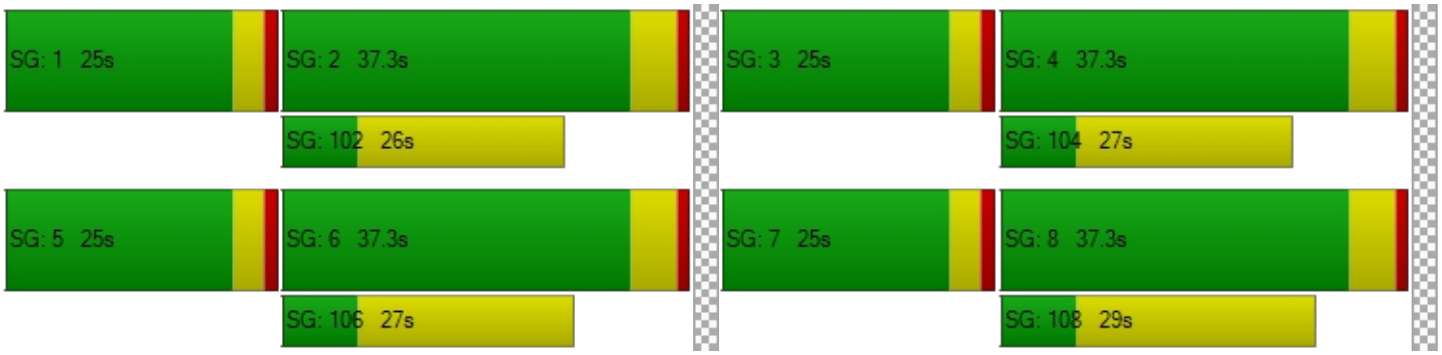
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 116.34 | 54.37 | 13.39 | 33.92 | 194.50 | 187.09 | 12.32 | 133.54 | 184.30 | 9.40 | 40.89 | 2.99 |
| Stops [stops/h] | 1270.52 | 140.17 | 33.53 | 61.40 | 343.30 | 331.56 | 23.16 | 199.86 | 346.24 | 80.64 | 247.84 | 16.54 |
| Fuel consumption [US gal/h] | 51.58 | 4.67 | 1.13 | 2.36 | 13.04 | 12.58 | 0.87 | 8.27 | 12.75 | 2.17 | 6.54 | 0.44 |
| CO [g/h] | 3605.34 | 326.28 | 78.84 | 164.89 | 911.82 | 879.10 | 60.84 | 578.30 | 891.48 | 152.00 | 457.23 | 31.05 |
| NOx [g/h] | 701.47 | 63.48 | 15.34 | 32.08 | 177.41 | 171.04 | 11.84 | 112.52 | 173.45 | 29.57 | 88.96 | 6.04 |
| VOC [g/h] | 835.57 | 75.62 | 18.27 | 38.22 | 211.32 | 203.74 | 14.10 | 134.03 | 206.61 | 35.23 | 105.97 | 7.20 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.53 | 37.53 | 37.53 | 37.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.959 | 2.529 | 2.641 | 2.572 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 668 | 668 | 668 | 668 |
| d_b, Bicycle Delay [s] | 21.25 | 21.25 | 21.25 | 21.25 |
| l_b,int, Bicycle LOS Score for Intersection | 2.319 | 2.247 | 2.665 | 1.985 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.801 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 603 | 750 | 0 | 0 | 475 | 542 | 0 | 0 | 0 | 110 | 0 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 603 | 750 | 0 | 0 | 475 | 542 | 0 | 0 | 0 | 110 | 0 | 15 |
| Peak Hour Factor | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 1.0000 | 0.8600 | 1.0000 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 175 | 218 | 0 | 0 | 138 | 158 | 0 | 0 | 0 | 32 | 0 | 4 |
| Total Analysis Volume [veh/h] | 701 | 872 | 0 | 0 | 552 | 630 | 0 | 0 | 0 | 128 | 0 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 95 | 95 | 95 | 95 | | 95 | 95 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 25 | 73 | 42 | 42 | | 9 | 9 |
| g / C, Green / Cycle | 0.26 | 0.76 | 0.44 | 0.44 | | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.24 | 0.29 | 0.40 | | 0.07 | 0.01 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 724 | 2729 | 830 | 697 | | 176 | 154 |
| d1, Uniform Delay [s] | 34.87 | 3.50 | 20.98 | 24.70 | | 41.83 | 39.27 |
| k, delay calibration | 0.04 | 0.20 | 0.24 | 0.36 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.65 | 0.12 | 2.04 | 13.42 | | 11.57 | 0.67 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.97 | 0.32 | 0.66 | 0.90 | | 0.73 | 0.11 |
| d, Delay for Lane Group [s/veh] | 39.52 | 3.62 | 23.03 | 38.12 | | 53.40 | 39.94 |
| Lane Group LOS | D | A | C | D | | D | D |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 7.97 | 1.58 | 9.23 | 14.36 | | 3.31 | 0.37 |
| 50th-Percentile Queue Length [ft/ln] | 199.23 | 39.54 | 230.66 | 358.98 | | 82.64 | 9.26 |
| 95th-Percentile Queue Length [veh/ln] | 12.60 | 2.85 | 14.21 | 20.57 | | 5.95 | 0.67 |
| 95th-Percentile Queue Length [ft/ln] | 314.97 | 71.17 | 355.19 | 514.35 | | 148.75 | 16.66 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.52 | 3.62 | 0.00 | 0.00 | 23.03 | 38.12 | 0.00 | 0.00 | 0.00 | 53.40 | 0.00 | 39.94 |
| Movement LOS | D | A | | | C | D | | | | D | | D |
| d_A, Approach Delay [s/veh] | 19.62 | | | 31.07 | | | 0.00 | | | 51.82 | | |
| Approach LOS | B | | | C | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 25.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.801 | | | | | | | | | | | |

**Emissions**

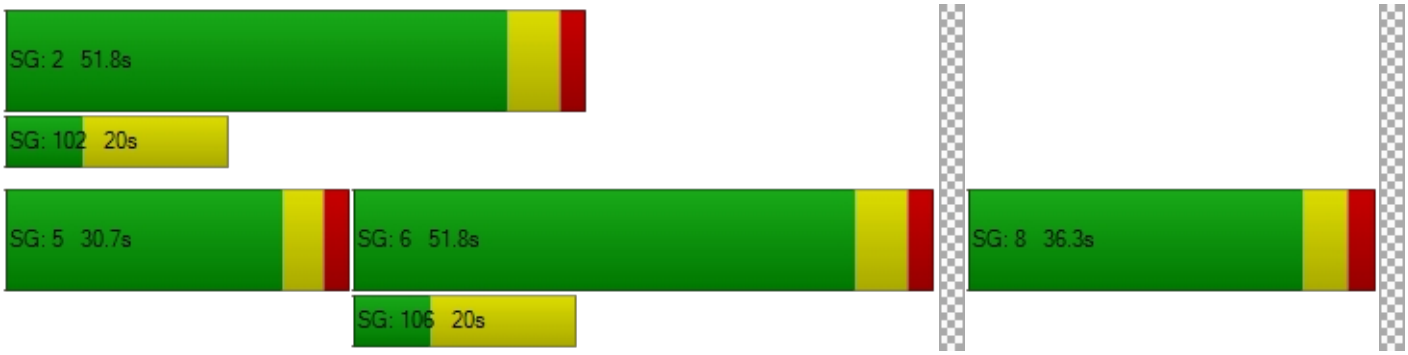
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 75.78 | 94.26 | 110.34 | 125.93 | | 11.00 | 1.46 |
| Stops [stops/h] | 601.78 | 119.43 | 348.35 | 542.15 | | 124.80 | 13.98 |
| Fuel consumption [US gal/h] | 15.72 | 5.36 | 10.70 | 15.94 | | 4.08 | 0.45 |
| CO [g/h] | 1098.62 | 374.59 | 747.92 | 1114.51 | | 284.99 | 31.22 |
| NOx [g/h] | 213.75 | 72.88 | 145.52 | 216.84 | | 55.45 | 6.07 |
| VOC [g/h] | 254.62 | 86.81 | 173.34 | 258.30 | | 66.05 | 7.24 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.01 | 45.01 | 37.31 | 37.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.012 | 2.898 | 2.366 | 1.847 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 944 | 944 | 0 | 629 |
| d_b, Bicycle Delay [s] | 13.29 | 13.30 | 47.67 | 22.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.857 | 2.535 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.723 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1157 | 94 | 16 | 601 | 0 | 174 | 0 | 394 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1157 | 94 | 16 | 601 | 0 | 174 | 0 | 394 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 318 | 26 | 4 | 165 | 0 | 48 | 0 | 108 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1271 | 103 | 18 | 660 | 0 | 191 | 0 | 433 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 50 | 50 | 2 | 58 | 29 | 29 | |
| g / C, Green / Cycle | 0.50 | 0.50 | 0.02 | 0.58 | 0.29 | 0.29 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.18 | 0.06 | 0.27 | |
| s, saturation flow rate [veh/h] | 1877 | 1828 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 937 | 912 | 42 | 2077 | 1000 | 463 | |
| d1, Uniform Delay [s] | 19.77 | 20.08 | 48.04 | 10.77 | 26.64 | 34.54 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.39 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 5.07 | 5.72 | 2.53 | 0.40 | 0.20 | 23.98 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.75 | 0.43 | 0.32 | 0.19 | 0.93 | |
| d, Delay for Lane Group [s/veh] | 24.84 | 25.81 | 50.57 | 11.18 | 26.84 | 58.51 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.76 | 13.08 | 0.46 | 3.39 | 1.61 | 12.40 | |
| 50th-Percentile Queue Length [ft/ln] | 319.12 | 326.96 | 11.44 | 84.71 | 40.31 | 310.02 | |
| 95th-Percentile Queue Length [veh/ln] | 18.62 | 19.01 | 0.82 | 6.10 | 2.90 | 18.18 | |
| 95th-Percentile Queue Length [ft/ln] | 465.61 | 475.24 | 20.59 | 152.48 | 72.55 | 454.40 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 25.28 | 25.81 | 50.57 | 11.18 | 0.00 | 26.84 | 0.00 | 58.51 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 25.32 | | | 12.22 | | | 48.82 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 27.48 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.723 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.59 | 45.59 | 1.95 | 71.35 | 22.70 | 51.46 | |
| Stops [stops/h] | 459.74 | 471.04 | 16.48 | 244.07 | 116.14 | 446.63 | |
| Fuel consumption [US gal/h] | 9.62 | 9.87 | 0.46 | 6.98 | 3.96 | 15.17 | |
| CO [g/h] | 672.54 | 689.79 | 31.93 | 488.00 | 276.78 | 1060.59 | |
| NOx [g/h] | 130.85 | 134.21 | 6.21 | 94.95 | 53.85 | 206.35 | |
| VOC [g/h] | 155.87 | 159.86 | 7.40 | 113.10 | 64.15 | 245.80 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.919 | 2.911 | 2.317 | 1.779 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.693 | 2.119 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.019 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 0 | 8 | 4 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 0 | 8 | 4 | 0 |
| Peak Hour Factor | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 0 | 3 | 2 | 0 |
| Total Analysis Volume [veh/h] | 19 | 0 | 0 | 14 | 7 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.70 | 8.42 | 0.00 | 0.00 | 7.25 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 1.46 | 1.46 | 0.00 | 0.00 | 0.33 | 0.33 |
| d_A, Approach Delay [s/veh] | 8.70 | | 0.00 | | 7.25 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.40 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.025 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 19 | 12 | 541 | 574 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 19 | 12 | 541 | 574 | 12 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 5 | 3 | 152 | 161 | 3 |
| Total Analysis Volume [veh/h] | 6 | 21 | 13 | 608 | 645 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.26 | 10.86 | 8.94 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.18 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.46 | 4.46 | 1.07 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.95 | | 0.19 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.36 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 37.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.495 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 81 | 20 | 553 | 37 | 5 | 485 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 81 | 20 | 553 | 37 | 5 | 485 |
| Peak Hour Factor | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 7 | 182 | 12 | 2 | 160 |
| Total Analysis Volume [veh/h] | 107 | 26 | 728 | 49 | 7 | 638 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.49 | 0.04 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 37.24 | 26.28 | 0.00 | 0.00 | 9.38 | 0.00 |
| Movement LOS | E | D | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.89 | 2.89 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 72.15 | 72.15 | 0.00 | 0.00 | 0.64 | 0.00 |
| d_A, Approach Delay [s/veh] | 35.10 | | 0.00 | | 0.10 | |
| Approach LOS | E | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.04 | | | | | |
| Intersection LOS | E | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.595 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 198 | 39 | 0 | 0 | 0 | 5 | 257 | 318 | 23 | 398 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 198 | 39 | 0 | 0 | 0 | 5 | 257 | 318 | 23 | 398 | 0 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 64 | 13 | 0 | 0 | 0 | 2 | 83 | 103 | 7 | 129 | 0 |
| Total Analysis Volume [veh/h] | 144 | 257 | 51 | 0 | 0 | 0 | 6 | 334 | 413 | 30 | 517 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 20 | 20 | 3 | 3 | 2 | 27 | 27 | 5 | 30 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.04 | 0.04 | 0.03 | 0.38 | 0.38 | 0.08 | 0.43 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.03 | 0.00 | 0.00 | 0.00 | 0.09 | 0.26 | 0.02 | 0.28 |
| s, saturation flow rate [veh/h] | 1866 | 1519 | 1810 | 1900 | 1738 | 3520 | 1604 | 1752 | 1873 |
| c, Capacity [veh/h] | 519 | 423 | 76 | 80 | 47 | 1328 | 605 | 136 | 801 |
| d1, Uniform Delay [s] | 23.60 | 19.17 | 0.00 | 0.00 | 33.81 | 15.24 | 18.58 | 30.81 | 16.09 |
| k, delay calibration | 0.04 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.93 | 0.05 | 0.00 | 0.00 | 0.46 | 0.21 | 2.90 | 0.30 | 1.87 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.12 | 0.00 | 0.00 | 0.13 | 0.25 | 0.68 | 0.22 | 0.65 |
| d, Delay for Lane Group [s/veh] | 24.53 | 19.22 | 0.00 | 0.00 | 34.27 | 15.45 | 21.48 | 31.11 | 17.95 |
| Lane Group LOS | C | B | A | A | C | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.93 | 0.60 | 0.00 | 0.00 | 0.10 | 1.61 | 5.21 | 0.45 | 5.77 |
| 50th-Percentile Queue Length [ft/ln] | 148.37 | 15.12 | 0.00 | 0.00 | 2.47 | 40.15 | 130.30 | 11.28 | 144.25 |
| 95th-Percentile Queue Length [veh/ln] | 9.93 | 1.09 | 0.00 | 0.00 | 0.18 | 2.89 | 8.96 | 0.81 | 9.71 |
| 95th-Percentile Queue Length [ft/ln] | 248.26 | 27.22 | 0.00 | 0.00 | 4.44 | 72.28 | 223.90 | 20.30 | 242.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.53 | 24.53 | 19.22 | 0.00 | 0.00 | 0.00 | 34.27 | 15.45 | 21.48 | 31.11 | 17.95 | 17.95 |
| Movement LOS | C | C | B | A | A | A | C | B | C | C | B | B |
| d_A, Approach Delay [s/veh] | 23.93 | | | 0.00 | | | 18.91 | | | 18.67 | | |
| Approach LOS | C | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 20.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.595 | | | | | | | | | | | |

**Emissions**

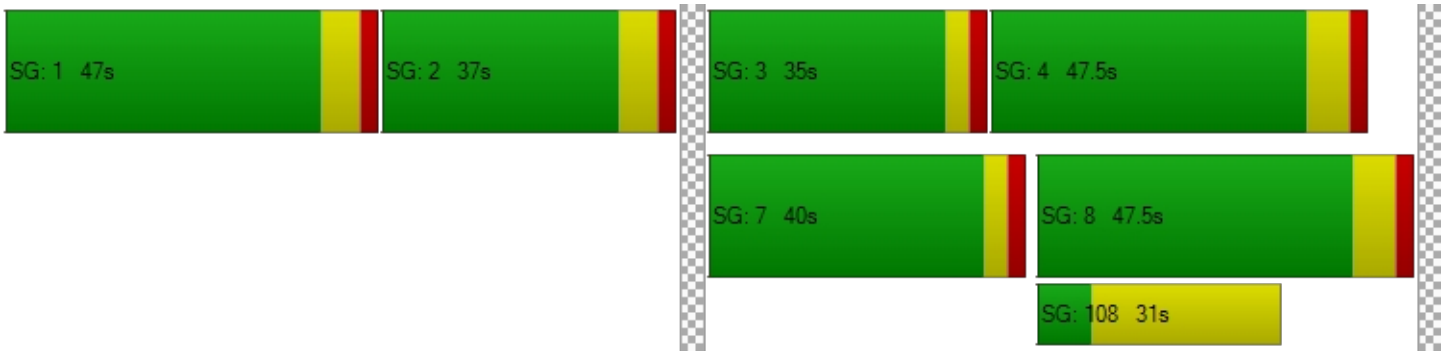
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 399.57 | 50.82 | 0.00 | 0.00 | 2.21 | 123.17 | 152.30 | 15.16 | 261.20 |
| Stops [stops/h] | 300.86 | 30.66 | 0.00 | 0.00 | 5.00 | 162.85 | 264.21 | 22.87 | 292.49 |
| Fuel consumption [US gal/h] | 20.11 | 2.46 | 0.00 | 0.00 | 0.19 | 7.67 | 10.96 | 1.05 | 15.13 |
| CO [g/h] | 1405.89 | 172.01 | 0.00 | 0.00 | 13.47 | 536.46 | 766.20 | 73.30 | 1057.29 |
| NOx [g/h] | 273.54 | 33.47 | 0.00 | 0.00 | 2.62 | 104.38 | 149.07 | 14.26 | 205.71 |
| VOC [g/h] | 325.83 | 39.87 | 0.00 | 0.00 | 3.12 | 124.33 | 177.57 | 16.99 | 245.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.36 | 29.31 | 28.85 | 28.85 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.336 | 2.018 | 2.752 | 2.502 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1127 | 845 | 1127 | 1127 |
| d_b, Bicycle Delay [s] | 6.77 | 11.84 | 6.77 | 6.77 |
| l_b,int, Bicycle LOS Score for Intersection | 2.305 | 1.560 | 2.181 | 2.462 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.666 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 90 | 201 | 64 | 2 | 654 | 194 | 79 | 85 | 169 | 204 | 197 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 90 | 201 | 64 | 2 | 654 | 194 | 79 | 85 | 169 | 204 | 197 | 6 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 61 | 20 | 1 | 199 | 59 | 24 | 26 | 52 | 62 | 60 | 2 |
| Total Analysis Volume [veh/h] | 110 | 245 | 78 | 2 | 798 | 237 | 96 | 104 | 206 | 249 | 240 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 30 | 30 | 0 | 22 | 22 | 8 | 13 | 13 | 12 | 17 | 17 |
| g / C, Green / Cycle | 0.11 | 0.42 | 0.42 | 0.00 | 0.31 | 0.31 | 0.11 | 0.18 | 0.18 | 0.17 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.07 | 0.05 | 0.00 | 0.22 | 0.15 | 0.05 | 0.06 | 0.13 | 0.14 | 0.13 | 0.00 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1609 | 1810 | 3592 | 1593 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 199 | 1480 | 676 | 9 | 1120 | 497 | 194 | 335 | 293 | 297 | 454 | 337 |
| d1, Uniform Delay [s] | 29.72 | 12.81 | 12.53 | 35.10 | 21.56 | 19.69 | 29.75 | 25.02 | 27.10 | 28.64 | 23.38 | 20.51 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.89 | 0.07 | 0.10 | 4.47 | 1.14 | 0.95 | 0.73 | 0.65 | 3.82 | 2.44 | 1.19 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.17 | 0.12 | 0.22 | 0.71 | 0.48 | 0.49 | 0.31 | 0.70 | 0.84 | 0.53 | 0.02 |
| d, Delay for Lane Group [s/veh] | 30.61 | 12.88 | 12.63 | 39.57 | 22.70 | 20.64 | 30.48 | 25.67 | 30.92 | 31.08 | 24.57 | 20.54 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.65 | 1.01 | 0.64 | 0.04 | 5.16 | 2.83 | 1.52 | 1.51 | 3.42 | 3.91 | 3.27 | 0.08 |
| 50th-Percentile Queue Length [ft/ln] | 41.14 | 25.34 | 16.03 | 1.07 | 128.96 | 70.85 | 38.03 | 37.72 | 85.46 | 97.66 | 81.73 | 2.07 |
| 95th-Percentile Queue Length [veh/ln] | 2.96 | 1.82 | 1.15 | 0.08 | 8.88 | 5.10 | 2.74 | 2.72 | 6.15 | 7.03 | 5.88 | 0.15 |
| 95th-Percentile Queue Length [ft/ln] | 74.06 | 45.62 | 28.85 | 1.92 | 222.08 | 127.52 | 68.45 | 67.90 | 153.83 | 175.78 | 147.11 | 3.72 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.61 | 12.88 | 12.63 | 39.57 | 22.70 | 20.64 | 30.48 | 25.67 | 30.92 | 31.08 | 24.57 | 20.54 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 17.34 | | | 22.26 | | | 29.47 | | | 27.78 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.75 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.666 | | | | | | | | | | | |

**Emissions**

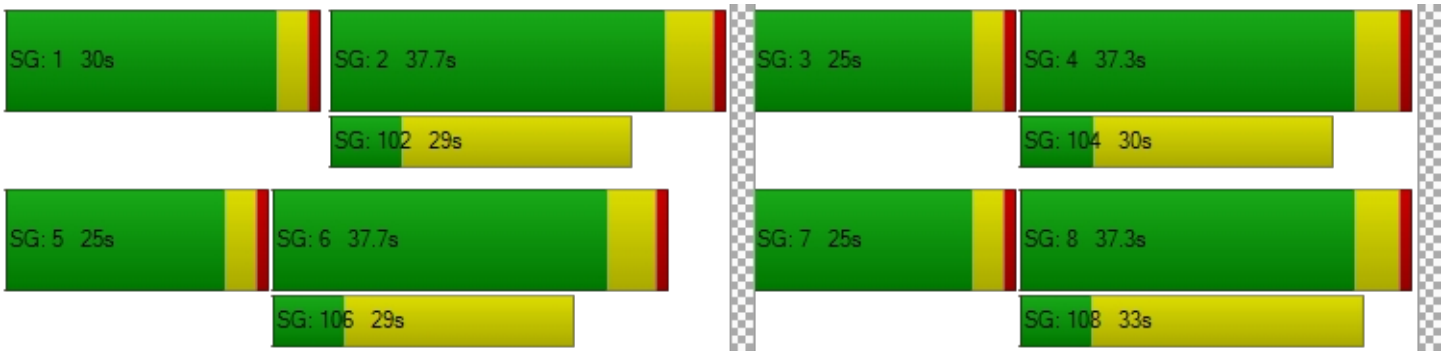
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 50.35 | 112.15 | 35.70 | 1.99 | 795.16 | 236.16 | 96.16 | 104.17 | 206.33 | 124.90 | 120.38 | 3.51 |
| Stops [stops/h] | 83.88 | 103.34 | 32.67 | 2.18 | 525.83 | 144.44 | 77.53 | 76.91 | 174.23 | 199.10 | 166.62 | 4.21 |
| Fuel consumption [US gal/h] | 3.66 | 5.98 | 1.90 | 0.12 | 38.39 | 11.12 | 4.98 | 5.26 | 10.75 | 8.33 | 7.40 | 0.20 |
| CO [g/h] | 255.77 | 418.30 | 132.65 | 8.13 | 2683.16 | 777.37 | 348.26 | 367.43 | 751.63 | 582.37 | 517.15 | 14.12 |
| NOx [g/h] | 49.76 | 81.39 | 25.81 | 1.58 | 522.04 | 151.25 | 67.76 | 71.49 | 146.24 | 113.31 | 100.62 | 2.75 |
| VOC [g/h] | 59.28 | 96.94 | 30.74 | 1.88 | 621.85 | 180.16 | 80.71 | 85.16 | 174.20 | 134.97 | 119.85 | 3.27 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.17 | 25.17 | 25.17 | 25.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.896 | 2.815 | 2.360 | 2.366 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 906 | 906 | 906 | 906 |
| d_b, Bicycle Delay [s] | 10.56 | 10.56 | 10.56 | 10.56 |
| l_b,int, Bicycle LOS Score for Intersection | 1.917 | 2.415 | 2.230 | 2.378 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 11.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 172 | 298 | 269 | 98 | 908 | 74 | 27 | 26 | 149 | 231 | 37 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 172 | 298 | 269 | 98 | 908 | 74 | 27 | 26 | 149 | 231 | 37 | 79 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 47 | 82 | 74 | 27 | 249 | 20 | 7 | 7 | 41 | 63 | 10 | 22 |
| Total Analysis Volume [veh/h] | 189 | 327 | 296 | 108 | 998 | 81 | 30 | 29 | 164 | 254 | 41 | 87 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 173 | | | 497 | | | 1387 | | | 570 | | |
| Exiting Flow Rate [veh/h] | 1440 | | | 464 | | | 315 | | | 443 | | |
| Demand Flow Rate [veh/h] | 172 | 298 | 269 | 98 | 908 | 74 | 27 | 26 | 149 | 231 | 37 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 189 | 327 | 296 | 108 | 998 | 81 | 30 | 29 | 164 | 254 | 41 | 87 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.96 | 0.98 | 0.99 | 0.96 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 399 | 447 | 567 | 638 | 62 | 166 | 210 | 184 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1214 | 1214 | 855 | 931 | 378 | 437 | 800 | 875 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1162 | 1167 | 842 | 920 | 363 | 434 | 773 | 856 |
| X, volume / capacity | 0.33 | 0.37 | 0.66 | 0.68 | 0.16 | 0.38 | 0.26 | 0.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | C | C | B | C | A | A |
| 95th-Percentile Queue Length [veh] | 1.45 | 1.72 | 5.15 | 5.63 | 0.57 | 1.74 | 1.05 | 0.79 |
| 95th-Percentile Queue Length [ft] | 36.15 | 43.02 | 128.83 | 140.82 | 14.36 | 43.47 | 26.27 | 19.75 |
| Approach Delay [s/veh] | 6.50 | | 15.48 | | 14.52 | | 7.04 | |
| Approach LOS | A | | C | | B | | A | |
| Intersection Delay [s/veh] | 11.36 | | | | | | | |
| Intersection LOS | B | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.513 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 579 | 756 | 0 | 761 | 515 | 0 | 0 | 0 | 53 | 0 | 129 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 579 | 756 | 0 | 761 | 515 | 0 | 0 | 0 | 53 | 0 | 129 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 161 | 210 | 0 | 211 | 143 | 0 | 0 | 0 | 15 | 0 | 36 |
| Total Analysis Volume [veh/h] | 0 | 643 | 840 | 0 | 846 | 572 | 0 | 0 | 0 | 59 | 0 | 143 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 45 | 45 | 45 | | 45 | 45 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 25 | 25 | 25 | | 7 | 7 |
| g / C, Green / Cycle | 0.55 | 0.55 | 0.55 | | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.24 | 0.35 | | 0.03 | 0.09 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 1964 | 1961 | 892 | | 291 | 262 |
| d1, Uniform Delay [s] | 5.48 | 5.90 | 6.96 | | 16.26 | 17.27 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.18 | 0.28 | 1.44 | | 0.73 | 3.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.33 | 0.43 | 0.64 | | 0.20 | 0.55 |
| d, Delay for Lane Group [s/veh] | 5.66 | 6.18 | 8.40 | | 16.99 | 21.02 |
| Lane Group LOS | A | A | A | | B | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.84 | 1.20 | 2.14 | | 0.45 | 1.28 |
| 50th-Percentile Queue Length [ft/ln] | 21.00 | 29.90 | 53.57 | | 11.26 | 32.01 |
| 95th-Percentile Queue Length [veh/ln] | 1.51 | 2.15 | 3.86 | | 0.81 | 2.31 |
| 95th-Percentile Queue Length [ft/ln] | 37.81 | 53.82 | 96.43 | | 20.26 | 57.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.66 | 0.00 | 0.00 | 6.18 | 8.40 | 0.00 | 0.00 | 0.00 | 16.99 | 0.00 | 21.02 |
| Movement LOS | | A | | | A | A | | | | B | | C |
| d_A, Approach Delay [s/veh] | 2.60 | | | 7.07 | | | 0.00 | | | 19.84 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 6.94 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.513 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 73.55 | 83.46 | 56.43 | | 4.17 | 10.12 |
| Stops [stops/h] | 134.56 | 191.56 | 171.60 | | 36.05 | 102.55 |
| Fuel consumption [US gal/h] | 4.94 | 6.31 | 5.05 | | 1.01 | 2.85 |
| CO [g/h] | 345.00 | 440.84 | 352.69 | | 70.83 | 199.56 |
| NOx [g/h] | 67.12 | 85.77 | 68.62 | | 13.78 | 38.83 |
| VOC [g/h] | 79.96 | 102.17 | 81.74 | | 16.42 | 46.25 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.48 | 19.48 | 12.82 | 12.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.729 | 2.921 | 1.953 | 2.020 |
| Crosswalk LOS | B | C | A | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1557 | 1557 | 0 | 890 |
| d_b, Bicycle Delay [s] | 1.10 | 1.10 | 22.48 | 6.93 |
| l_b,int, Bicycle LOS Score for Intersection | 2.090 | 2.729 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 101.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.050 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1122 | 26 | 28 | 785 | 0 | 190 | 0 | 887 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1122 | 26 | 28 | 785 | 0 | 190 | 0 | 887 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 305 | 7 | 8 | 213 | 0 | 52 | 0 | 241 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1220 | 28 | 30 | 853 | 0 | 207 | 0 | 964 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 101 | 101 | 101 | 101 | 101 | 101 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 40 | 40 | 3 | 49 | 40 | 40 | |
| g / C, Green / Cycle | 0.39 | 0.39 | 0.03 | 0.48 | 0.40 | 0.40 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.34 | 0.02 | 0.24 | 0.12 | 0.60 | |
| s, saturation flow rate [veh/h] | 1873 | 1858 | 1758 | 3580 | 1749 | 1597 | |
| c, Capacity [veh/h] | 733 | 727 | 60 | 1726 | 690 | 630 | |
| d1, Uniform Delay [s] | 28.15 | 28.26 | 48.08 | 17.85 | 21.06 | 30.68 | |
| k, delay calibration | 0.30 | 0.31 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 7.62 | 8.11 | 2.33 | 0.39 | 0.52 | 246.23 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.85 | 0.86 | 0.50 | 0.49 | 0.30 | 1.53 | |
| d, Delay for Lane Group [s/veh] | 35.77 | 36.37 | 50.41 | 18.24 | 21.58 | 276.91 | |
| Lane Group LOS | D | D | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 14.24 | 14.38 | 0.76 | 6.26 | 3.15 | 56.64 | |
| 50th-Percentile Queue Length [ft/ln] | 356.05 | 359.45 | 18.99 | 156.58 | 78.75 | 1416.05 | |
| 95th-Percentile Queue Length [veh/ln] | 20.43 | 20.60 | 1.37 | 10.37 | 5.67 | 87.38 | |
| 95th-Percentile Queue Length [ft/ln] | 510.78 | 514.91 | 34.18 | 259.19 | 141.75 | 2184.55 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 36.06 | 36.37 | 50.41 | 18.24 | 0.00 | 21.58 | 0.00 | 276.91 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | D | D | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 36.07 | | | 19.33 | | | 231.77 | | | 0.00 | | |
| Approach LOS | D | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 101.00 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.050 | | | | | | | | | | | |

**Emissions**

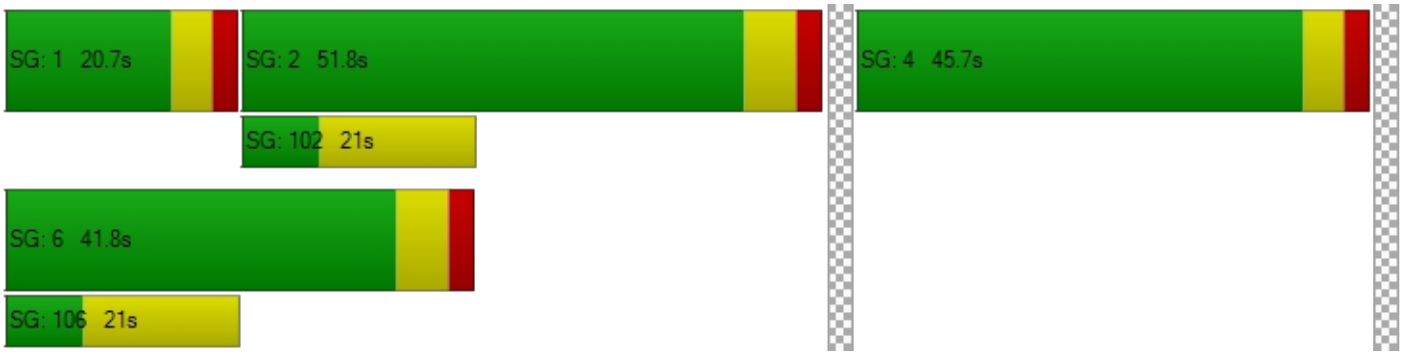
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 50.54 | 50.54 | 3.43 | 97.58 | 16.19 | 75.38 | |
| Stops [stops/h] | 506.33 | 511.16 | 27.00 | 445.34 | 111.99 | 2013.73 | |
| Fuel consumption [US gal/h] | 12.57 | 12.71 | 0.76 | 12.05 | 3.53 | 94.24 | |
| CO [g/h] | 878.66 | 888.13 | 53.20 | 842.18 | 246.79 | 6587.17 | |
| NOx [g/h] | 170.95 | 172.80 | 10.35 | 163.86 | 48.02 | 1281.62 | |
| VOC [g/h] | 203.64 | 205.83 | 12.33 | 195.18 | 57.20 | 1526.64 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 47.38 | 47.38 | 40.23 | 40.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.264 | 3.028 | 2.767 | 1.749 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 889 | 691 | 790 | 0 |
| d_b, Bicycle Delay [s] | 15.63 | 21.68 | 18.53 | 50.63 |
| l_b,int, Bicycle LOS Score for Intersection | 2.589 | 2.288 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.235 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 64 | 0 | 23 | 0 | 0 | 0 | 0 | 255 | 36 | 9 | 348 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 64 | 0 | 23 | 0 | 0 | 0 | 0 | 255 | 36 | 9 | 348 | 0 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 0 | 8 | 0 | 0 | 0 | 0 | 85 | 12 | 3 | 116 | 0 |
| Total Analysis Volume [veh/h] | 85 | 0 | 31 | 0 | 0 | 0 | 0 | 340 | 48 | 12 | 464 | 0 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.23 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 17.17 | 19.42 | 11.80 | 15.71 | 17.59 | 9.64 | 8.25 | 0.00 | 0.00 | 8.08 | 0.00 | 0.00 |
| Movement LOS | C | C | B | C | C | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.90 | 0.90 | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 22.62 | 22.62 | 22.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.77 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.74 | | | 14.31 | | | 0.00 | | | 0.20 | | |
| Approach LOS | C | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 1.96 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.506 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 4 | 1 | 1 | 5 | 381 | 130 | 2 | 2 | 0 | 4 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 4 | 1 | 1 | 5 | 381 | 130 | 2 | 2 | 0 | 4 | 1 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 0 | 0 | 2 | 118 | 40 | 1 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 5 | 1 | 1 | 6 | 470 | 160 | 2 | 2 | 0 | 5 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 730 | 942 | 701 | 707 |
| Degree of Utilization, x | 0.02 | 0.51 | 0.23 | 0.01 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.05 | 2.93 | 0.90 | 0.03 |
| 95th-Percentile Queue Length [ft] | 1.36 | 73.26 | 22.61 | 0.64 |
| Approach Delay [s/veh] | 8.02 | 10.68 | 9.70 | 8.13 |
| Approach LOS | A | B | A | A |
| Intersection Delay [s/veh] | 10.36 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.374 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 9 | 0 | 217 | 61 | 4 | 225 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 9 | 0 | 217 | 61 | 4 | 225 |
| Peak Hour Factor | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 3 | 0 | 74 | 21 | 1 | 77 |
| Total Analysis Volume [veh/h] | 174 | 12 | 0 | 297 | 84 | 5 | 308 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.00 | 0.33 | 0.33 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.01 | 0.00 | 0.09 | 0.05 | 0.00 | 0.16 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 1900 |
| c, Capacity [veh/h] | 457 | 418 | 1 | 1136 | 510 | 22 | 643 |
| d1, Uniform Delay [s] | 9.10 | 8.26 | 0.00 | 7.39 | 7.14 | 14.59 | 7.79 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.01 | 0.00 | 0.17 | 0.21 | 1.86 | 0.76 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.03 | 0.00 | 0.26 | 0.16 | 0.22 | 0.48 |
| d, Delay for Lane Group [s/veh] | 9.29 | 8.27 | 0.00 | 7.56 | 7.35 | 16.45 | 8.55 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.65 | 0.04 | 0.00 | 0.31 | 0.19 | 0.04 | 1.08 |
| 50th-Percentile Queue Length [ft/ln] | 16.26 | 1.01 | 0.00 | 7.81 | 4.64 | 0.95 | 27.09 |
| 95th-Percentile Queue Length [veh/ln] | 1.17 | 0.07 | 0.00 | 0.56 | 0.33 | 0.07 | 1.95 |
| 95th-Percentile Queue Length [ft/ln] | 29.27 | 1.82 | 0.00 | 14.06 | 8.36 | 1.71 | 48.76 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.29 | 8.27 | 0.00 | 7.56 | 7.35 | 16.45 | 8.55 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.23 | | 7.51 | | | 8.68 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.29 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.374 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 130.22 | 8.98 | 0.00 | 148.60 | 42.03 | 6.49 | 399.84 |
| Stops [stops/h] | 78.83 | 4.89 | 0.00 | 75.75 | 22.51 | 4.60 | 131.31 |
| Fuel consumption [US gal/h] | 6.13 | 0.42 | 0.00 | 6.60 | 1.88 | 0.31 | 17.72 |
| CO [g/h] | 428.16 | 29.15 | 0.00 | 461.05 | 131.32 | 21.62 | 1238.73 |
| NOx [g/h] | 83.30 | 5.67 | 0.00 | 89.70 | 25.55 | 4.21 | 241.01 |
| VOC [g/h] | 99.23 | 6.75 | 0.00 | 106.85 | 30.43 | 5.01 | 287.09 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.89 | 11.38 | 11.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.958 | 2.535 | 2.238 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1481 | 2154 | 2154 |
| d_b, Bicycle Delay [s] | 1.00 | 0.09 | 0.09 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.874 | 2.076 |
| Bicycle LOS | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 68.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.103 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 557 | 8 | 12 | 51 | 11 | 124 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 557 | 8 | 12 | 51 | 11 | 124 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 172 | 2 | 4 | 16 | 3 | 38 |
| Total Analysis Volume [veh/h] | 688 | 10 | 15 | 63 | 14 | 153 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 688 | 791 | 493 | 536 | 617 |
| Degree of Utilization, x | 1.10 | 0.01 | 0.03 | 0.12 | 0.27 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 20.57 | 0.04 | 0.09 | 0.40 | 1.09 |
| 95th-Percentile Queue Length [ft] | 514.16 | 0.96 | 2.35 | 9.92 | 27.33 |
| Approach Delay [s/veh] | 88.74 | | 10.29 | | 10.99 |
| Approach LOS | F | | B | | B |
| Intersection Delay [s/veh] | 68.48 | | | | |
| Intersection LOS | F | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.569 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 110 | 21 | 12 | 5 | 80 | 509 | 129 | 216 | 50 | 35 | 461 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 255 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 110 | 21 | 12 | 5 | 80 | 254 | 129 | 216 | 50 | 35 | 461 | 14 |
| Peak Hour Factor | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 7 | 4 | 2 | 26 | 81 | 41 | 69 | 16 | 11 | 148 | 4 |
| Total Analysis Volume [veh/h] | 141 | 27 | 15 | 6 | 103 | 326 | 165 | 277 | 64 | 45 | 591 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 10 | 32 | 32 | 2 | 23 | 23 | 10 | 28 | 28 | 7 | 25 | 25 |
| g / C, Green / Cycle | 0.10 | 0.32 | 0.32 | 0.02 | 0.24 | 0.24 | 0.10 | 0.29 | 0.29 | 0.07 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.01 | 0.01 | 0.00 | 0.06 | 0.20 | 0.05 | 0.08 | 0.04 | 0.03 | 0.17 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 177 | 1006 | 512 | 28 | 436 | 382 | 326 | 935 | 448 | 122 | 918 | 411 |
| d1, Uniform Delay [s] | 43.42 | 22.84 | 22.85 | 47.94 | 30.30 | 35.90 | 42.04 | 27.44 | 26.18 | 43.60 | 32.53 | 27.43 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.34 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.95 | 0.03 | 0.06 | 3.65 | 0.80 | 15.18 | 1.22 | 1.12 | 0.92 | 1.84 | 4.77 | 0.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.03 | 0.03 | 0.21 | 0.24 | 0.85 | 0.51 | 0.30 | 0.14 | 0.37 | 0.64 | 0.04 |
| d, Delay for Lane Group [s/veh] | 51.38 | 22.86 | 22.91 | 51.59 | 31.10 | 51.08 | 43.26 | 28.55 | 27.10 | 45.44 | 37.30 | 27.71 |
| Lane Group LOS | D | C | C | D | C | D | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.72 | 0.22 | 0.25 | 0.17 | 2.06 | 8.96 | 1.94 | 2.66 | 1.23 | 1.10 | 6.78 | 0.35 |
| 50th-Percentile Queue Length [ft/ln] | 93.02 | 5.43 | 6.14 | 4.34 | 51.42 | 223.98 | 48.57 | 66.56 | 30.63 | 27.56 | 169.43 | 8.72 |
| 95th-Percentile Queue Length [veh/ln] | 6.70 | 0.39 | 0.44 | 0.31 | 3.70 | 13.87 | 3.50 | 4.79 | 2.21 | 1.98 | 11.05 | 0.63 |
| 95th-Percentile Queue Length [ft/ln] | 167.44 | 9.77 | 11.05 | 7.81 | 92.55 | 346.70 | 87.42 | 119.81 | 55.13 | 49.60 | 276.17 | 15.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.38 | 22.86 | 22.91 | 51.59 | 31.10 | 51.08 | 43.26 | 28.55 | 27.10 | 45.44 | 37.30 | 27.71 |
| Movement LOS | D | C | C | D | C | D | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 44.84 | | | 46.36 | | | 33.16 | | | 37.59 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 39.22 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.569 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.10 | 2.32 | 1.29 | 1.65 | 28.24 | 89.39 | 22.80 | 38.28 | 8.84 | 56.12 | 737.10 | 22.45 |
| Stops [stops/h] | 136.05 | 15.87 | 8.98 | 6.34 | 75.20 | 327.57 | 142.05 | 194.69 | 44.79 | 40.30 | 495.59 | 12.75 |
| Fuel consumption [US gal/h] | 2.72 | 0.31 | 0.17 | 0.17 | 2.23 | 8.88 | 3.18 | 4.26 | 0.96 | 2.95 | 37.57 | 1.10 |
| CO [g/h] | 190.39 | 21.58 | 12.06 | 11.59 | 155.88 | 620.57 | 222.00 | 297.85 | 67.42 | 206.15 | 2625.98 | 76.62 |
| NOx [g/h] | 37.04 | 4.20 | 2.35 | 2.25 | 30.33 | 120.74 | 43.19 | 57.95 | 13.12 | 40.11 | 510.92 | 14.91 |
| VOC [g/h] | 44.13 | 5.00 | 2.80 | 2.69 | 36.13 | 143.82 | 51.45 | 69.03 | 15.63 | 47.78 | 608.60 | 17.76 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 38.85 | 38.85 | 38.85 | 38.85 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.381 | 2.842 | 2.851 | 2.612 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 406 | 609 | 812 | 812 |
| d_b, Bicycle Delay [s] | 31.26 | 23.80 | 17.36 | 17.36 |
| l_b,int, Bicycle LOS Score for Intersection | 1.711 | 2.698 | 1.977 | 2.099 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.307 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 58 | 2 | 82 | 106 | 174 | 50 | 181 | 13 | 1 | 263 | 91 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 58 | 2 | 82 | 106 | 174 | 50 | 181 | 13 | 1 | 263 | 91 |
| Peak Hour Factor | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 17 | 1 | 24 | 32 | 52 | 15 | 54 | 4 | 0 | 78 | 27 |
| Total Analysis Volume [veh/h] | 36 | 69 | 2 | 98 | 126 | 207 | 60 | 215 | 15 | 1 | 313 | 108 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 15 | 9 | 18 | 18 | 7 | 17 | 17 | 0 | 11 | 11 |
| g / C, Green / Cycle | 0.07 | 0.21 | 0.12 | 0.26 | 0.26 | 0.10 | 0.24 | 0.24 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.04 | 0.03 | 0.07 | 0.13 | 0.02 | 0.06 | 0.01 | 0.00 | 0.09 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1762 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 129 | 364 | 422 | 478 | 412 | 336 | 842 | 391 | 6 | 538 | 423 |
| d1, Uniform Delay [s] | 30.82 | 23.03 | 27.86 | 20.85 | 22.31 | 29.01 | 21.50 | 20.36 | 34.92 | 27.78 | 26.36 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.44 | 0.89 | 0.10 | 1.66 | 5.35 | 0.09 | 0.34 | 0.08 | 5.10 | 2.13 | 0.67 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.28 | 0.19 | 0.23 | 0.26 | 0.50 | 0.18 | 0.26 | 0.04 | 0.17 | 0.58 | 0.26 |
| d, Delay for Lane Group [s/veh] | 31.26 | 23.91 | 27.96 | 22.51 | 27.66 | 29.11 | 21.84 | 20.44 | 40.02 | 29.91 | 27.04 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.57 | 1.02 | 0.68 | 1.67 | 3.15 | 0.45 | 1.40 | 0.19 | 0.02 | 2.23 | 0.72 |
| 50th-Percentile Queue Length [ft/ln] | 14.34 | 25.48 | 16.93 | 41.63 | 78.78 | 11.31 | 35.04 | 4.73 | 0.58 | 55.77 | 17.95 |
| 95th-Percentile Queue Length [veh/ln] | 1.03 | 1.83 | 1.22 | 3.00 | 5.67 | 0.81 | 2.52 | 0.34 | 0.04 | 4.02 | 1.29 |
| 95th-Percentile Queue Length [ft/ln] | 25.81 | 45.86 | 30.47 | 74.93 | 141.81 | 20.35 | 63.07 | 8.51 | 1.04 | 100.38 | 32.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.26 | 23.91 | 23.91 | 27.96 | 22.51 | 27.66 | 29.11 | 21.84 | 20.44 | 40.02 | 29.91 | 27.04 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 26.38 | | | 26.23 | | | 23.27 | | | 29.20 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.56 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.307 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.67 | 5.26 | 127.22 | 163.57 | 268.72 | 74.83 | 268.15 | 18.71 | 0.17 | 54.14 | 18.68 |
| Stops [stops/h] | 29.44 | 52.32 | 69.54 | 85.49 | 161.80 | 46.44 | 143.92 | 9.71 | 1.19 | 229.06 | 73.72 |
| Fuel consumption [US gal/h] | 0.50 | 0.85 | 5.89 | 7.37 | 12.65 | 3.69 | 12.79 | 0.89 | 0.05 | 9.78 | 3.17 |
| CO [g/h] | 35.05 | 59.49 | 411.40 | 514.97 | 884.09 | 258.11 | 893.98 | 61.95 | 3.16 | 683.44 | 221.76 |
| NOx [g/h] | 6.82 | 11.57 | 80.04 | 100.20 | 172.01 | 50.22 | 173.94 | 12.05 | 0.61 | 132.97 | 43.15 |
| VOC [g/h] | 8.12 | 13.79 | 95.35 | 119.35 | 204.90 | 59.82 | 207.19 | 14.36 | 0.73 | 158.39 | 51.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.92 | 24.92 | 24.92 | 24.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.007 | 2.620 | 2.698 | 2.803 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 570 | 570 | 856 | 856 |
| d_b, Bicycle Delay [s] | 17.91 | 17.91 | 11.48 | 11.48 |
| l_b,int, Bicycle LOS Score for Intersection | 1.736 | 2.271 | 1.799 | 1.908 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 274 | 588 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 274 | 588 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 69 | 147 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 274 | 588 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Near Term No Project PM.pdf

Scenario 10 Near Term PM No Proj
7/8/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Left | 0.524 | 22.4 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.474 | 23.3 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.541 | 28.1 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | WB Left | 0.010 | 22.4 | C |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | WB Right | 1.196 | 69.8 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.594 | 22.4 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.519 | 24.5 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.631 | 25.9 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.650 | 26.9 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.878 | 52.6 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.734 | 37.0 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.544 | 11.6 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.946 | 31.6 | D |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | WB Thru | 1.645 | 174.7 | F |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.523 | 19.6 | B |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.772 | 45.4 | D |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 1.229 | 88.8 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.034 | 17.7 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.494 | 18.3 | B |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | EB Left | 0.012 | 16.2 | C |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.692 | 19.0 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.520 | 17.6 | B |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.510 | 13.3 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.919 | 66.6 | E |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.007 | 8.6 | A |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Right | 0.017 | 10.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.121 | 15.1 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.464 | 15.7 | B |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.457 | 17.3 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 8.3 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.381 | 4.8 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.241 | 152.0 | F |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.077 | 13.0 | B |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | EB Left | 0.386 | 9.5 | A |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.278 | 7.3 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | WB Right | 0.708 | 16.7 | C |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Left | 0.453 | 31.0 | C |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.192 | 23.5 | C |
| 43 | Shephed Ave & Project Access South | Unknown | ? | | ? | ? | ? |
| 44 | Behymer Ave & Project Access North | Unknown | ? | | ? | ? | ? |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.524 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 320 | 587 | 23 | 17 | 423 | 89 | 1 | 43 | 315 | 7 | 67 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 320 | 587 | 23 | 17 | 423 | 89 | 1 | 43 | 315 | 7 | 67 | 65 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 91 | 167 | 7 | 5 | 120 | 25 | 0 | 12 | 89 | 2 | 19 | 18 |
| Total Analysis Volume [veh/h] | 364 | 667 | 26 | 19 | 481 | 101 | 1 | 49 | 358 | 8 | 76 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 9 | 21 | 21 | 2 | 14 | 14 | 0 | 18 | 18 | 1 | 18 | 18 |
| g / C, Green / Cycle | 0.14 | 0.34 | 0.34 | 0.04 | 0.22 | 0.22 | 0.00 | 0.28 | 0.28 | 0.02 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.18 | 0.02 | 0.01 | 0.09 | 0.06 | 0.00 | 0.03 | 0.22 | 0.00 | 0.04 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 3618 | 1615 | 1810 | 5159 | 1615 | 1810 | 1900 | 1604 | 1810 | 1864 | 1615 |
| c, Capacity [veh/h] | 487 | 1215 | 542 | 66 | 1124 | 352 | 4 | 539 | 455 | 31 | 539 | 467 |
| d1, Uniform Delay [s] | 26.32 | 17.20 | 14.26 | 29.84 | 21.46 | 20.75 | 31.68 | 16.75 | 21.00 | 30.88 | 16.76 | 16.85 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.87 | 1.26 | 0.12 | 0.88 | 0.84 | 1.44 | 10.47 | 0.17 | 6.94 | 1.66 | 0.20 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.55 | 0.05 | 0.29 | 0.43 | 0.29 | 0.24 | 0.09 | 0.79 | 0.26 | 0.14 | 0.16 |
| d, Delay for Lane Group [s/veh] | 27.19 | 18.46 | 14.38 | 30.73 | 22.29 | 22.19 | 42.14 | 16.92 | 27.94 | 32.54 | 16.97 | 17.12 |
| Lane Group LOS | C | B | B | C | C | C | D | B | C | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.37 | 3.45 | 0.23 | 0.27 | 1.85 | 1.22 | 0.03 | 0.48 | 5.05 | 0.13 | 0.80 | 0.78 |
| 50th-Percentile Queue Length [ft/ln] | 59.27 | 86.19 | 5.67 | 6.73 | 46.33 | 30.42 | 0.66 | 12.03 | 126.33 | 3.25 | 19.88 | 19.59 |
| 95th-Percentile Queue Length [veh/ln] | 4.27 | 6.21 | 0.41 | 0.48 | 3.34 | 2.19 | 0.05 | 0.87 | 8.74 | 0.23 | 1.43 | 1.41 |
| 95th-Percentile Queue Length [ft/ln] | 106.69 | 155.14 | 10.20 | 12.12 | 83.39 | 54.75 | 1.18 | 21.65 | 218.50 | 5.86 | 35.78 | 35.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.19 | 18.46 | 14.38 | 30.73 | 22.29 | 22.19 | 42.14 | 16.92 | 27.94 | 32.54 | 16.97 | 17.12 |
| Movement LOS | C | B | B | C | C | C | D | B | C | C | B | B |
| d_A, Approach Delay [s/veh] | 21.37 | | | 22.54 | | | 26.65 | | | 17.83 | | |
| Approach LOS | C | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 22.40 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.524 | | | | | | | | | | | |

**Emissions**

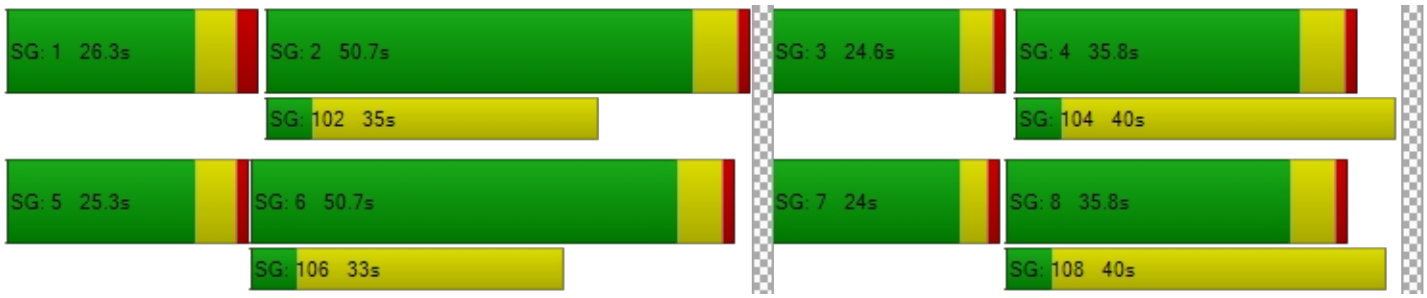
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 183.75 | 336.70 | 13.12 | 1.87 | 47.38 | 9.95 | 0.10 | 4.88 | 35.66 | 8.30 | 78.85 | 76.78 |
| Stops [stops/h] | 269.16 | 391.38 | 12.87 | 15.29 | 315.56 | 69.07 | 1.49 | 27.32 | 286.85 | 7.39 | 45.14 | 44.47 |
| Fuel consumption [US gal/h] | 12.30 | 19.79 | 0.71 | 0.42 | 8.61 | 1.85 | 0.03 | 0.68 | 6.82 | 0.44 | 3.76 | 3.66 |
| CO [g/h] | 859.73 | 1383.29 | 49.85 | 29.09 | 602.05 | 129.28 | 2.13 | 47.23 | 477.05 | 30.44 | 262.68 | 256.13 |
| NOx [g/h] | 167.27 | 269.14 | 9.70 | 5.66 | 117.14 | 25.15 | 0.41 | 9.19 | 92.82 | 5.92 | 51.11 | 49.83 |
| VOC [g/h] | 199.25 | 320.59 | 11.55 | 6.74 | 139.53 | 29.96 | 0.49 | 10.95 | 110.56 | 7.05 | 60.88 | 59.36 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.35 | 23.35 | 23.35 | 23.35 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.096 | 2.889 | 2.561 | 2.176 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1419 | 1419 | 946 | 946 |
| d_b, Bicycle Delay [s] | 2.68 | 2.68 | 8.81 | 8.81 |
| l_b,int, Bicycle LOS Score for Intersection | 2.432 | 1.890 | 2.233 | 1.820 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.474 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 119 | 893 | 48 | 97 | 650 | 48 | 19 | 84 | 156 | 43 | 139 | 91 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 119 | 893 | 48 | 97 | 650 | 48 | 19 | 84 | 156 | 43 | 139 | 91 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 32 | 243 | 13 | 26 | 177 | 13 | 5 | 23 | 42 | 12 | 38 | 25 |
| Total Analysis Volume [veh/h] | 129 | 971 | 52 | 105 | 707 | 52 | 21 | 91 | 170 | 47 | 151 | 99 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 27 | 27 | 7 | 27 | 27 | 3 | 13 | 13 | 5 | 14 |
| g / C, Green / Cycle | 0.10 | 0.37 | 0.37 | 0.10 | 0.36 | 0.36 | 0.04 | 0.18 | 0.18 | 0.07 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.19 | 0.03 | 0.06 | 0.14 | 0.03 | 0.01 | 0.05 | 0.11 | 0.03 | 0.14 |
| s, saturation flow rate [veh/h] | 1781 | 5176 | 1615 | 1810 | 5135 | 1615 | 1810 | 1882 | 1605 | 1810 | 1776 |
| c, Capacity [veh/h] | 178 | 1898 | 592 | 172 | 1858 | 585 | 69 | 331 | 282 | 122 | 325 |
| d1, Uniform Delay [s] | 32.70 | 18.49 | 15.52 | 32.53 | 17.68 | 15.75 | 35.03 | 26.74 | 28.46 | 33.44 | 29.07 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.10 | 0.70 | 0.21 | 1.30 | 0.42 | 0.21 | 0.90 | 0.54 | 2.50 | 0.74 | 8.25 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.51 | 0.09 | 0.61 | 0.38 | 0.09 | 0.30 | 0.28 | 0.60 | 0.39 | 0.77 |
| d, Delay for Lane Group [s/veh] | 34.79 | 19.18 | 15.72 | 33.83 | 18.09 | 15.96 | 35.93 | 27.27 | 30.95 | 34.18 | 37.33 |
| Lane Group LOS | C | B | B | C | B | B | D | C | C | C | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.17 | 3.85 | 0.54 | 1.73 | 2.65 | 0.54 | 0.37 | 1.37 | 2.82 | 0.82 | 4.84 |
| 50th-Percentile Queue Length [ft/ln] | 54.35 | 96.22 | 13.41 | 43.31 | 66.37 | 13.55 | 9.26 | 34.18 | 70.38 | 20.50 | 121.04 |
| 95th-Percentile Queue Length [veh/ln] | 3.91 | 6.93 | 0.97 | 3.12 | 4.78 | 0.98 | 0.67 | 2.46 | 5.07 | 1.48 | 8.45 |
| 95th-Percentile Queue Length [ft/ln] | 97.82 | 173.19 | 24.14 | 77.95 | 119.47 | 24.40 | 16.67 | 61.52 | 126.69 | 36.91 | 211.25 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.79 | 19.18 | 15.72 | 33.83 | 18.09 | 15.96 | 35.93 | 27.27 | 30.95 | 34.18 | 37.33 | 37.33 |
| Movement LOS | C | B | B | C | B | B | D | C | C | C | D | D |
| d_A, Approach Delay [s/veh] | 20.78 | | | 19.88 | | | 30.14 | | | 36.83 | | |
| Approach LOS | C | | | B | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 23.33 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.474 | | | | | | | | | | | |

**Emissions**

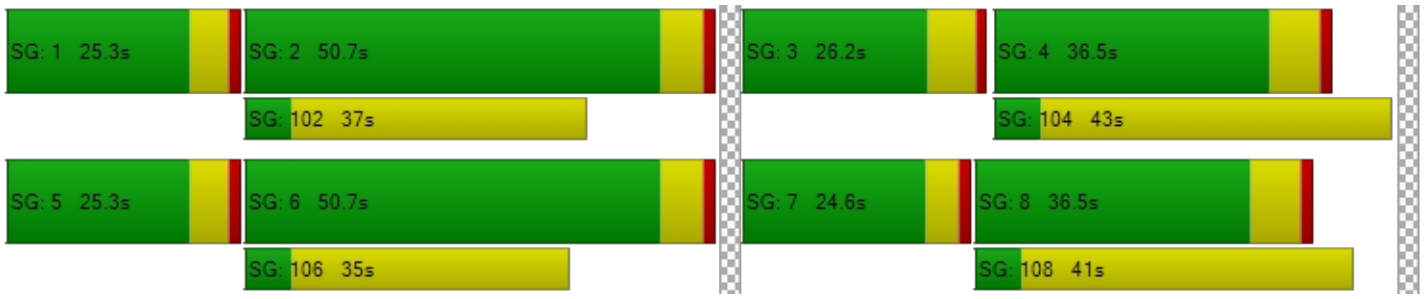
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 130.69 | 983.69 | 52.68 | 53.00 | 356.90 | 26.25 | 2.28 | 9.90 | 18.50 | 48.76 | 259.36 |
| Stops [stops/h] | 104.75 | 556.36 | 25.84 | 83.47 | 383.77 | 26.12 | 17.85 | 65.87 | 135.66 | 39.52 | 233.29 |
| Fuel consumption [US gal/h] | 6.90 | 45.27 | 2.33 | 3.78 | 20.45 | 1.45 | 0.41 | 1.51 | 3.07 | 2.55 | 13.86 |
| CO [g/h] | 482.15 | 3164.58 | 162.68 | 264.16 | 1429.20 | 101.28 | 28.71 | 105.33 | 214.31 | 178.42 | 969.14 |
| NOx [g/h] | 93.81 | 615.71 | 31.65 | 51.40 | 278.07 | 19.71 | 5.59 | 20.49 | 41.70 | 34.71 | 188.56 |
| VOC [g/h] | 111.74 | 733.42 | 37.70 | 61.22 | 331.23 | 23.47 | 6.65 | 24.41 | 49.67 | 41.35 | 224.61 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.90 | 28.90 | 28.90 | 28.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.139 | 3.115 | 2.323 | 2.110 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1205 | 1205 | 803 | 803 |
| d_b, Bicycle Delay [s] | 5.91 | 5.91 | 13.38 | 13.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.193 | 2.035 | 2.025 | 2.050 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.541 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 192 | 967 | 331 | 239 | 892 | 164 | 218 | 278 | 130 | 139 | 293 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 192 | 967 | 331 | 239 | 892 | 164 | 218 | 278 | 130 | 139 | 293 | 96 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 53 | 269 | 92 | 66 | 248 | 46 | 61 | 77 | 36 | 39 | 81 | 27 |
| Total Analysis Volume [veh/h] | 213 | 1074 | 368 | 266 | 991 | 182 | 242 | 309 | 144 | 154 | 326 | 107 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 31 | 31 | 9 | 32 | 32 | 8 | 12 | 12 | 8 | 13 | 13 |
| g / C, Green / Cycle | 0.09 | 0.37 | 0.37 | 0.10 | 0.37 | 0.37 | 0.10 | 0.14 | 0.14 | 0.09 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.21 | 0.23 | 0.08 | 0.19 | 0.11 | 0.07 | 0.09 | 0.09 | 0.04 | 0.09 | 0.07 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1592 | 3514 | 3600 | 1581 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 330 | 1887 | 587 | 360 | 1917 | 596 | 335 | 516 | 226 | 325 | 559 | 249 |
| d1, Uniform Delay [s] | 36.90 | 21.48 | 22.06 | 36.79 | 20.52 | 18.68 | 37.13 | 33.93 | 34.05 | 36.40 | 33.20 | 32.35 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.79 | 0.88 | 3.54 | 1.12 | 0.70 | 0.93 | 1.11 | 2.62 | 6.81 | 0.40 | 1.33 | 1.60 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.65 | 0.57 | 0.63 | 0.74 | 0.52 | 0.31 | 0.72 | 0.60 | 0.64 | 0.47 | 0.58 | 0.43 |
| d, Delay for Lane Group [s/veh] | 37.70 | 22.36 | 25.60 | 37.92 | 21.22 | 19.61 | 38.24 | 36.55 | 40.86 | 36.80 | 34.53 | 33.96 |
| Lane Group LOS | D | C | C | D | C | B | D | D | D | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.01 | 5.16 | 5.86 | 2.54 | 4.58 | 2.39 | 2.31 | 2.94 | 3.00 | 1.43 | 2.97 | 1.95 |
| 50th-Percentile Queue Length [ft/ln] | 50.33 | 129.01 | 146.59 | 63.43 | 114.52 | 59.72 | 57.86 | 73.53 | 75.10 | 35.63 | 74.34 | 48.68 |
| 95th-Percentile Queue Length [veh/ln] | 3.62 | 8.89 | 9.83 | 4.57 | 8.09 | 4.30 | 4.17 | 5.29 | 5.41 | 2.57 | 5.35 | 3.50 |
| 95th-Percentile Queue Length [ft/ln] | 90.59 | 222.15 | 245.87 | 114.17 | 202.26 | 107.50 | 104.15 | 132.36 | 135.17 | 64.14 | 133.81 | 87.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.70 | 22.36 | 25.60 | 37.92 | 21.22 | 19.61 | 38.24 | 36.55 | 40.86 | 36.80 | 34.53 | 33.96 |
| Movement LOS | D | C | C | D | C | B | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 25.06 | | | 24.10 | | | 38.03 | | | 35.02 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 28.14 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.541 | | | | | | | | | | | |

**Emissions**

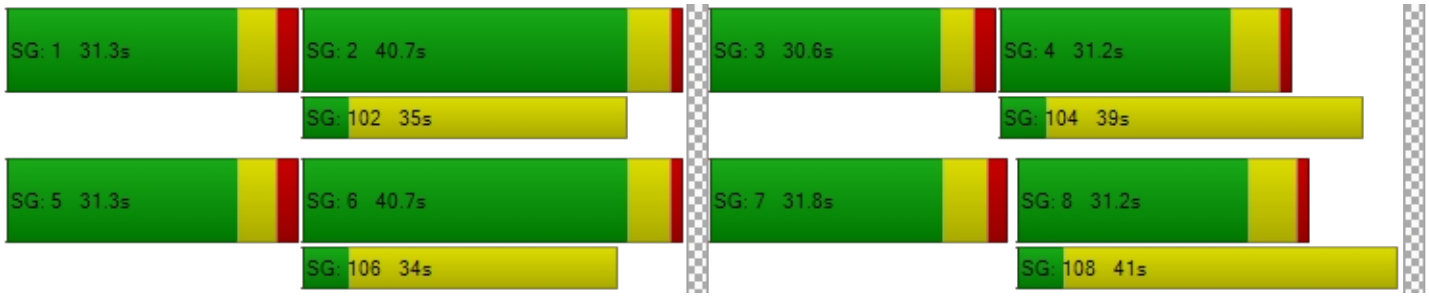
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 34.75 | 175.24 | 60.04 | 269.48 | 1003.95 | 184.38 | 31.62 | 40.38 | 18.82 | 159.55 | 337.76 | 110.86 |
| Stops [stops/h] | 171.80 | 660.63 | 250.20 | 216.53 | 586.38 | 101.94 | 197.52 | 251.02 | 128.18 | 121.65 | 253.77 | 83.08 |
| Fuel consumption [US gal/h] | 5.43 | 20.90 | 7.77 | 14.40 | 46.90 | 8.47 | 5.97 | 7.50 | 3.80 | 8.36 | 17.50 | 5.73 |
| CO [g/h] | 379.90 | 1460.68 | 543.03 | 1006.60 | 3278.40 | 591.74 | 417.59 | 524.52 | 265.27 | 584.62 | 1223.07 | 400.33 |
| NOx [g/h] | 73.92 | 284.20 | 105.65 | 195.85 | 637.86 | 115.13 | 81.25 | 102.05 | 51.61 | 113.75 | 237.96 | 77.89 |
| VOC [g/h] | 88.05 | 338.53 | 125.85 | 233.29 | 759.80 | 137.14 | 96.78 | 121.56 | 61.48 | 135.49 | 283.46 | 92.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2556.11 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.66 | 33.66 | 33.66 | 33.66 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.379 | 3.364 | 2.921 | 3.035 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 830 | 830 | 593 | 593 |
| d_b, Bicycle Delay [s] | 14.44 | 14.44 | 20.95 | 20.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.470 | 2.351 | 2.133 | 2.044 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 22.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.010 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 155 | 165 | 2 | 1 | 311 | 5 | 11 | 0 | 49 | 2 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 155 | 165 | 2 | 1 | 311 | 5 | 11 | 0 | 49 | 2 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 45 | 1 | 0 | 85 | 1 | 3 | 0 | 13 | 1 | 0 | 0 |
| Total Analysis Volume [veh/h] | 168 | 179 | 2 | 1 | 338 | 5 | 12 | 0 | 53 | 2 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.08 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.16 | 0.00 | 0.00 | 7.58 | 0.00 | 0.00 | 21.26 | 20.38 | 11.12 | 22.36 | 19.57 | 9.31 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | A |
| 95th-Percentile Queue Length [veh/ln] | 0.31 | 0.31 | 0.31 | 0.00 | 0.00 | 0.00 | 0.43 | 0.43 | 0.43 | 0.03 | 0.03 | 0.03 |
| 95th-Percentile Queue Length [ft/ln] | 7.73 | 7.73 | 7.73 | 0.04 | 0.04 | 0.04 | 10.74 | 10.74 | 10.74 | 0.72 | 0.72 | 0.72 |
| d_A, Approach Delay [s/veh] | 3.93 | | | 0.02 | | | 12.99 | | | 22.36 | | |
| Approach LOS | A | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 2.98 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 69.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.196 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 49 | 138 | 28 | 174 | 185 | 2 | 2 | 172 | 32 | 20 | 246 | 326 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 49 | 138 | 28 | 174 | 185 | 2 | 2 | 172 | 32 | 20 | 246 | 326 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 38 | 8 | 47 | 50 | 1 | 1 | 47 | 9 | 5 | 67 | 89 |
| Total Analysis Volume [veh/h] | 53 | 150 | 30 | 189 | 201 | 2 | 2 | 187 | 35 | 22 | 267 | 354 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 460 | 487 | 465 | 643 |
| Degree of Utilization, x | 0.51 | 0.81 | 0.48 | 1.20 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 2.80 | 7.57 | 2.57 | 23.44 |
| 95th-Percentile Queue Length [ft] | 70.08 | 189.21 | 64.33 | 585.97 |
| Approach Delay [s/veh] | 18.59 | 34.39 | 17.75 | 128.14 |
| Approach LOS | C | D | C | F |
| Intersection Delay [s/veh] | 69.83 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.594 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 182 | 348 | 38 | 113 | 273 | 21 | 28 | 465 | 114 | 15 | 328 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 182 | 348 | 38 | 113 | 273 | 21 | 28 | 465 | 114 | 15 | 328 | 48 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 94 | 10 | 30 | 73 | 6 | 8 | 125 | 31 | 4 | 88 | 13 |
| Total Analysis Volume [veh/h] | 196 | 374 | 41 | 122 | 294 | 23 | 30 | 500 | 123 | 16 | 353 | 52 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 17 | 17 | 10 | 16 | 5 | 18 | 18 | 3 | 16 | 16 |
| g / C, Green / Cycle | 0.17 | 0.27 | 0.27 | 0.15 | 0.25 | 0.07 | 0.28 | 0.28 | 0.04 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.20 | 0.03 | 0.07 | 0.17 | 0.02 | 0.14 | 0.08 | 0.01 | 0.19 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1886 | 1615 | 1810 | 1867 | 1810 | 3618 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 306 | 502 | 429 | 280 | 469 | 131 | 1022 | 456 | 78 | 482 | 410 |
| d1, Uniform Delay [s] | 24.42 | 21.20 | 17.44 | 24.17 | 21.30 | 27.60 | 18.84 | 17.57 | 29.12 | 21.58 | 18.15 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.23 | 2.23 | 0.10 | 1.07 | 1.71 | 0.88 | 0.36 | 0.31 | 1.27 | 2.17 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.75 | 0.10 | 0.44 | 0.68 | 0.23 | 0.49 | 0.27 | 0.20 | 0.73 | 0.13 |
| d, Delay for Lane Group [s/veh] | 26.65 | 23.43 | 17.54 | 25.24 | 23.00 | 28.48 | 19.20 | 17.88 | 30.39 | 23.75 | 18.29 |
| Lane Group LOS | C | C | B | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.59 | 4.63 | 0.40 | 1.55 | 3.86 | 0.41 | 2.59 | 1.20 | 0.24 | 4.30 | 0.51 |
| 50th-Percentile Queue Length [ft/ln] | 64.82 | 115.76 | 10.02 | 38.68 | 96.42 | 10.26 | 64.68 | 30.09 | 5.90 | 107.47 | 12.81 |
| 95th-Percentile Queue Length [veh/ln] | 4.67 | 8.16 | 0.72 | 2.79 | 6.94 | 0.74 | 4.66 | 2.17 | 0.42 | 7.70 | 0.92 |
| 95th-Percentile Queue Length [ft/ln] | 116.68 | 203.98 | 18.04 | 69.63 | 173.56 | 18.48 | 116.42 | 54.16 | 10.62 | 192.47 | 23.06 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.65 | 23.43 | 17.54 | 25.24 | 23.00 | 23.00 | 28.48 | 19.20 | 17.88 | 30.39 | 23.75 | 18.29 |
| Movement LOS | C | C | B | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 24.07 | | | 23.63 | | | 19.38 | | | 23.33 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.39 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.594 | | | | | | | | | | | |

**Emissions**

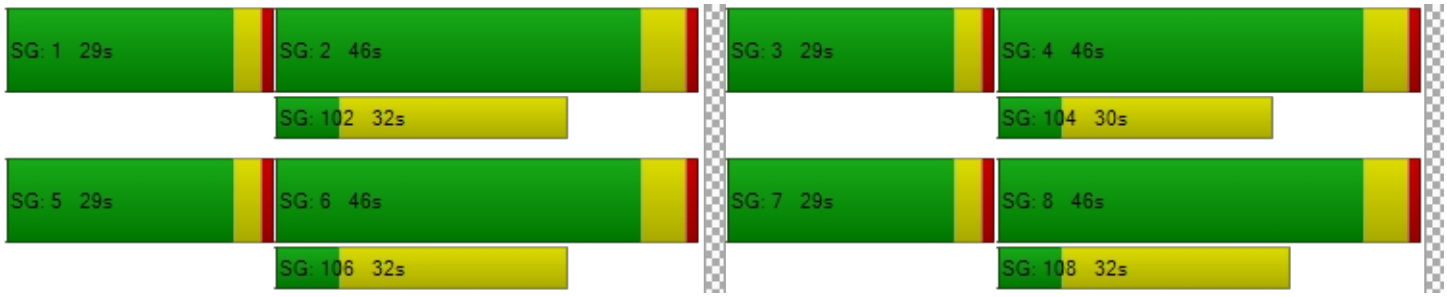
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 23.47 | 44.78 | 4.91 | 122.58 | 318.49 | 31.08 | 518.03 | 127.44 | 8.01 | 176.77 | 26.04 |
| Stops [stops/h] | 148.52 | 265.22 | 22.97 | 88.63 | 220.92 | 23.52 | 296.37 | 68.93 | 13.52 | 246.23 | 29.35 |
| Fuel consumption [US gal/h] | 3.71 | 6.62 | 0.60 | 5.93 | 15.15 | 1.58 | 23.85 | 5.77 | 0.57 | 11.41 | 1.52 |
| CO [g/h] | 259.60 | 462.47 | 41.95 | 414.52 | 1058.85 | 110.15 | 1667.19 | 403.56 | 40.18 | 797.25 | 105.98 |
| NOx [g/h] | 50.51 | 89.98 | 8.16 | 80.65 | 206.01 | 21.43 | 324.37 | 78.52 | 7.82 | 155.12 | 20.62 |
| VOC [g/h] | 60.16 | 107.18 | 9.72 | 96.07 | 245.40 | 25.53 | 386.39 | 93.53 | 9.31 | 184.77 | 24.56 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.39 | 21.39 | 21.39 | 21.39 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.493 | 2.357 | 2.765 | 2.632 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1273 | 1273 | 1273 | 1273 |
| d_b, Bicycle Delay [s] | 4.15 | 4.15 | 4.15 | 4.15 |
| l_b,int, Bicycle LOS Score for Intersection | 2.568 | 2.284 | 2.098 | 2.254 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 164 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 164 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 41 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 164 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.519 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 387 | 37 | 74 | 10 | 24 | 26 | 39 | 457 | 201 | 177 | 259 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 387 | 37 | 74 | 10 | 24 | 26 | 39 | 457 | 201 | 177 | 259 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 102 | 10 | 19 | 3 | 6 | 7 | 10 | 120 | 53 | 47 | 68 | 2 |
| Total Analysis Volume [veh/h] | 407 | 39 | 78 | 11 | 25 | 27 | 41 | 481 | 212 | 186 | 273 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 19 | 24 | 24 | 4 | 8 | 8 | 7 | 16 | 16 | 11 | 20 | 20 |
| g / C, Green / Cycle | 0.27 | 0.34 | 0.34 | 0.05 | 0.11 | 0.11 | 0.10 | 0.23 | 0.23 | 0.16 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.02 | 0.05 | 0.00 | 0.01 | 0.02 | 0.01 | 0.13 | 0.13 | 0.06 | 0.08 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1879 | 1594 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1612 |
| c, Capacity [veh/h] | 490 | 630 | 535 | 177 | 416 | 186 | 356 | 829 | 369 | 526 | 1041 | 464 |
| d1, Uniform Delay [s] | 24.37 | 16.02 | 16.50 | 32.15 | 28.03 | 28.31 | 29.04 | 24.35 | 24.31 | 26.59 | 19.50 | 18.10 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.41 | 0.09 | 0.28 | 0.05 | 0.31 | 1.82 | 0.05 | 0.95 | 2.08 | 0.15 | 0.20 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.06 | 0.15 | 0.06 | 0.06 | 0.15 | 0.12 | 0.58 | 0.57 | 0.35 | 0.26 | 0.02 |
| d, Delay for Lane Group [s/veh] | 25.78 | 16.11 | 16.78 | 32.20 | 28.34 | 30.13 | 29.10 | 25.30 | 26.39 | 26.74 | 19.69 | 18.12 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.87 | 0.40 | 0.82 | 0.09 | 0.20 | 0.49 | 0.29 | 3.27 | 3.00 | 1.36 | 1.67 | 0.08 |
| 50th-Percentile Queue Length [ft/ln] | 146.67 | 9.89 | 20.58 | 2.22 | 5.02 | 12.34 | 7.28 | 81.77 | 74.88 | 33.95 | 41.84 | 2.02 |
| 95th-Percentile Queue Length [veh/ln] | 9.84 | 0.71 | 1.48 | 0.16 | 0.36 | 0.89 | 0.52 | 5.89 | 5.39 | 2.44 | 3.01 | 0.15 |
| 95th-Percentile Queue Length [ft/ln] | 245.98 | 17.81 | 37.05 | 3.99 | 9.04 | 22.21 | 13.11 | 147.18 | 134.79 | 61.10 | 75.31 | 3.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.78 | 16.11 | 16.78 | 32.20 | 28.34 | 30.13 | 29.10 | 25.30 | 26.39 | 26.74 | 19.69 | 18.12 |
| Movement LOS | C | B | B | C | C | C | C | C | C | C | B | B |
| d_A, Approach Delay [s/veh] | 23.72 | | | 29.78 | | | 25.83 | | | 22.48 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.48 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.519 | | | | | | | | | | | |

**Emissions**

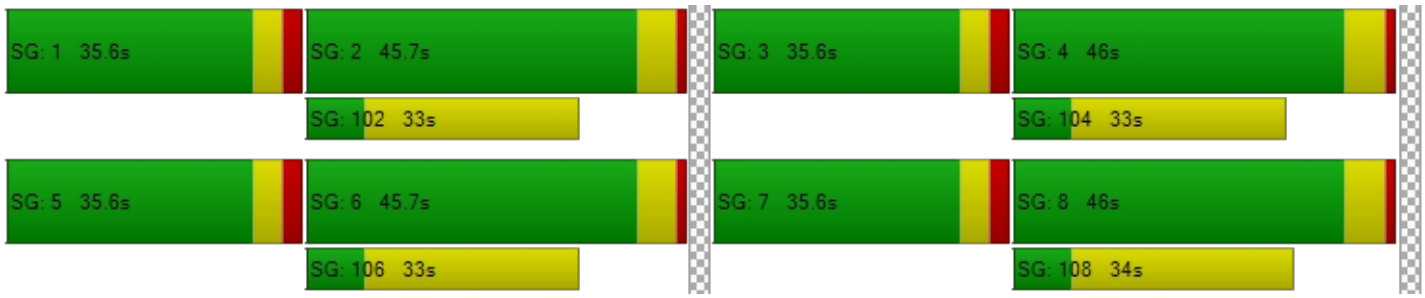
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 414.38 | 39.71 | 79.41 | 11.37 | 25.84 | 27.91 | 20.53 | 240.87 | 106.16 | 93.24 | 136.86 | 3.51 |
| Stops [stops/h] | 297.79 | 20.09 | 41.79 | 9.00 | 20.40 | 25.05 | 29.57 | 332.03 | 152.04 | 137.84 | 169.90 | 4.10 |
| Fuel consumption [US gal/h] | 20.04 | 1.74 | 3.51 | 0.59 | 1.32 | 1.45 | 1.38 | 15.64 | 7.03 | 5.61 | 7.67 | 0.19 |
| CO [g/h] | 1400.93 | 121.54 | 245.21 | 41.23 | 92.31 | 101.56 | 96.76 | 1093.22 | 491.24 | 392.28 | 535.89 | 13.49 |
| NOx [g/h] | 272.57 | 23.65 | 47.71 | 8.02 | 17.96 | 19.76 | 18.83 | 212.70 | 95.58 | 76.32 | 104.27 | 2.62 |
| VOC [g/h] | 324.68 | 28.17 | 56.83 | 9.56 | 21.39 | 23.54 | 22.42 | 253.36 | 113.85 | 90.91 | 124.20 | 3.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 6946.20 | 0.00 | 6568.31 |
| d_p, Pedestrian Delay [s] | 25.32 | 25.32 | 25.32 | 25.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.564 | 2.602 | 2.915 | 2.725 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1128 | 1128 | 1128 | 1128 |
| d_b, Bicycle Delay [s] | 6.74 | 6.74 | 6.74 | 6.74 |
| l_b,int, Bicycle LOS Score for Intersection | 1.992 | 1.612 | 2.165 | 1.944 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.631 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 131 | 608 | 44 | 52 | 348 | 27 | 32 | 533 | 193 | 29 | 552 | 172 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 131 | 608 | 44 | 52 | 348 | 27 | 32 | 533 | 193 | 29 | 552 | 172 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 34 | 160 | 12 | 14 | 92 | 7 | 8 | 140 | 51 | 8 | 145 | 45 |
| Total Analysis Volume [veh/h] | 138 | 640 | 46 | 55 | 366 | 28 | 34 | 561 | 203 | 31 | 581 | 181 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 21 | 21 | 7 | 18 | 18 | 5 | 30 | 30 | 5 | 30 | 30 |
| g / C, Green / Cycle | 0.12 | 0.26 | 0.26 | 0.09 | 0.23 | 0.23 | 0.07 | 0.38 | 0.38 | 0.06 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.18 | 0.03 | 0.03 | 0.11 | 0.11 | 0.02 | 0.30 | 0.13 | 0.02 | 0.31 | 0.11 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1563 | 1801 | 1888 | 1841 | 1810 | 1897 | 1606 | 1810 | 1883 | 1615 |
| c, Capacity [veh/h] | 218 | 948 | 411 | 161 | 437 | 426 | 121 | 726 | 614 | 114 | 713 | 611 |
| d1, Uniform Delay [s] | 33.06 | 26.09 | 22.11 | 33.79 | 26.08 | 26.10 | 35.03 | 21.38 | 17.24 | 35.28 | 22.07 | 17.19 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.20 | 0.17 | 0.04 | 0.21 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.13 | 1.29 | 0.18 | 0.47 | 1.13 | 1.18 | 0.46 | 3.32 | 0.48 | 0.47 | 4.52 | 0.39 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.68 | 0.11 | 0.34 | 0.46 | 0.46 | 0.28 | 0.77 | 0.33 | 0.27 | 0.82 | 0.30 |
| d, Delay for Lane Group [s/veh] | 34.18 | 27.38 | 22.29 | 34.26 | 27.21 | 27.28 | 35.50 | 24.70 | 17.71 | 35.76 | 26.59 | 17.58 |
| Lane Group LOS | C | C | C | C | C | C | D | C | B | D | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.41 | 5.06 | 0.62 | 0.95 | 3.08 | 3.04 | 0.60 | 8.60 | 2.40 | 0.55 | 9.34 | 2.12 |
| 50th-Percentile Queue Length [ft/ln] | 60.27 | 126.56 | 15.42 | 23.75 | 77.12 | 75.93 | 15.00 | 215.04 | 59.88 | 13.74 | 233.42 | 52.88 |
| 95th-Percentile Queue Length [veh/ln] | 4.34 | 8.75 | 1.11 | 1.71 | 5.55 | 5.47 | 1.08 | 13.41 | 4.31 | 0.99 | 14.35 | 3.81 |
| 95th-Percentile Queue Length [ft/ln] | 108.49 | 218.81 | 27.75 | 42.74 | 138.81 | 136.67 | 26.99 | 335.28 | 107.79 | 24.73 | 358.70 | 95.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.18 | 27.38 | 22.29 | 34.26 | 27.24 | 27.28 | 35.50 | 24.70 | 17.71 | 35.76 | 26.59 | 17.58 |
| Movement LOS | C | C | C | C | C | C | D | C | B | D | C | B |
| d_A, Approach Delay [s/veh] | 28.24 | | | 28.10 | | | 23.39 | | | 24.89 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.94 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.631 | | | | | | | | | | | |

**Emissions**

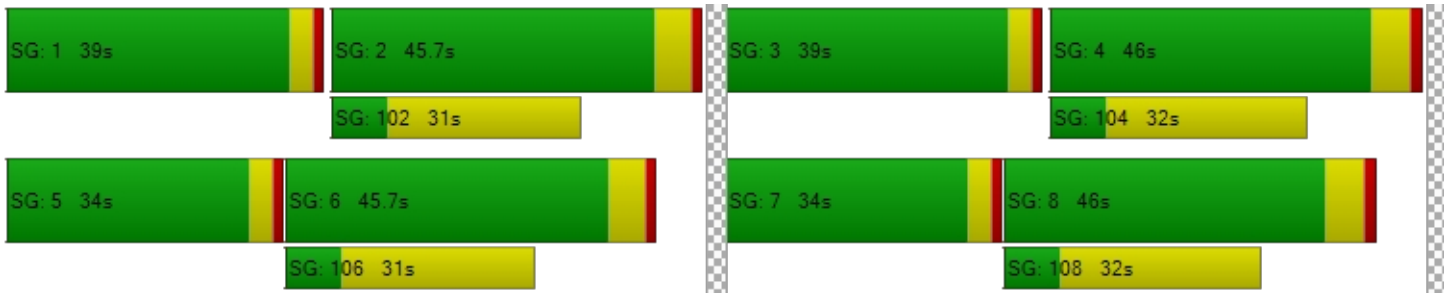
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 72.45 | 336.02 | 24.15 | 56.00 | 202.36 | 198.79 | 2.94 | 48.52 | 17.56 | 18.66 | 349.66 | 108.93 |
| Stops [stops/h] | 110.14 | 462.50 | 28.17 | 43.39 | 140.91 | 138.74 | 27.40 | 392.92 | 109.42 | 25.11 | 426.51 | 96.62 |
| Fuel consumption [US gal/h] | 4.81 | 20.83 | 1.39 | 2.84 | 9.79 | 9.62 | 0.69 | 9.37 | 2.69 | 1.18 | 20.43 | 5.58 |
| CO [g/h] | 336.42 | 1456.35 | 96.94 | 198.68 | 684.24 | 672.62 | 48.03 | 654.90 | 188.32 | 82.29 | 1428.21 | 390.23 |
| NOx [g/h] | 65.46 | 283.35 | 18.86 | 38.66 | 133.13 | 130.87 | 9.34 | 127.42 | 36.64 | 16.01 | 277.88 | 75.93 |
| VOC [g/h] | 77.97 | 337.52 | 22.47 | 46.05 | 158.58 | 155.89 | 11.13 | 151.78 | 43.65 | 19.07 | 331.00 | 90.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.17 | 29.17 | 29.17 | 29.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.793 | 2.674 | 2.744 | 2.718 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1015 | 1015 | 1015 | 1015 |
| d_b, Bicycle Delay [s] | 9.55 | 9.55 | 9.55 | 9.55 |
| l_b,int, Bicycle LOS Score for Intersection | 2.239 | 1.930 | 2.876 | 2.868 |
| Bicycle LOS | B | A | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.650 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 186 | 754 | 12 | 42 | 522 | 14 | 16 | 461 | 250 | 27 | 263 | 90 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 186 | 754 | 12 | 42 | 522 | 14 | 16 | 461 | 250 | 27 | 263 | 90 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 51 | 205 | 3 | 11 | 142 | 4 | 4 | 125 | 68 | 7 | 71 | 24 |
| Total Analysis Volume [veh/h] | 202 | 820 | 13 | 46 | 567 | 15 | 17 | 501 | 272 | 29 | 286 | 98 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 24 | 24 | 8 | 19 | 19 | 3 | 27 | 27 | 5 | 29 | 29 |
| g / C, Green / Cycle | 0.15 | 0.30 | 0.30 | 0.10 | 0.25 | 0.25 | 0.04 | 0.34 | 0.34 | 0.06 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.22 | 0.22 | 0.03 | 0.16 | 0.16 | 0.01 | 0.27 | 0.17 | 0.02 | 0.15 | 0.06 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1880 | 1810 | 1874 | 1856 | 1810 | 1874 | 1582 | 1761 | 1876 | 1584 |
| c, Capacity [veh/h] | 271 | 565 | 561 | 176 | 461 | 457 | 77 | 638 | 538 | 110 | 676 | 571 |
| d1, Uniform Delay [s] | 32.33 | 25.06 | 25.07 | 33.22 | 26.73 | 26.74 | 36.76 | 23.58 | 20.80 | 35.48 | 19.15 | 17.28 |
| k, delay calibration | 0.11 | 0.13 | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 | 0.22 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.09 | 2.34 | 2.37 | 0.78 | 1.44 | 1.46 | 1.44 | 4.35 | 0.73 | 1.26 | 0.42 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.74 | 0.74 | 0.26 | 0.63 | 0.63 | 0.22 | 0.79 | 0.51 | 0.26 | 0.42 | 0.17 |
| d, Delay for Lane Group [s/veh] | 36.42 | 27.40 | 27.44 | 34.00 | 28.18 | 28.21 | 38.20 | 27.93 | 21.54 | 36.73 | 19.57 | 17.42 |
| Lane Group LOS | D | C | C | C | C | C | D | C | C | D | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.75 | 6.73 | 6.70 | 0.81 | 4.70 | 4.66 | 0.33 | 8.26 | 3.70 | 0.54 | 3.62 | 1.12 |
| 50th-Percentile Queue Length [ft/ln] | 93.72 | 168.18 | 167.43 | 20.19 | 117.38 | 116.55 | 8.28 | 206.46 | 92.41 | 13.54 | 90.60 | 27.96 |
| 95th-Percentile Queue Length [veh/ln] | 6.75 | 10.98 | 10.94 | 1.45 | 8.25 | 8.20 | 0.60 | 12.97 | 6.65 | 0.97 | 6.52 | 2.01 |
| 95th-Percentile Queue Length [ft/ln] | 168.70 | 274.52 | 273.53 | 36.34 | 206.22 | 205.07 | 14.90 | 324.28 | 166.33 | 24.36 | 163.08 | 50.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.42 | 27.42 | 27.44 | 34.00 | 28.19 | 28.21 | 38.20 | 27.93 | 21.54 | 36.73 | 19.57 | 17.42 |
| Movement LOS | D | C | C | C | C | C | D | C | C | D | B | B |
| d_A, Approach Delay [s/veh] | 29.18 | | | 28.62 | | | 25.95 | | | 20.27 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.88 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.650 | | | | | | | | | | | |

**Emissions**

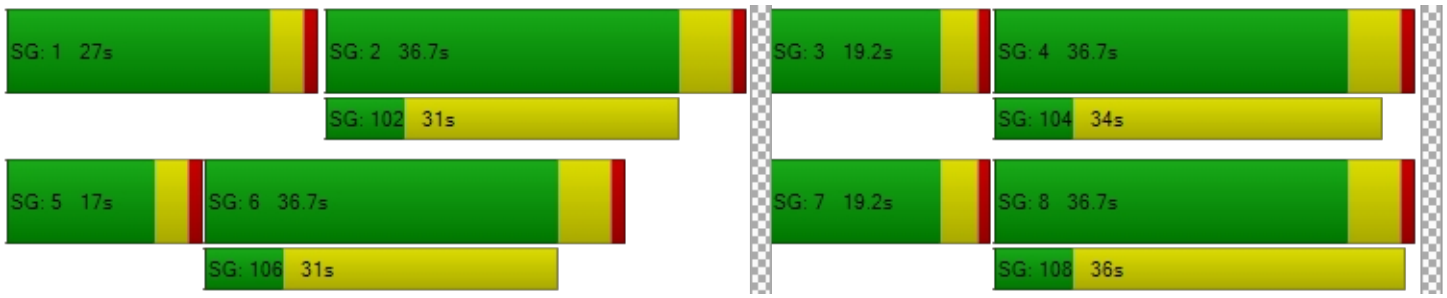
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 107.32 | 221.90 | 220.68 | 24.15 | 153.39 | 152.18 | 1.70 | 50.23 | 27.27 | 13.80 | 136.12 | 46.64 |
| Stops [stops/h] | 170.43 | 305.82 | 304.45 | 36.71 | 213.44 | 211.93 | 15.05 | 375.43 | 168.04 | 24.61 | 164.75 | 50.84 |
| Fuel consumption [US gal/h] | 7.29 | 13.74 | 13.67 | 1.60 | 9.59 | 9.51 | 0.38 | 9.24 | 4.22 | 1.00 | 7.85 | 2.58 |
| CO [g/h] | 509.90 | 960.25 | 955.50 | 112.02 | 670.12 | 665.10 | 26.40 | 645.69 | 294.71 | 69.61 | 548.96 | 180.23 |
| NOx [g/h] | 99.21 | 186.83 | 185.91 | 21.80 | 130.38 | 129.40 | 5.14 | 125.63 | 57.34 | 13.54 | 106.81 | 35.07 |
| VOC [g/h] | 118.17 | 222.55 | 221.45 | 25.96 | 155.31 | 154.14 | 6.12 | 149.64 | 68.30 | 16.13 | 127.23 | 41.77 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.36 | 29.36 | 29.36 | 29.36 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.910 | 2.750 | 2.597 | 2.480 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 783 | 783 | 783 | 783 |
| d_b, Bicycle Delay [s] | 14.66 | 14.66 | 14.66 | 14.68 |
| l_b,int, Bicycle LOS Score for Intersection | 2.413 | 2.078 | 2.863 | 2.241 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 52.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.878 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 481 | 512 | 295 | 328 | 334 | 334 | 619 | 1485 | 379 | 336 | 1312 | 124 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 481 | 512 | 295 | 328 | 334 | 334 | 619 | 1485 | 379 | 336 | 1312 | 124 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 127 | 135 | 78 | 86 | 88 | 88 | 163 | 391 | 100 | 88 | 345 | 33 |
| Total Analysis Volume [veh/h] | 506 | 539 | 311 | 345 | 352 | 352 | 652 | 1563 | 399 | 354 | 1381 | 131 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 28 | 45 | 0 | 19 | 36 | 0 | 24 | 44 | 0 | 24 | 44 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 30 | 30 | 16 | 22 | 22 | 27 | 55 | 55 | 16 | 43 | 43 |
| g / C, Green / Cycle | 0.18 | 0.23 | 0.23 | 0.12 | 0.17 | 0.17 | 0.20 | 0.41 | 0.41 | 0.12 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.15 | 0.19 | 0.10 | 0.07 | 0.13 | 0.19 | 0.30 | 0.25 | 0.10 | 0.27 | 0.08 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2768 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 427 | 823 | 367 | 409 | 853 | 459 | 710 | 2128 | 664 | 412 | 1685 | 525 |
| d1, Uniform Delay [s] | 54.07 | 46.16 | 48.70 | 57.10 | 49.37 | 52.58 | 51.52 | 32.65 | 30.26 | 57.23 | 40.88 | 32.58 |
| k, delay calibration | 0.04 | 0.04 | 0.14 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 85.23 | 0.33 | 7.06 | 1.87 | 0.36 | 3.06 | 2.16 | 2.30 | 4.00 | 2.08 | 4.59 | 1.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.18 | 0.65 | 0.85 | 0.84 | 0.41 | 0.77 | 0.92 | 0.73 | 0.60 | 0.86 | 0.82 | 0.25 |
| d, Delay for Lane Group [s/veh] | 139.29 | 46.49 | 55.75 | 58.97 | 49.73 | 55.64 | 53.67 | 34.95 | 34.26 | 59.31 | 45.47 | 33.71 |
| Lane Group LOS | F | D | E | E | D | E | D | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 12.02 | 7.94 | 10.35 | 5.63 | 3.44 | 5.64 | 10.50 | 13.87 | 10.26 | 5.79 | 13.99 | 3.17 |
| 50th-Percentile Queue Length [ft/ln] | 300.51 | 198.62 | 258.63 | 140.65 | 85.91 | 140.99 | 262.58 | 346.71 | 256.49 | 144.86 | 349.66 | 79.37 |
| 95th-Percentile Queue Length [veh/ln] | 19.14 | 12.57 | 15.62 | 9.52 | 6.19 | 9.53 | 15.82 | 19.98 | 15.51 | 9.74 | 20.12 | 5.71 |
| 95th-Percentile Queue Length [ft/ln] | 478.39 | 314.19 | 390.50 | 237.89 | 154.64 | 238.35 | 395.45 | 499.40 | 387.81 | 243.55 | 502.99 | 142.87 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 139.29 | 46.49 | 55.75 | 58.97 | 49.73 | 55.64 | 53.67 | 34.95 | 34.26 | 59.31 | 45.47 | 33.71 |
| Movement LOS | F | D | E | E | D | E | D | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 83.25 | | | 54.75 | | | 39.51 | | | 47.27 | | |
| Approach LOS | F | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 52.55 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.878 | | | | | | | | | | | |

**Emissions**

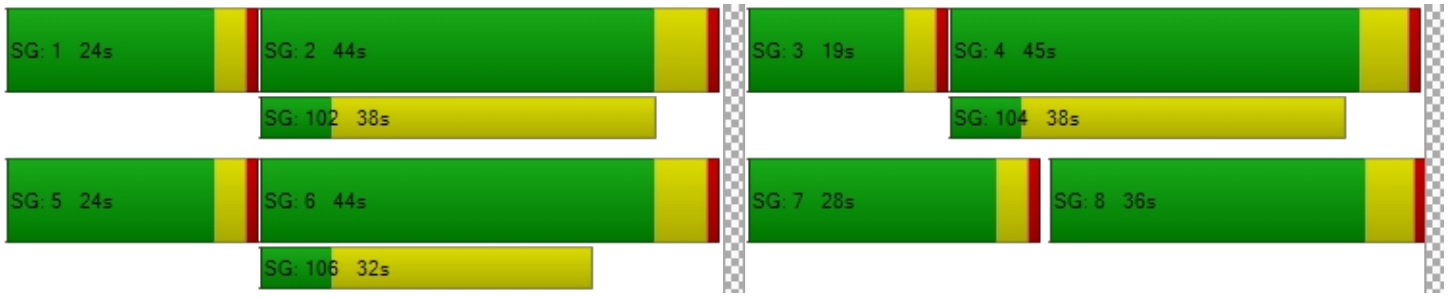
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.99 | 39.40 | 22.73 | 183.30 | 187.02 | 187.02 | 74.19 | 177.85 | 45.40 | 176.67 | 689.22 | 65.38 |
| Stops [stops/h] | 655.22 | 433.07 | 281.95 | 306.65 | 280.97 | 307.40 | 572.51 | 1133.92 | 279.62 | 315.83 | 1143.56 | 86.53 |
| Fuel consumption [US gal/h] | 22.10 | 10.76 | 7.11 | 14.24 | 13.47 | 14.22 | 16.78 | 31.31 | 7.81 | 14.25 | 50.62 | 4.22 |
| CO [g/h] | 1544.94 | 752.45 | 497.14 | 995.05 | 941.27 | 993.84 | 1173.08 | 2188.57 | 546.25 | 996.42 | 3538.47 | 294.67 |
| NOx [g/h] | 300.59 | 146.40 | 96.72 | 193.60 | 183.14 | 193.36 | 228.24 | 425.82 | 106.28 | 193.87 | 688.46 | 57.33 |
| VOC [g/h] | 358.06 | 174.39 | 115.22 | 230.61 | 218.15 | 230.33 | 271.87 | 507.22 | 126.60 | 230.93 | 820.07 | 68.29 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.50 | 55.50 | 39.22 | 55.50 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.144 | 3.412 | 3.781 | 3.531 |
| Crosswalk LOS | C | C | D | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 595 | 459 | 575 | 575 |
| d_b, Bicycle Delay [s] | 32.59 | 39.26 | 33.51 | 33.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.305 | 2.137 | 2.997 | 2.586 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.734 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 618 | 0 | 1112 | 0 | 0 | 0 | 0 | 1379 | 509 | 0 | 1825 | 196 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 618 | 0 | 1112 | 0 | 0 | 0 | 0 | 1379 | 509 | 0 | 1825 | 196 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 164 | 0 | 296 | 0 | 0 | 0 | 0 | 367 | 135 | 0 | 485 | 52 |
| Total Analysis Volume [veh/h] | 657 | 0 | 1183 | 0 | 0 | 0 | 0 | 1467 | 541 | 0 | 1941 | 209 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.42 | | 0.28 | 0.23 | 0.13 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4443 | 828 |
| d1, Uniform Delay [s] | 30.33 | 41.08 | | 21.51 | 19.87 | 17.69 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.43 | 55.39 | | 0.83 | 0.31 | 0.73 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 1.11 | | 0.55 | 0.44 | 0.25 |
| d, Delay for Lane Group [s/veh] | 30.76 | 96.46 | | 22.34 | 20.18 | 18.43 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.94 | 24.39 | | 9.87 | 7.17 | 3.57 |
| 50th-Percentile Queue Length [ft/ln] | 123.56 | 609.65 | | 246.76 | 179.15 | 89.16 |
| 95th-Percentile Queue Length [veh/ln] | 8.59 | 34.75 | | 15.02 | 11.56 | 6.42 |
| 95th-Percentile Queue Length [ft/ln] | 214.70 | 868.67 | | 375.57 | 288.90 | 160.50 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.76 | 0.00 | 96.46 | 0.00 | 0.00 | 0.00 | 0.00 | 22.34 | 0.00 | 0.00 | 20.18 | 18.43 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 73.00 | | | 0.00 | | | 16.58 | | | 20.01 | | |
| Approach LOS | E | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 36.96 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.734 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 86.12 | 155.07 | | 230.85 | 220.86 | 23.78 |
| Stops [stops/h] | 404.80 | 1331.59 | | 808.44 | 978.23 | 97.38 |
| Fuel consumption [US gal/h] | 14.51 | 53.14 | | 24.63 | 27.71 | 2.81 |
| CO [g/h] | 1014.38 | 3714.52 | | 1721.87 | 1936.64 | 196.39 |
| NOx [g/h] | 197.36 | 722.71 | | 335.01 | 376.80 | 38.21 |
| VOC [g/h] | 235.09 | 860.88 | | 399.06 | 448.83 | 45.51 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.019 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.366 | 2.269 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.544 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 70 | 0 | 370 | 0 | 1829 | 570 | 0 | 1841 | 663 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 70 | 0 | 370 | 0 | 1829 | 570 | 0 | 1841 | 663 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 98 | 0 | 486 | 152 | 0 | 490 | 176 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 74 | 0 | 394 | 0 | 1946 | 606 | 0 | 1959 | 705 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 23 | 23 | 93 | 93 | 93 |
| g / C, Green / Cycle | | 0.18 | 0.18 | 0.72 | 0.72 | 0.72 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.14 | 0.28 | 0.38 | 0.28 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 626 | 508 | 4905 | 1141 | 4936 |
| d1, Uniform Delay [s] | | 44.75 | 50.83 | 7.26 | 8.39 | 7.26 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.21 | 6.19 | 0.24 | 1.77 | 0.24 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.12 | 0.78 | 0.40 | 0.53 | 0.40 |
| d, Delay for Lane Group [s/veh] | | 44.95 | 57.01 | 7.50 | 10.16 | 7.50 |
| Lane Group LOS | | D | E | A | B | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.03 | 6.55 | 4.61 | 7.08 | 4.64 |
| 50th-Percentile Queue Length [ft/ln] | | 25.72 | 163.73 | 115.25 | 176.93 | 116.02 |
| 95th-Percentile Queue Length [veh/ln] | | 1.85 | 10.75 | 8.13 | 11.44 | 8.17 |
| 95th-Percentile Queue Length [ft/ln] | | 46.29 | 268.65 | 203.28 | 286.00 | 204.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 44.95 | 0.00 | 57.01 | 0.00 | 7.50 | 10.16 | 0.00 | 7.50 | 0.00 |
| Movement LOS | | | | D | | E | | A | B | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 55.11 | | | 8.13 | | | 5.61 | | |
| Approach LOS | A | | | E | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 11.55 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.544 | | | | | | | | | | | |

**Emissions**

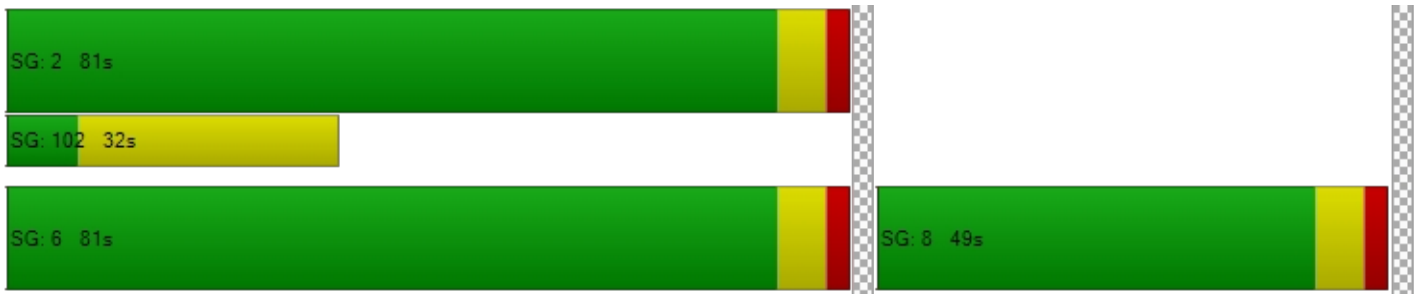
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.40 | 60.72 | 188.44 | 58.68 | 308.27 |
| Stops [stops/h] | | 57.04 | 363.11 | 511.20 | 196.19 | 514.62 |
| Fuel consumption [US gal/h] | | 1.46 | 9.08 | 15.79 | 5.70 | 19.96 |
| CO [g/h] | | 102.15 | 634.43 | 1103.48 | 398.69 | 1394.94 |
| NOx [g/h] | | 19.88 | 123.44 | 214.70 | 77.57 | 271.40 |
| VOC [g/h] | | 23.68 | 147.04 | 255.74 | 92.40 | 323.29 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.028 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1143 | 1143 | |
| d_b, Bicycle Delay [s] | 64.93 | 29.59 | 11.93 | 11.93 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.612 | 2.368 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 31.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.946 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 60 | 153 | 29 | 4 | 68 | 50 | 31 | 434 | 58 | 29 | 292 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 60 | 153 | 29 | 4 | 68 | 50 | 31 | 434 | 58 | 29 | 292 | 7 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 41 | 8 | 1 | 18 | 13 | 8 | 115 | 15 | 8 | 78 | 2 |
| Total Analysis Volume [veh/h] | 64 | 163 | 31 | 4 | 72 | 53 | 33 | 462 | 62 | 31 | 311 | 7 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 504 | 486 | 589 | 547 |
| Degree of Utilization, x | 0.51 | 0.27 | 0.95 | 0.64 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 2.87 | 1.06 | 12.61 | 4.47 |
| 95th-Percentile Queue Length [ft] | 71.73 | 26.54 | 315.14 | 111.85 |
| Approach Delay [s/veh] | 17.35 | 13.09 | 49.44 | 20.44 |
| Approach LOS | C | B | E | C |
| Intersection Delay [s/veh] | 31.58 | | | |
| Intersection LOS | D | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 174.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.645 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 194 | 286 | 43 | 15 | 162 | 25 | 73 | 382 | 128 | 35 | 523 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 194 | 286 | 43 | 15 | 162 | 25 | 73 | 382 | 128 | 35 | 523 | 15 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 56 | 82 | 12 | 4 | 47 | 7 | 21 | 110 | 37 | 10 | 150 | 4 |
| Total Analysis Volume [veh/h] | 223 | 329 | 49 | 17 | 186 | 29 | 84 | 439 | 147 | 40 | 601 | 17 |
| Pedestrian Volume [ped/h] | 5 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 552 | 403 | 365 | 364 | 383 | 398 | 355 | 618 |
| Degree of Utilization, x | 1.50 | 0.12 | 0.64 | 0.23 | 0.77 | 0.74 | 0.11 | 1.65 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 30.04 | 0.41 | 4.19 | 0.88 | 6.28 | 5.81 | 0.38 | 36.62 |
| 95th-Percentile Queue Length [ft] | 750.88 | 10.27 | 104.82 | 21.94 | 156.88 | 145.37 | 9.44 | 915.62 |
| Approach Delay [s/veh] | 245.22 | | 28.66 | 32.62 | | | 306.40 | |
| Approach LOS | F | | D | D | | | F | |
| Intersection Delay [s/veh] | 174.68 | | | | | | | |
| Intersection LOS | F | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.523 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 56 | 513 | 63 | 58 | 234 | 31 | 15 | 326 | 228 | 36 | 360 | 37 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 56 | 513 | 63 | 58 | 234 | 31 | 15 | 326 | 228 | 36 | 360 | 37 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 135 | 17 | 15 | 62 | 8 | 4 | 86 | 60 | 9 | 95 | 10 |
| Total Analysis Volume [veh/h] | 59 | 540 | 66 | 61 | 246 | 33 | 16 | 343 | 240 | 38 | 379 | 39 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 14 | 14 | 6 | 14 | 14 | 2 | 15 | 15 | 5 | 17 | 17 |
| g / C, Green / Cycle | 0.11 | 0.25 | 0.25 | 0.11 | 0.25 | 0.25 | 0.04 | 0.26 | 0.26 | 0.08 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.17 | 0.17 | 0.03 | 0.08 | 0.08 | 0.01 | 0.18 | 0.15 | 0.02 | 0.20 | 0.02 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1793 | 1810 | 1868 | 1780 | 1810 | 1892 | 1549 | 1810 | 1874 | 1582 |
| c, Capacity [veh/h] | 200 | 471 | 453 | 207 | 476 | 453 | 79 | 497 | 407 | 153 | 569 | 480 |
| d1, Uniform Delay [s] | 22.81 | 18.74 | 18.76 | 22.72 | 16.82 | 16.86 | 25.82 | 18.58 | 17.96 | 23.96 | 17.01 | 13.91 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.81 | 1.55 | 1.63 | 0.78 | 0.34 | 0.37 | 1.24 | 1.72 | 1.36 | 0.84 | 1.35 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.29 | 0.65 | 0.66 | 0.29 | 0.30 | 0.30 | 0.20 | 0.69 | 0.59 | 0.25 | 0.67 | 0.08 |
| d, Delay for Lane Group [s/veh] | 23.62 | 20.29 | 20.39 | 23.50 | 17.17 | 17.23 | 27.07 | 20.29 | 19.32 | 24.80 | 18.36 | 13.98 |
| Lane Group LOS | C | C | C | C | B | B | C | C | B | C | B | B |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.68 | 3.25 | 3.15 | 0.69 | 1.26 | 1.24 | 0.21 | 3.53 | 2.38 | 0.45 | 3.64 | 0.30 |
| 50th-Percentile Queue Length [ft/ln] | 17.00 | 81.15 | 78.70 | 17.14 | 31.61 | 30.98 | 5.22 | 88.19 | 59.49 | 11.19 | 91.12 | 7.46 |
| 95th-Percentile Queue Length [veh/ln] | 1.22 | 5.84 | 5.67 | 1.23 | 2.28 | 2.23 | 0.38 | 6.35 | 4.28 | 0.81 | 6.56 | 0.54 |
| 95th-Percentile Queue Length [ft/ln] | 30.61 | 146.08 | 141.67 | 30.86 | 56.90 | 55.77 | 9.40 | 158.75 | 107.08 | 20.14 | 164.02 | 13.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.62 | 20.33 | 20.39 | 23.50 | 17.19 | 17.23 | 27.07 | 20.29 | 19.32 | 24.80 | 18.36 | 13.98 |
| Movement LOS | C | C | C | C | B | B | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 20.63 | | | 18.33 | | | 20.08 | | | 18.52 | | |
| Approach LOS | C | | | B | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.63 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.523 | | | | | | | | | | | |

**Emissions**

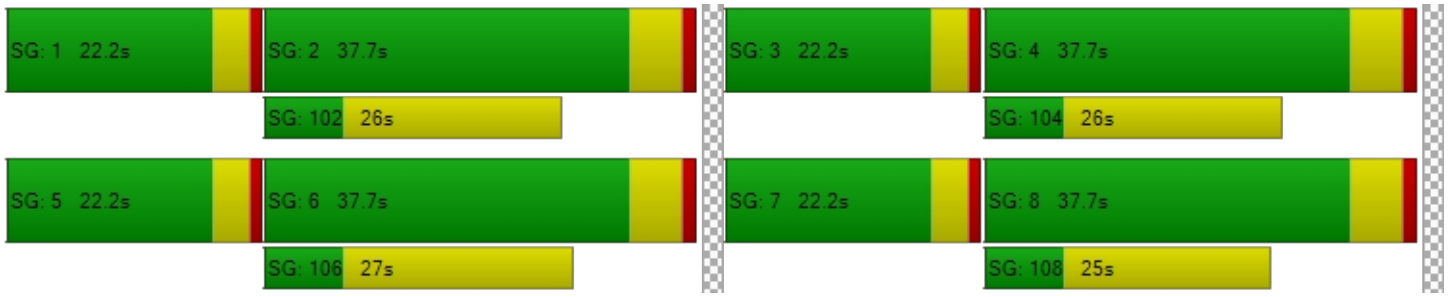
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 31.88 | 166.56 | 160.90 | 30.33 | 70.20 | 68.53 | 7.62 | 163.25 | 114.23 | 18.73 | 186.76 | 19.22 |
| Stops [stops/h] | 43.93 | 209.67 | 203.34 | 44.29 | 81.66 | 80.05 | 13.49 | 227.85 | 153.70 | 28.91 | 235.43 | 19.26 |
| Fuel consumption [US gal/h] | 1.86 | 9.30 | 9.00 | 1.88 | 3.91 | 3.83 | 0.52 | 9.85 | 6.77 | 1.19 | 10.75 | 1.01 |
| CO [g/h] | 129.82 | 649.99 | 628.87 | 131.56 | 273.65 | 267.55 | 36.13 | 688.19 | 473.23 | 83.39 | 751.09 | 70.54 |
| NOx [g/h] | 25.26 | 126.46 | 122.36 | 25.60 | 53.24 | 52.06 | 7.03 | 133.90 | 92.07 | 16.23 | 146.14 | 13.73 |
| VOC [g/h] | 30.09 | 150.64 | 145.75 | 30.49 | 63.42 | 62.01 | 8.37 | 159.50 | 109.67 | 19.33 | 174.07 | 16.35 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.95 | 17.95 | 17.95 | 17.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.582 | 2.546 | 2.495 | 2.443 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1148 | 1148 | 1148 | 1148 |
| d_b, Bicycle Delay [s] | 5.05 | 5.06 | 5.06 | 5.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.108 | 1.840 | 2.548 | 2.312 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.772 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 320 | 303 | 156 | 270 | 224 | 163 | 262 | 1263 | 540 | 137 | 1072 | 71 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 320 | 303 | 156 | 270 | 224 | 163 | 262 | 1263 | 540 | 137 | 1072 | 71 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 83 | 79 | 41 | 70 | 58 | 42 | 68 | 329 | 141 | 36 | 279 | 18 |
| Total Analysis Volume [veh/h] | 333 | 316 | 163 | 281 | 233 | 170 | 273 | 1316 | 563 | 143 | 1117 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 26 | 26 | 13 | 18 | 18 | 13 | 64 | 64 | 13 | 64 | 64 |
| g / C, Green / Cycle | 0.16 | 0.19 | 0.19 | 0.10 | 0.14 | 0.14 | 0.10 | 0.48 | 0.48 | 0.10 | 0.48 | 0.48 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.09 | 0.10 | 0.08 | 0.06 | 0.11 | 0.08 | 0.25 | 0.35 | 0.04 | 0.22 | 0.05 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 260 | 690 | 309 | 359 | 496 | 221 | 348 | 2501 | 777 | 344 | 2489 | 780 |
| d1, Uniform Delay [s] | 55.56 | 47.11 | 47.82 | 57.91 | 52.63 | 55.03 | 58.18 | 23.65 | 27.14 | 56.01 | 22.55 | 18.51 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 129.43 | 0.38 | 1.12 | 1.44 | 0.56 | 4.47 | 1.48 | 0.80 | 5.83 | 0.30 | 0.59 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.28 | 0.46 | 0.53 | 0.78 | 0.47 | 0.77 | 0.78 | 0.53 | 0.72 | 0.42 | 0.45 | 0.09 |
| d, Delay for Lane Group [s/veh] | 184.99 | 47.49 | 48.94 | 59.35 | 53.18 | 59.50 | 59.67 | 24.44 | 32.97 | 56.31 | 23.14 | 18.75 |
| Lane Group LOS | F | D | D | E | D | E | E | C | C | E | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 8.92 | 4.59 | 4.86 | 4.67 | 3.63 | 5.75 | 4.54 | 9.61 | 15.15 | 2.22 | 7.44 | 1.24 |
| 50th-Percentile Queue Length [ft/ln] | 223.02 | 114.71 | 121.57 | 116.64 | 90.63 | 143.70 | 113.49 | 240.34 | 378.75 | 55.39 | 185.97 | 31.09 |
| 95th-Percentile Queue Length [veh/ln] | 15.24 | 8.10 | 8.48 | 8.21 | 6.53 | 9.68 | 8.03 | 14.70 | 21.53 | 3.99 | 11.91 | 2.24 |
| 95th-Percentile Queue Length [ft/ln] | 380.92 | 202.53 | 211.98 | 205.20 | 163.14 | 242.00 | 200.85 | 367.47 | 538.33 | 99.70 | 297.79 | 55.97 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 184.99 | 47.49 | 48.94 | 59.35 | 53.18 | 59.50 | 59.67 | 24.44 | 32.97 | 56.31 | 23.14 | 18.75 |
| Movement LOS | F | D | D | E | D | E | E | C | C | E | C | B |
| d_A, Approach Delay [s/veh] | 104.17 | | | 57.29 | | | 31.14 | | | 26.45 | | |
| Approach LOS | F | | | E | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 45.38 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.772 | | | | | | | | | | | |

**Emissions**

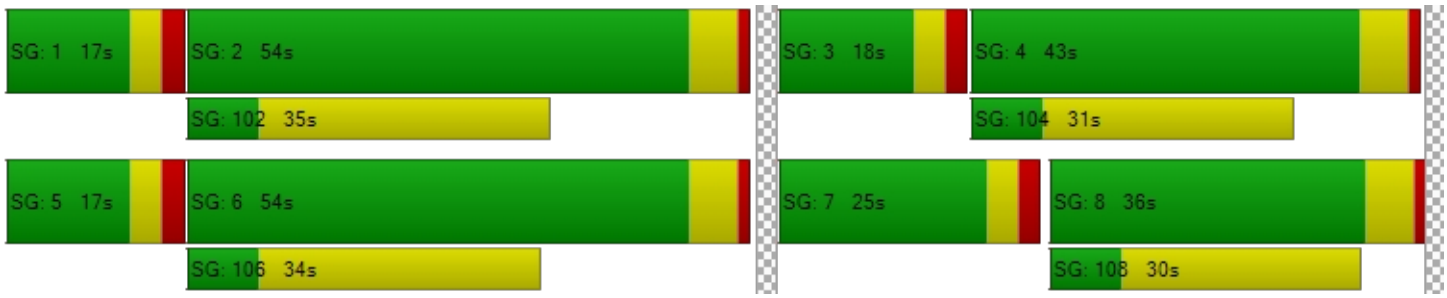
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 34.85 | 33.07 | 17.06 | 151.84 | 125.91 | 91.86 | 136.25 | 656.78 | 280.98 | 16.48 | 128.75 | 8.53 |
| Stops [stops/h] | 486.16 | 250.06 | 132.50 | 254.26 | 197.57 | 156.63 | 247.40 | 785.89 | 412.82 | 120.74 | 608.09 | 33.89 |
| Fuel consumption [US gal/h] | 18.56 | 6.69 | 3.54 | 11.05 | 8.80 | 6.71 | 10.29 | 37.92 | 17.63 | 3.70 | 17.23 | 1.00 |
| CO [g/h] | 1297.19 | 467.97 | 247.16 | 772.33 | 614.84 | 468.69 | 719.27 | 2650.94 | 1232.00 | 258.96 | 1204.58 | 69.63 |
| NOx [g/h] | 252.39 | 91.05 | 48.09 | 150.27 | 119.63 | 91.19 | 139.94 | 515.78 | 239.70 | 50.38 | 234.37 | 13.55 |
| VOC [g/h] | 300.64 | 108.46 | 57.28 | 179.00 | 142.50 | 108.62 | 166.70 | 614.38 | 285.53 | 60.02 | 279.17 | 16.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.52 | 55.52 | 55.52 | 55.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.937 | 2.800 | 3.276 | 3.370 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.02 | 39.23 | 26.59 | 26.59 |
| l_b,int, Bicycle LOS Score for Intersection | 2.230 | 2.124 | 2.743 | 2.293 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 88.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.229 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 585 | 83 | 3 | 0 | 62 | 21 | 19 | 2 | 327 | 0 | 1 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 585 | 83 | 3 | 0 | 62 | 21 | 19 | 2 | 327 | 0 | 1 | 1 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 170 | 24 | 1 | 0 | 18 | 6 | 6 | 1 | 95 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 680 | 97 | 3 | 0 | 72 | 24 | 22 | 2 | 380 | 0 | 1 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 780 | 604 | 663 | 550 |
| Degree of Utilization, x | 1.23 | 0.16 | 0.61 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 28.43 | 0.56 | 4.16 | 0.01 |
| 95th-Percentile Queue Length [ft] | 710.71 | 14.04 | 104.00 | 0.27 |
| Approach Delay [s/veh] | 136.12 | 10.08 | 16.57 | 9.56 |
| Approach LOS | F | B | C | A |
| Intersection Delay [s/veh] | 88.81 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.034 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 477 | 10 | 10 | 421 | 10 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 477 | 10 | 10 | 421 | 10 | 10 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 119 | 3 | 3 | 105 | 3 | 3 |
| Total Analysis Volume [veh/h] | 477 | 10 | 10 | 421 | 10 | 10 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.03 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.36 | 0.00 | 17.66 | 11.65 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.02 | 0.02 | 0.16 | 0.16 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.42 | 0.42 | 4.01 | 4.01 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.19 | | 14.66 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 0.40 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.494 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 112 | 181 | 72 | 152 | 113 | 14 | 23 | 327 | 70 | 57 | 230 | 273 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 112 | 181 | 72 | 152 | 113 | 14 | 23 | 327 | 70 | 57 | 230 | 273 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 47 | 19 | 40 | 29 | 4 | 6 | 85 | 18 | 15 | 60 | 71 |
| Total Analysis Volume [veh/h] | 117 | 189 | 75 | 158 | 118 | 15 | 24 | 341 | 73 | 59 | 240 | 284 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 10 | 10 | 8 | 10 | 2 | 13 | 13 | 5 | 16 | 16 |
| g / C, Green / Cycle | 0.14 | 0.19 | 0.19 | 0.16 | 0.20 | 0.05 | 0.26 | 0.26 | 0.09 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.10 | 0.05 | 0.09 | 0.07 | 0.01 | 0.11 | 0.11 | 0.03 | 0.13 | 0.18 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1848 | 1810 | 1900 | 1786 | 1787 | 1900 | 1605 |
| c, Capacity [veh/h] | 259 | 346 | 299 | 283 | 368 | 84 | 490 | 461 | 161 | 573 | 484 |
| d1, Uniform Delay [s] | 20.28 | 19.07 | 17.98 | 20.10 | 17.84 | 23.81 | 16.00 | 16.04 | 22.12 | 14.41 | 15.30 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.46 | 1.34 | 0.43 | 0.64 | 0.59 | 0.70 | 1.12 | 1.23 | 0.52 | 0.91 | 2.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 0.55 | 0.25 | 0.56 | 0.36 | 0.29 | 0.43 | 0.44 | 0.37 | 0.42 | 0.59 |
| d, Delay for Lane Group [s/veh] | 20.73 | 20.41 | 18.42 | 20.74 | 18.43 | 24.51 | 17.12 | 17.26 | 22.64 | 15.32 | 17.40 |
| Lane Group LOS | C | C | B | C | B | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.12 | 1.83 | 0.67 | 1.52 | 1.19 | 0.27 | 1.89 | 1.82 | 0.59 | 1.85 | 2.42 |
| 50th-Percentile Queue Length [ft/ln] | 28.02 | 45.73 | 16.81 | 38.02 | 29.77 | 6.67 | 47.14 | 45.52 | 14.66 | 46.23 | 60.60 |
| 95th-Percentile Queue Length [veh/ln] | 2.02 | 3.29 | 1.21 | 2.74 | 2.14 | 0.48 | 3.39 | 3.28 | 1.06 | 3.33 | 4.36 |
| 95th-Percentile Queue Length [ft/ln] | 50.44 | 82.32 | 30.25 | 68.44 | 53.58 | 12.01 | 84.86 | 81.94 | 26.40 | 83.21 | 109.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.73 | 20.41 | 18.42 | 20.74 | 18.43 | 18.43 | 24.51 | 17.17 | 17.26 | 22.64 | 15.32 | 17.40 |
| Movement LOS | C | C | B | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 20.12 | | | 19.69 | | | 17.59 | | | 17.08 | | |
| Approach LOS | C | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.34 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.494 | | | | | | | | | | | |

**Emissions**

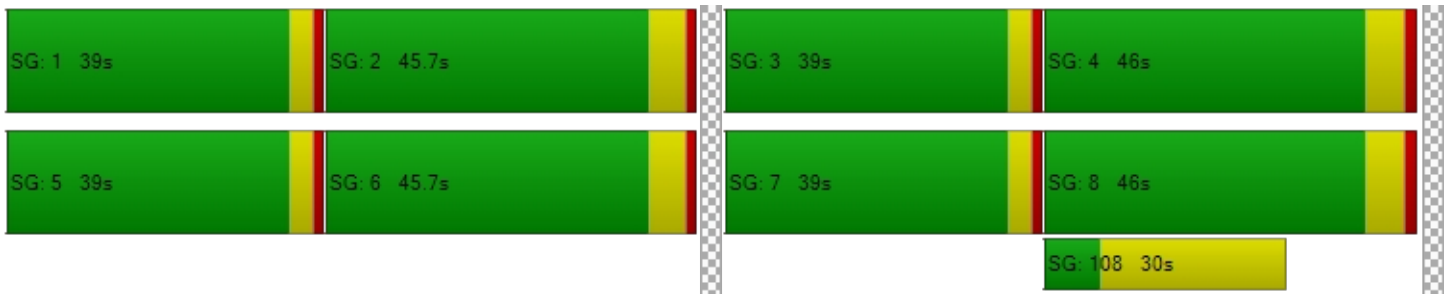
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 58.84 | 95.04 | 37.72 | 78.75 | 66.29 | 11.83 | 104.23 | 99.80 | 15.46 | 62.90 | 74.44 |
| Stops [stops/h] | 78.36 | 127.89 | 47.00 | 106.32 | 83.24 | 18.66 | 131.84 | 127.30 | 41.01 | 129.27 | 169.46 |
| Fuel consumption [US gal/h] | 3.48 | 5.63 | 2.16 | 4.69 | 3.81 | 0.73 | 5.77 | 5.54 | 1.42 | 4.84 | 6.10 |
| CO [g/h] | 243.59 | 393.75 | 150.87 | 327.71 | 266.04 | 50.80 | 403.01 | 387.03 | 99.20 | 338.27 | 426.38 |
| NOx [g/h] | 47.39 | 76.61 | 29.35 | 63.76 | 51.76 | 9.88 | 78.41 | 75.30 | 19.30 | 65.81 | 82.96 |
| VOC [g/h] | 56.45 | 91.25 | 34.96 | 75.95 | 61.66 | 11.77 | 93.40 | 89.70 | 22.99 | 78.40 | 98.82 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.92 | 18.37 | 18.12 | 18.12 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.453 | 2.298 | 2.368 | 2.649 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1554 | 1554 | 1554 | 1554 |
| d_b, Bicycle Delay [s] | 1.28 | 1.28 | 1.28 | 1.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.188 | 2.040 | 1.921 | 2.522 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.012 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 9 | 356 | 12 | 9 | 260 | 7 | 4 | 3 | 5 | 5 | 7 | 42 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 356 | 12 | 9 | 260 | 7 | 4 | 3 | 5 | 5 | 7 | 42 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 93 | 3 | 2 | 68 | 2 | 1 | 1 | 1 | 1 | 2 | 11 |
| Total Analysis Volume [veh/h] | 9 | 371 | 13 | 9 | 271 | 7 | 4 | 3 | 5 | 5 | 7 | 44 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.87 | 0.00 | 0.00 | 8.18 | 0.00 | 0.00 | 16.20 | 15.09 | 9.88 | 15.97 | 15.57 | 11.04 |
| Movement LOS | A | A | A | A | A | A | C | C | A | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 | 0.33 | 0.33 | 0.33 |
| 95th-Percentile Queue Length [ft/ln] | 0.54 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 2.07 | 2.07 | 2.07 | 8.18 | 8.18 | 8.18 |
| d_A, Approach Delay [s/veh] | 0.18 | | | 0.26 | | | 13.29 | | | 12.05 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 1.31 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.692 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 262 | 301 | 57 | 37 | 207 | 41 | 35 | 269 | 114 | 33 | 301 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 262 | 301 | 57 | 37 | 207 | 41 | 35 | 269 | 114 | 33 | 301 | 48 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 71 | 82 | 15 | 10 | 56 | 11 | 10 | 73 | 31 | 9 | 82 | 13 |
| Total Analysis Volume [veh/h] | 285 | 327 | 62 | 40 | 225 | 45 | 38 | 292 | 124 | 36 | 327 | 52 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 19 | 19 | 2 | 11 | 2 | 13 | 13 | 2 | 13 |
| g / C, Green / Cycle | 0.19 | 0.37 | 0.37 | 0.03 | 0.22 | 0.03 | 0.25 | 0.25 | 0.03 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.17 | 0.04 | 0.02 | 0.15 | 0.02 | 0.11 | 0.12 | 0.02 | 0.20 |
| s, saturation flow rate [veh/h] | 1810 | 1882 | 1595 | 1810 | 1832 | 1810 | 1900 | 1697 | 1810 | 1855 |
| c, Capacity [veh/h] | 351 | 706 | 598 | 62 | 395 | 60 | 470 | 420 | 57 | 457 |
| d1, Uniform Delay [s] | 19.81 | 12.13 | 10.43 | 24.49 | 18.53 | 24.53 | 16.40 | 16.49 | 24.57 | 18.34 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.75 | 0.68 | 0.11 | 4.16 | 2.97 | 4.17 | 0.52 | 0.62 | 4.19 | 2.97 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.46 | 0.10 | 0.65 | 0.68 | 0.64 | 0.46 | 0.48 | 0.63 | 0.83 |
| d, Delay for Lane Group [s/veh] | 21.57 | 12.81 | 10.53 | 28.65 | 21.50 | 28.70 | 16.92 | 17.11 | 28.76 | 21.31 |
| Lane Group LOS | C | B | B | C | C | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.85 | 2.24 | 0.36 | 0.52 | 2.95 | 0.46 | 1.81 | 1.69 | 0.44 | 3.79 |
| 50th-Percentile Queue Length [ft/ln] | 71.14 | 56.04 | 9.03 | 12.89 | 73.65 | 11.61 | 45.18 | 42.34 | 11.04 | 94.69 |
| 95th-Percentile Queue Length [veh/ln] | 5.12 | 4.03 | 0.65 | 0.93 | 5.30 | 0.84 | 3.25 | 3.05 | 0.79 | 6.82 |
| 95th-Percentile Queue Length [ft/ln] | 128.06 | 100.87 | 16.26 | 23.19 | 132.58 | 20.90 | 81.32 | 76.22 | 19.87 | 170.44 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.57 | 12.81 | 10.53 | 28.65 | 21.50 | 21.50 | 28.70 | 16.97 | 17.11 | 28.76 | 21.31 | 21.31 |
| Movement LOS | C | B | B | C | C | C | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 16.30 | | | 22.42 | | | 17.99 | | | 21.95 | | |
| Approach LOS | B | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 19.01 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.692 | | | | | | | | | | | |

**Emissions**

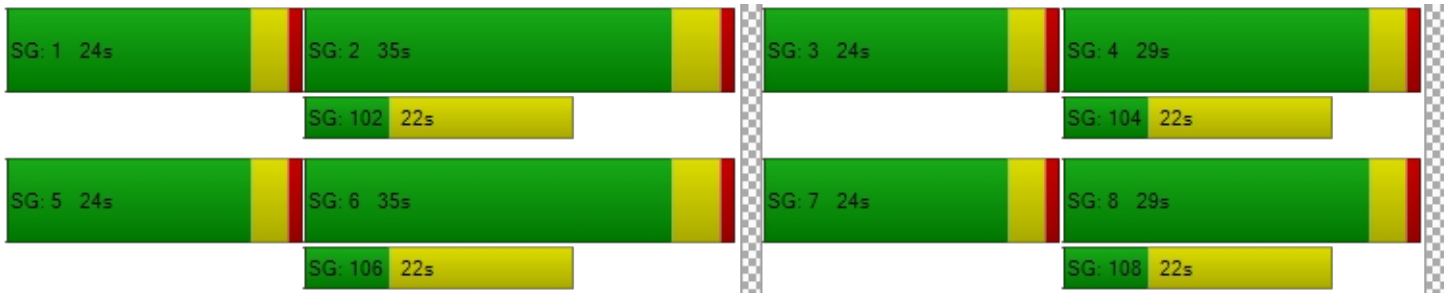
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 142.16 | 163.11 | 30.93 | 20.03 | 135.22 | 18.95 | 107.65 | 99.84 | 36.06 | 379.62 |
| Stops [stops/h] | 200.07 | 157.59 | 25.41 | 36.24 | 207.14 | 32.66 | 127.04 | 119.08 | 31.04 | 266.28 |
| Fuel consumption [US gal/h] | 8.61 | 8.40 | 1.51 | 1.26 | 7.89 | 1.28 | 6.01 | 5.60 | 1.83 | 17.97 |
| CO [g/h] | 601.94 | 587.37 | 105.47 | 87.95 | 551.68 | 89.31 | 420.31 | 391.44 | 128.10 | 1255.86 |
| NOx [g/h] | 117.12 | 114.28 | 20.52 | 17.11 | 107.34 | 17.38 | 81.78 | 76.16 | 24.92 | 244.34 |
| VOC [g/h] | 139.51 | 136.13 | 24.44 | 20.38 | 127.86 | 20.70 | 97.41 | 90.72 | 29.69 | 291.06 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.78 | 15.78 | 15.78 | 15.78 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.578 | 2.144 | 2.505 | 2.395 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1172 | 1172 | 976 | 976 |
| d_b, Bicycle Delay [s] | 4.39 | 4.39 | 6.71 | 6.71 |
| l_b,int, Bicycle LOS Score for Intersection | 2.672 | 2.071 | 1.934 | 2.244 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.520 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 195 | 662 | 117 | 26 | 398 | 29 | 54 | 247 | 167 | 42 | 236 | 25 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 195 | 662 | 117 | 26 | 398 | 29 | 54 | 247 | 167 | 42 | 236 | 25 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 51 | 172 | 30 | 7 | 104 | 8 | 14 | 64 | 43 | 11 | 61 | 7 |
| Total Analysis Volume [veh/h] | 203 | 690 | 122 | 27 | 415 | 30 | 56 | 257 | 174 | 44 | 246 | 26 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 16 | 16 | 3 | 10 | 10 | 5 | 11 | 11 | 4 | 10 | 10 |
| g / C, Green / Cycle | 0.17 | 0.32 | 0.32 | 0.06 | 0.20 | 0.20 | 0.10 | 0.22 | 0.22 | 0.08 | 0.20 | 0.20 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.19 | 0.08 | 0.01 | 0.12 | 0.12 | 0.03 | 0.14 | 0.11 | 0.02 | 0.07 | 0.02 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1607 | 1810 | 1888 | 1840 | 1810 | 1888 | 1598 | 1810 | 3618 | 1592 |
| c, Capacity [veh/h] | 307 | 1139 | 509 | 105 | 383 | 374 | 180 | 413 | 350 | 153 | 736 | 324 |
| d1, Uniform Delay [s] | 19.22 | 14.34 | 12.53 | 22.36 | 17.89 | 17.91 | 20.77 | 17.54 | 17.00 | 21.33 | 16.89 | 16.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.44 | 0.52 | 0.24 | 1.28 | 1.42 | 1.49 | 0.97 | 1.54 | 1.10 | 1.03 | 0.26 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.66 | 0.61 | 0.24 | 0.26 | 0.59 | 0.59 | 0.31 | 0.62 | 0.50 | 0.29 | 0.33 | 0.08 |
| d, Delay for Lane Group [s/veh] | 21.65 | 14.86 | 12.77 | 23.64 | 19.31 | 19.39 | 21.74 | 19.08 | 18.10 | 22.35 | 17.16 | 16.11 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.99 | 2.56 | 0.80 | 0.31 | 2.20 | 2.17 | 0.60 | 2.51 | 1.64 | 0.45 | 1.00 | 0.20 |
| 50th-Percentile Queue Length [ft/ln] | 49.85 | 64.06 | 20.02 | 7.82 | 55.10 | 54.34 | 14.91 | 62.76 | 40.96 | 11.24 | 25.00 | 5.11 |
| 95th-Percentile Queue Length [veh/ln] | 3.59 | 4.61 | 1.44 | 0.56 | 3.97 | 3.91 | 1.07 | 4.52 | 2.95 | 0.81 | 1.80 | 0.37 |
| 95th-Percentile Queue Length [ft/ln] | 89.73 | 115.31 | 36.03 | 14.08 | 99.18 | 97.82 | 26.84 | 112.97 | 73.73 | 20.24 | 45.01 | 9.19 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.65 | 14.86 | 12.77 | 23.64 | 19.35 | 19.39 | 21.74 | 19.08 | 18.10 | 22.35 | 17.16 | 16.11 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 15.97 | | | 19.59 | | | 19.03 | | | 17.79 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.62 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.520 | | | | | | | | | | | |

**Emissions**

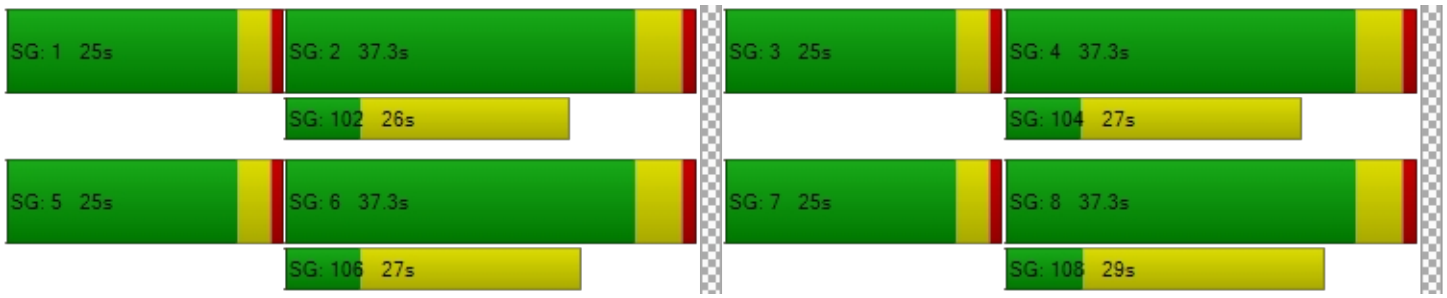
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 40.58 | 137.92 | 24.39 | 13.47 | 111.96 | 110.01 | 27.60 | 126.64 | 85.74 | 4.54 | 25.40 | 2.68 |
| Stops [stops/h] | 145.32 | 373.48 | 58.35 | 22.80 | 160.62 | 158.41 | 43.46 | 182.96 | 119.40 | 32.78 | 145.78 | 14.89 |
| Fuel consumption [US gal/h] | 4.09 | 11.46 | 1.88 | 0.81 | 6.38 | 6.27 | 1.62 | 7.22 | 4.83 | 0.76 | 3.54 | 0.36 |
| CO [g/h] | 286.05 | 800.93 | 131.31 | 56.64 | 445.83 | 438.59 | 113.51 | 504.81 | 337.64 | 53.36 | 247.59 | 25.33 |
| NOx [g/h] | 55.66 | 155.83 | 25.55 | 11.02 | 86.74 | 85.33 | 22.08 | 98.22 | 65.69 | 10.38 | 48.17 | 4.93 |
| VOC [g/h] | 66.30 | 185.62 | 30.43 | 13.13 | 103.33 | 101.65 | 26.31 | 117.00 | 78.25 | 12.37 | 57.38 | 5.87 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 14.92 | 14.92 | 14.92 | 14.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.820 | 2.508 | 2.454 | 2.477 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1296 | 1296 | 1296 | 1296 |
| d_b, Bicycle Delay [s] | 3.06 | 3.07 | 3.06 | 3.07 |
| l_b,int, Bicycle LOS Score for Intersection | 2.397 | 1.949 | 2.363 | 1.820 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.510 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 529 | 1018 | 0 | 0 | 439 | 184 | 0 | 0 | 0 | 110 | 0 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 529 | 1018 | 0 | 0 | 439 | 184 | 0 | 0 | 0 | 110 | 0 | 10 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 141 | 271 | 0 | 0 | 117 | 49 | 0 | 0 | 0 | 29 | 0 | 3 |
| Total Analysis Volume [veh/h] | 563 | 1083 | 0 | 0 | 467 | 196 | 0 | 0 | 0 | 117 | 0 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 52 | 52 | 52 | 52 | | 52 | 52 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 11 | 33 | 16 | 16 | | 7 | 7 |
| g / C, Green / Cycle | 0.21 | 0.62 | 0.30 | 0.30 | | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.30 | 0.18 | 0.20 | | 0.07 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1691 | | 1787 | 1615 |
| c, Capacity [veh/h] | 731 | 2232 | 571 | 512 | | 231 | 209 |
| d1, Uniform Delay [s] | 19.55 | 5.39 | 15.46 | 15.85 | | 21.28 | 20.02 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.66 | 0.31 | 1.74 | 2.55 | | 3.63 | 0.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.49 | 0.58 | 0.65 | | 0.51 | 0.05 |
| d, Delay for Lane Group [s/veh] | 20.21 | 5.70 | 17.21 | 18.40 | | 24.91 | 20.24 |
| Lane Group LOS | C | A | B | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.73 | 1.61 | 2.92 | 3.08 | | 1.32 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 68.32 | 40.25 | 73.08 | 76.90 | | 32.90 | 2.72 |
| 95th-Percentile Queue Length [veh/ln] | 4.92 | 2.90 | 5.26 | 5.54 | | 2.37 | 0.20 |
| 95th-Percentile Queue Length [ft/ln] | 122.98 | 72.46 | 131.55 | 138.43 | | 59.22 | 4.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.21 | 5.70 | 0.00 | 0.00 | 17.55 | 18.40 | 0.00 | 0.00 | 0.00 | 24.91 | 0.00 | 20.24 |
| Movement LOS | C | A | | | B | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 10.66 | | | 17.80 | | | 0.00 | | | 24.51 | | |
| Approach LOS | B | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 13.33 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.510 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 60.86 | 117.07 | 66.26 | 66.26 | | 10.05 | 0.95 |
| Stops [stops/h] | 375.65 | 221.33 | 200.91 | 211.42 | | 90.45 | 7.47 |
| Fuel consumption [US gal/h] | 9.07 | 8.02 | 5.93 | 6.14 | | 2.61 | 0.22 |
| CO [g/h] | 634.16 | 560.68 | 414.52 | 429.29 | | 182.41 | 15.07 |
| NOx [g/h] | 123.39 | 109.09 | 80.65 | 83.52 | | 35.49 | 2.93 |
| VOC [g/h] | 146.97 | 129.94 | 96.07 | 99.49 | | 42.27 | 3.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.56 | 23.56 | 16.35 | 16.35 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.980 | 2.757 | 2.054 | 1.799 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1718 | 1718 | 0 | 1145 |
| d_b, Bicycle Delay [s] | 0.52 | 0.52 | 26.19 | 4.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.918 | 2.107 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 66.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.919 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1112 | 281 | 20 | 532 | 0 | 443 | 0 | 635 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1112 | 281 | 20 | 532 | 0 | 443 | 0 | 635 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 290 | 73 | 5 | 139 | 0 | 115 | 0 | 165 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1158 | 293 | 21 | 554 | 0 | 461 | 0 | 661 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 3 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.03 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.38 | 0.41 | 0.01 | 0.16 | 0.13 | 0.41 | |
| s, saturation flow rate [veh/h] | 1889 | 1764 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 922 | 861 | 48 | 2040 | 1037 | 478 | |
| d1, Uniform Delay [s] | 21.25 | 22.23 | 47.83 | 10.81 | 28.36 | 35.05 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 6.72 | 9.83 | 2.33 | 0.33 | 0.64 | 185.04 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.84 | 0.44 | 0.27 | 0.44 | 1.38 | |
| d, Delay for Lane Group [s/veh] | 27.97 | 32.06 | 50.16 | 11.13 | 29.00 | 220.10 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 14.52 | 15.75 | 0.53 | 2.82 | 4.20 | 35.09 | |
| 50th-Percentile Queue Length [ft/ln] | 363.07 | 393.67 | 13.24 | 70.47 | 104.96 | 877.26 | |
| 95th-Percentile Queue Length [veh/ln] | 20.77 | 22.25 | 0.95 | 5.07 | 7.56 | 53.32 | |
| 95th-Percentile Queue Length [ft/ln] | 519.32 | 556.36 | 23.83 | 126.85 | 188.92 | 1333.02 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 29.50 | 32.06 | 50.16 | 11.13 | 0.00 | 29.00 | 0.00 | 220.10 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 30.02 | | | 12.56 | | | 141.58 | | | 0.00 | | |
| Approach LOS | C | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 66.59 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.919 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.15 | 48.15 | 2.27 | 59.89 | 54.79 | 78.56 | |
| Stops [stops/h] | 523.05 | 567.13 | 19.07 | 203.04 | 302.41 | 1263.82 | |
| Fuel consumption [US gal/h] | 10.99 | 12.03 | 0.53 | 5.83 | 10.17 | 55.70 | |
| CO [g/h] | 768.34 | 840.87 | 37.00 | 407.70 | 710.90 | 3893.67 | |
| NOx [g/h] | 149.49 | 163.60 | 7.20 | 79.32 | 138.31 | 757.57 | |
| VOC [g/h] | 178.07 | 194.88 | 8.57 | 94.49 | 164.76 | 902.40 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.983 | 2.927 | 2.614 | 1.873 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.757 | 2.034 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.007 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 0 | 1 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 5 | 0 | 5 | 3 | 0 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.63 | 8.38 | 0.00 | 0.00 | 7.24 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.04 | 0.04 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 0.88 | 0.88 | 0.00 | 0.00 | 0.14 | 0.14 |
| d_A, Approach Delay [s/veh] | 8.53 | | 0.00 | | 7.24 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.20 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.017 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 11 | 13 | 403 | 545 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 11 | 13 | 403 | 545 | 2 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 3 | 4 | 111 | 150 | 1 |
| Total Analysis Volume [veh/h] | 0 | 12 | 14 | 443 | 599 | 2 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.01 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 17.12 | 10.22 | 8.76 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.30 | 1.30 | 1.10 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.22 | | 0.27 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.23 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.121 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 12 | 350 | 62 | 12 | 476 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 12 | 350 | 62 | 12 | 476 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 3 | 92 | 16 | 3 | 125 |
| Total Analysis Volume [veh/h] | 49 | 13 | 368 | 65 | 13 | 501 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.12 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 15.14 | 10.57 | 0.00 | 0.00 | 8.20 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.47 | 0.47 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 11.75 | 11.75 | 0.00 | 0.00 | 0.87 | 0.00 |
| d_A, Approach Delay [s/veh] | 14.18 | | 0.00 | | 0.21 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.98 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.464 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 258 | 92 | 58 | 0 | 0 | 0 | 0 | 201 | 143 | 18 | 268 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 258 | 92 | 58 | 0 | 0 | 0 | 0 | 201 | 143 | 18 | 268 | 0 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 68 | 24 | 15 | 0 | 0 | 0 | 0 | 53 | 38 | 5 | 71 | 0 |
| Total Analysis Volume [veh/h] | 272 | 97 | 61 | 0 | 0 | 0 | 0 | 212 | 151 | 19 | 282 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 14 | 3 | 3 | 1 | 12 | 12 | 3 | 14 |
| g / C, Green / Cycle | 0.29 | 0.29 | 0.06 | 0.06 | 0.02 | 0.25 | 0.25 | 0.07 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.04 | 0.00 | 0.00 | 0.00 | 0.06 | 0.09 | 0.01 | 0.15 |
| s, saturation flow rate [veh/h] | 1832 | 1615 | 1810 | 1900 | 1810 | 3600 | 1591 | 1659 | 1894 |
| c, Capacity [veh/h] | 542 | 477 | 111 | 117 | 37 | 895 | 395 | 113 | 561 |
| d1, Uniform Delay [s] | 15.23 | 12.64 | 0.00 | 0.00 | 0.00 | 14.71 | 15.27 | 21.53 | 14.27 |
| k, delay calibration | 0.04 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.57 | 0.04 | 0.00 | 0.00 | 0.00 | 0.29 | 1.30 | 0.26 | 1.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.13 | 0.00 | 0.00 | 0.00 | 0.24 | 0.38 | 0.17 | 0.50 |
| d, Delay for Lane Group [s/veh] | 15.79 | 12.68 | 0.00 | 0.00 | 0.00 | 15.00 | 16.57 | 21.79 | 15.76 |
| Lane Group LOS | B | B | A | A | A | B | B | C | B |
| Critical Lane Group | Yes | No | No | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.17 | 0.43 | 0.00 | 0.00 | 0.00 | 0.76 | 1.21 | 0.18 | 2.14 |
| 50th-Percentile Queue Length [ft/ln] | 79.31 | 10.74 | 0.00 | 0.00 | 0.00 | 18.93 | 30.23 | 4.46 | 53.56 |
| 95th-Percentile Queue Length [veh/ln] | 5.71 | 0.77 | 0.00 | 0.00 | 0.00 | 1.36 | 2.18 | 0.32 | 3.86 |
| 95th-Percentile Queue Length [ft/ln] | 142.75 | 19.32 | 0.00 | 0.00 | 0.00 | 34.07 | 54.41 | 8.02 | 96.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 15.79 | 15.79 | 12.68 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 16.57 | 21.79 | 15.76 | 15.76 |
| Movement LOS | B | B | B | A | A | A | A | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 15.35 | | | 0.00 | | | 15.65 | | | 16.14 | | |
| Approach LOS | B | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.67 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.464 | | | | | | | | | | | |

**Emissions**

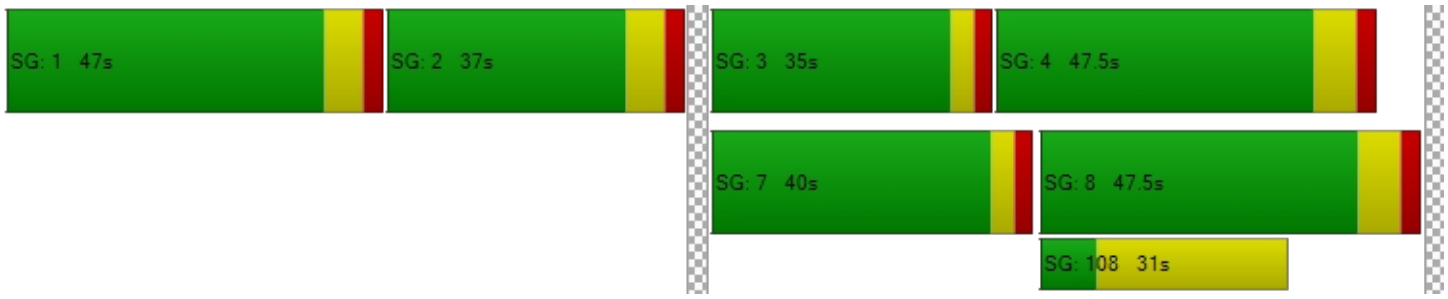
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 367.69 | 60.78 | 0.00 | 0.00 | 0.00 | 78.18 | 55.68 | 9.60 | 142.47 |
| Stops [stops/h] | 233.87 | 31.66 | 0.00 | 0.00 | 0.00 | 111.65 | 89.14 | 13.14 | 157.93 |
| Fuel consumption [US gal/h] | 17.61 | 2.83 | 0.00 | 0.00 | 0.00 | 4.98 | 3.74 | 0.61 | 8.10 |
| CO [g/h] | 1231.25 | 198.13 | 0.00 | 0.00 | 0.00 | 348.03 | 261.57 | 42.46 | 566.19 |
| NOx [g/h] | 239.56 | 38.55 | 0.00 | 0.00 | 0.00 | 67.71 | 50.89 | 8.26 | 110.16 |
| VOC [g/h] | 285.35 | 45.92 | 0.00 | 0.00 | 0.00 | 80.66 | 60.62 | 9.84 | 131.22 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 14.65 | 18.35 | 17.92 | 17.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.242 | 1.946 | 2.571 | 2.337 |
| Crosswalk LOS | B | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1638 | 1229 | 1638 | 1638 |
| d_b, Bicycle Delay [s] | 0.80 | 3.63 | 0.80 | 0.80 |
| l_b,int, Bicycle LOS Score for Intersection | 2.269 | 1.560 | 1.859 | 2.056 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.457 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 139 | 559 | 111 | 10 | 343 | 70 | 157 | 145 | 100 | 87 | 99 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 139 | 559 | 111 | 10 | 343 | 70 | 157 | 145 | 100 | 87 | 99 | 6 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 155 | 31 | 3 | 95 | 19 | 44 | 40 | 28 | 24 | 28 | 2 |
| Total Analysis Volume [veh/h] | 154 | 621 | 123 | 11 | 381 | 78 | 174 | 161 | 111 | 97 | 110 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 17 | 17 | 1 | 10 | 10 | 8 | 9 | 9 | 7 | 8 | 8 |
| g / C, Green / Cycle | 0.16 | 0.34 | 0.34 | 0.03 | 0.20 | 0.20 | 0.16 | 0.19 | 0.19 | 0.13 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.17 | 0.08 | 0.01 | 0.11 | 0.05 | 0.10 | 0.09 | 0.07 | 0.05 | 0.06 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1810 | 1867 | 1615 |
| c, Capacity [veh/h] | 287 | 1213 | 539 | 48 | 729 | 328 | 294 | 348 | 297 | 244 | 290 | 251 |
| d1, Uniform Delay [s] | 19.45 | 13.42 | 12.03 | 24.01 | 17.90 | 16.81 | 19.47 | 18.28 | 17.95 | 19.93 | 19.08 | 18.03 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.58 | 0.45 | 0.28 | 0.89 | 0.78 | 0.49 | 0.71 | 1.19 | 0.97 | 0.39 | 1.02 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.54 | 0.51 | 0.23 | 0.23 | 0.52 | 0.24 | 0.59 | 0.46 | 0.37 | 0.40 | 0.38 | 0.03 |
| d, Delay for Lane Group [s/veh] | 20.04 | 13.86 | 12.32 | 24.90 | 18.68 | 17.31 | 20.18 | 19.47 | 18.92 | 20.32 | 20.09 | 18.09 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.38 | 2.13 | 0.77 | 0.12 | 1.64 | 0.65 | 1.75 | 1.61 | 1.09 | 0.90 | 1.04 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 34.52 | 53.16 | 19.28 | 3.00 | 41.00 | 16.13 | 43.66 | 40.16 | 27.25 | 22.45 | 26.03 | 1.54 |
| 95th-Percentile Queue Length [veh/ln] | 2.49 | 3.83 | 1.39 | 0.22 | 2.95 | 1.16 | 3.14 | 2.89 | 1.96 | 1.62 | 1.87 | 0.11 |
| 95th-Percentile Queue Length [ft/ln] | 62.14 | 95.68 | 34.70 | 5.41 | 73.79 | 29.04 | 78.59 | 72.29 | 49.05 | 40.41 | 46.86 | 2.77 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.04 | 13.86 | 12.32 | 24.90 | 18.68 | 17.31 | 20.18 | 19.47 | 18.92 | 20.32 | 20.09 | 18.09 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 14.71 | | | 18.60 | | | 19.61 | | | 20.13 | | |
| Approach LOS | B | | | B | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 17.26 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.457 | | | | | | | | | | | |

**Emissions**

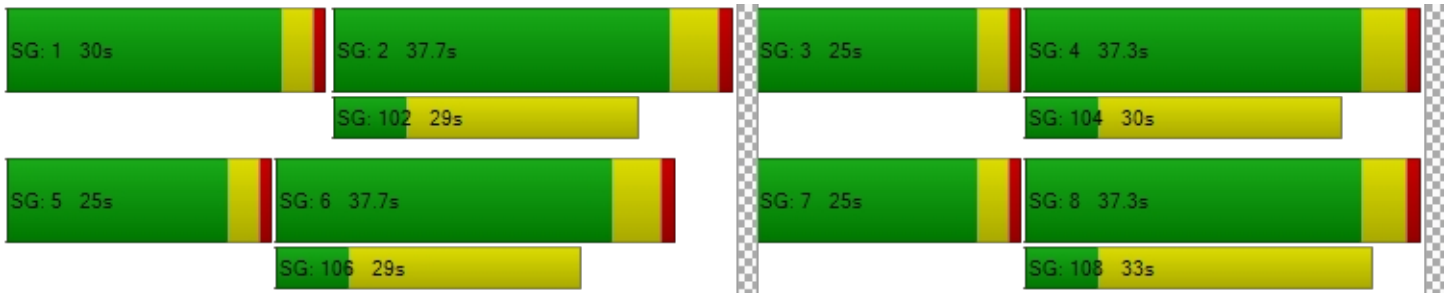
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 70.49 | 284.26 | 56.30 | 10.96 | 379.64 | 77.72 | 174.28 | 161.26 | 111.18 | 48.66 | 55.18 | 3.51 |
| Stops [stops/h] | 99.08 | 305.13 | 55.33 | 8.62 | 235.33 | 46.31 | 125.31 | 115.27 | 78.21 | 64.43 | 74.72 | 4.42 |
| Fuel consumption [US gal/h] | 4.51 | 15.96 | 3.04 | 0.56 | 17.77 | 3.59 | 8.58 | 7.91 | 5.44 | 2.87 | 3.27 | 0.20 |
| CO [g/h] | 315.22 | 1115.28 | 212.72 | 38.80 | 1242.41 | 250.82 | 599.85 | 553.14 | 380.01 | 200.61 | 228.58 | 14.05 |
| NOx [g/h] | 61.33 | 216.99 | 41.39 | 7.55 | 241.73 | 48.80 | 116.71 | 107.62 | 73.94 | 39.03 | 44.47 | 2.73 |
| VOC [g/h] | 73.06 | 258.48 | 49.30 | 8.99 | 287.94 | 58.13 | 139.02 | 128.20 | 88.07 | 46.49 | 52.98 | 3.26 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.29 | 15.29 | 15.29 | 15.29 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.822 | 2.764 | 2.290 | 2.284 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1276 | 1276 | 1276 | 1276 |
| d_b, Bicycle Delay [s] | 3.29 | 3.29 | 3.29 | 3.29 |
| l_b,int, Bicycle LOS Score for Intersection | 2.300 | 1.947 | 2.296 | 1.913 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 8.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 142 | 685 | 197 | 55 | 499 | 50 | 69 | 64 | 166 | 161 | 48 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 142 | 685 | 197 | 55 | 499 | 50 | 69 | 64 | 166 | 161 | 48 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 184 | 53 | 15 | 134 | 13 | 19 | 17 | 45 | 43 | 13 | 23 |
| Total Analysis Volume [veh/h] | 153 | 737 | 212 | 59 | 537 | 54 | 74 | 69 | 178 | 173 | 52 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 208 | | | 388 | | | 787 | | | 971 | | |
| Exiting Flow Rate [veh/h] | 908 | | | 911 | | | 261 | | | 350 | | |
| Demand Flow Rate [veh/h] | 142 | 685 | 197 | 55 | 499 | 50 | 69 | 64 | 166 | 161 | 48 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 153 | 737 | 212 | 59 | 537 | 54 | 74 | 69 | 178 | 173 | 52 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.97 |
| Entry Flow Rate [veh/h] | 521 | 591 | 311 | 350 | 147 | 182 | 176 | 154 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1176 | 1176 | 946 | 1022 | 655 | 728 | 553 | 623 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1168 | 1162 | 929 | 1007 | 637 | 713 | 530 | 602 |
| X, volume / capacity | 0.44 | 0.50 | 0.33 | 0.34 | 0.22 | 0.25 | 0.32 | 0.25 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh] | 2.33 | 2.92 | 1.44 | 1.53 | 0.86 | 0.98 | 1.35 | 0.97 |
| 95th-Percentile Queue Length [ft] | 58.16 | 72.94 | 36.10 | 38.30 | 21.43 | 24.59 | 33.81 | 24.26 |
| Approach Delay [s/veh] | 8.25 | | 7.26 | | 8.17 | | 10.41 | |
| Approach LOS | A | | A | | A | | B | |
| Intersection Delay [s/veh] | 8.26 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.381 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 921 | 878 | 0 | 541 | 250 | 0 | 0 | 0 | 51 | 0 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 921 | 878 | 0 | 541 | 250 | 0 | 0 | 0 | 51 | 0 | 30 |
| Peak Hour Factor | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 1.0000 | 1.0000 | 0.8900 | 1.0000 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 259 | 247 | 0 | 152 | 70 | 0 | 0 | 0 | 14 | 0 | 8 |
| Total Analysis Volume [veh/h] | 0 | 1035 | 987 | 0 | 608 | 281 | 0 | 0 | 0 | 57 | 0 | 34 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 37 | 37 | 37 | | 37 | 37 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 20 | 20 | 20 | | 5 | 5 |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.53 | | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.29 | 0.17 | 0.18 | | 0.03 | 0.02 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 1900 | 1894 | 848 | | 238 | 216 |
| d1, Uniform Delay [s] | 5.87 | 5.03 | 5.06 | | 14.57 | 14.41 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.46 | 0.18 | 0.42 | | 1.10 | 0.72 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.54 | 0.32 | 0.33 | | 0.24 | 0.16 |
| d, Delay for Lane Group [s/veh] | 6.32 | 5.21 | 5.49 | | 15.67 | 15.13 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.09 | 0.54 | 0.56 | | 0.37 | 0.22 |
| 50th-Percentile Queue Length [ft/ln] | 27.36 | 13.46 | 13.91 | | 9.18 | 5.42 |
| 95th-Percentile Queue Length [veh/ln] | 1.97 | 0.97 | 1.00 | | 0.66 | 0.39 |
| 95th-Percentile Queue Length [ft/ln] | 49.25 | 24.22 | 25.03 | | 16.52 | 9.75 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.32 | 0.00 | 0.00 | 5.21 | 5.49 | 0.00 | 0.00 | 0.00 | 15.67 | 0.00 | 15.13 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.42 | | | 5.30 | | | 0.00 | | | 15.47 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.79 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.381 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 118.40 | 59.98 | 27.72 | | 4.03 | 2.41 |
| Stops [stops/h] | 210.57 | 103.58 | 53.52 | | 35.31 | 20.85 |
| Fuel consumption [US gal/h] | 8.01 | 3.99 | 1.93 | | 0.97 | 0.57 |
| CO [g/h] | 559.76 | 278.81 | 134.87 | | 67.98 | 40.02 |
| NOx [g/h] | 108.91 | 54.25 | 26.24 | | 13.23 | 7.79 |
| VOC [g/h] | 129.73 | 64.62 | 31.26 | | 15.76 | 9.27 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.74 | 15.74 | 9.33 | 9.33 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.765 | 2.840 | 1.799 | 1.941 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1871 | 1871 | 0 | 1069 |
| d_b, Bicycle Delay [s] | 0.08 | 0.08 | 18.71 | 4.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.413 | 2.293 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 152.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.241 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1475 | 71 | 24 | 590 | 0 | 296 | 0 | 955 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1475 | 71 | 24 | 590 | 0 | 296 | 0 | 955 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 410 | 20 | 7 | 164 | 0 | 82 | 0 | 265 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1639 | 79 | 27 | 656 | 0 | 329 | 0 | 1061 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 3 | 54 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.51 | 0.38 | 0.38 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.45 | 0.46 | 0.01 | 0.18 | 0.18 | 0.66 | |
| s, saturation flow rate [veh/h] | 1892 | 1862 | 1810 | 3595 | 1801 | 1607 | |
| c, Capacity [veh/h] | 799 | 786 | 58 | 1824 | 676 | 603 | |
| d1, Uniform Delay [s] | 30.80 | 30.80 | 50.71 | 15.81 | 25.46 | 33.30 | |
| k, delay calibration | 0.48 | 0.49 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 53.54 | 60.19 | 2.17 | 0.21 | 1.16 | 348.44 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.08 | 1.09 | 0.47 | 0.36 | 0.49 | 1.76 | |
| d, Delay for Lane Group [s/veh] | 84.34 | 91.00 | 52.88 | 16.03 | 26.62 | 381.75 | |
| Lane Group LOS | F | F | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 30.59 | 31.55 | 0.72 | 4.47 | 6.04 | 72.34 | |
| 50th-Percentile Queue Length [ft/ln] | 764.71 | 788.77 | 18.07 | 111.87 | 151.04 | 1808.45 | |
| 95th-Percentile Queue Length [veh/ln] | 41.83 | 43.48 | 1.30 | 7.94 | 10.07 | 113.91 | |
| 95th-Percentile Queue Length [ft/ln] | 1045.81 | 1087.01 | 32.53 | 198.60 | 251.82 | 2847.77 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 87.51 | 91.00 | 52.88 | 16.03 | 0.00 | 26.62 | 0.00 | 381.75 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | F | F | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 87.67 | | | 17.48 | | | 297.69 | | | 0.00 | | |
| Approach LOS | F | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 152.03 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.241 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 69.58 | 69.58 | 3.09 | 75.04 | 25.73 | 82.97 | |
| Stops [stops/h] | 1033.45 | 1065.96 | 24.42 | 302.37 | 204.12 | 2443.98 | |
| Fuel consumption [US gal/h] | 29.98 | 31.54 | 0.70 | 8.47 | 6.43 | 130.58 | |
| CO [g/h] | 2095.31 | 2204.87 | 48.93 | 592.15 | 449.76 | 9127.35 | |
| NOx [g/h] | 407.67 | 428.99 | 9.52 | 115.21 | 87.51 | 1775.85 | |
| VOC [g/h] | 485.61 | 511.00 | 11.34 | 137.24 | 104.24 | 2115.35 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 50.03 | 50.03 | 42.84 | 42.84 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.401 | 3.113 | 2.965 | 1.775 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 845 | 657 | 751 | 0 |
| d_b, Bicycle Delay [s] | 17.78 | 24.03 | 20.79 | 53.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.977 | 2.123 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.077 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 32 | 0 | 12 | 0 | 0 | 0 | 0 | 245 | 31 | 13 | 220 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 32 | 0 | 12 | 0 | 0 | 0 | 0 | 245 | 31 | 13 | 220 | 0 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 71 | 9 | 4 | 64 | 0 |
| Total Analysis Volume [veh/h] | 37 | 0 | 14 | 0 | 0 | 0 | 0 | 285 | 36 | 15 | 256 | 0 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.08 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.96 | 14.10 | 9.65 | 12.19 | 13.85 | 8.98 | 7.73 | 0.00 | 0.00 | 7.92 | 0.00 | 0.00 |
| Movement LOS | B | B | A | B | B | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.26 | 6.26 | 6.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.91 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.05 | | | 11.67 | | | 0.00 | | | 0.44 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 1.14 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 9.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.386 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 2 | 2 | 0 | 0 | 6 | 153 | 259 | 9 | 4 | 1 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 0 | 0 | 6 | 153 | 259 | 9 | 4 | 1 | 2 | 0 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 0 | 0 | 2 | 43 | 74 | 3 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 2 | 2 | 0 | 0 | 7 | 174 | 294 | 10 | 5 | 1 | 2 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 3 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 727 | 881 | 800 | 762 |
| Degree of Utilization, x | 0.01 | 0.21 | 0.39 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.02 | 0.77 | 1.83 | 0.01 |
| 95th-Percentile Queue Length [ft] | 0.42 | 19.24 | 45.80 | 0.30 |
| Approach Delay [s/veh] | 7.98 | 8.14 | 10.30 | 7.75 |
| Approach LOS | A | A | B | A |
| Intersection Delay [s/veh] | 9.48 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.278 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 76 | 6 | 0 | 137 | 86 | 6 | 199 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 76 | 6 | 0 | 137 | 86 | 6 | 199 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 2 | 0 | 43 | 27 | 2 | 63 |
| Total Analysis Volume [veh/h] | 96 | 8 | 0 | 173 | 109 | 8 | 252 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 6 | 0 | 9 | 9 | 1 | 10 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.00 | 0.33 | 0.33 | 0.02 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.00 | 0.00 | 0.05 | 0.07 | 0.00 | 0.13 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 1880 |
| c, Capacity [veh/h] | 384 | 343 | 1 | 1207 | 533 | 35 | 662 |
| d1, Uniform Delay [s] | 9.04 | 8.61 | 0.00 | 6.44 | 6.58 | 13.34 | 6.69 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.13 | 0.01 | 0.00 | 0.07 | 0.26 | 1.23 | 0.50 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.25 | 0.02 | 0.00 | 0.14 | 0.20 | 0.23 | 0.38 |
| d, Delay for Lane Group [s/veh] | 9.17 | 8.62 | 0.00 | 6.51 | 6.84 | 14.56 | 7.18 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.33 | 0.03 | 0.00 | 0.13 | 0.19 | 0.05 | 0.69 |
| 50th-Percentile Queue Length [ft/ln] | 8.27 | 0.65 | 0.00 | 3.23 | 4.72 | 1.22 | 17.25 |
| 95th-Percentile Queue Length [veh/ln] | 0.60 | 0.05 | 0.00 | 0.23 | 0.34 | 0.09 | 1.24 |
| 95th-Percentile Queue Length [ft/ln] | 14.88 | 1.18 | 0.00 | 5.82 | 8.49 | 2.20 | 31.05 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.17 | 8.62 | 0.00 | 6.51 | 6.84 | 14.56 | 7.18 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.13 | | 6.64 | | | 7.41 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 7.35 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.278 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 71.85 | 5.99 | 0.00 | 86.56 | 54.54 | 10.39 | 327.14 |
| Stops [stops/h] | 43.39 | 3.43 | 0.00 | 33.94 | 24.76 | 6.41 | 90.55 |
| Fuel consumption [US gal/h] | 3.38 | 0.28 | 0.00 | 3.65 | 2.36 | 0.49 | 14.34 |
| CO [g/h] | 236.02 | 19.53 | 0.00 | 255.05 | 164.83 | 34.02 | 1002.09 |
| NOx [g/h] | 45.92 | 3.80 | 0.00 | 49.62 | 32.07 | 6.62 | 194.97 |
| VOC [g/h] | 54.70 | 4.53 | 0.00 | 59.11 | 38.20 | 7.88 | 232.24 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.92 | 10.27 | 10.27 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.933 | 2.455 | 2.189 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1604 | 2333 | 2333 |
| d_b, Bicycle Delay [s] | 0.54 | 0.38 | 0.38 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.792 | 1.989 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 16.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.708 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 247 | 8 | 11 | 30 | 34 | 471 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 247 | 8 | 11 | 30 | 34 | 471 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 66 | 2 | 3 | 8 | 9 | 125 |
| Total Analysis Volume [veh/h] | 263 | 9 | 12 | 32 | 36 | 501 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 559 | 687 | 548 | 583 | 759 |
| Degree of Utilization, x | 0.47 | 0.01 | 0.02 | 0.05 | 0.71 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 2.50 | 0.04 | 0.07 | 0.17 | 5.98 |
| 95th-Percentile Queue Length [ft] | 62.55 | 1.00 | 1.68 | 4.34 | 149.56 |
| Approach Delay [s/veh] | 14.53 | | 9.28 | | 18.40 |
| Approach LOS | B | | A | | C |
| Intersection Delay [s/veh] | 16.69 | | | | |
| Intersection LOS | C | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.453 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 44 | 53 | 26 | 2 | 29 | 225 | 424 | 429 | 87 | 15 | 271 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 44 | 53 | 26 | 2 | 29 | 225 | 424 | 429 | 87 | 15 | 271 | 5 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 14 | 7 | 1 | 8 | 60 | 113 | 114 | 23 | 4 | 72 | 1 |
| Total Analysis Volume [veh/h] | 47 | 56 | 28 | 2 | 31 | 239 | 451 | 456 | 93 | 16 | 288 | 5 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 6 | 24 | 24 | 0 | 18 | 18 | 12 | 21 | 21 | 3 | 12 | 12 |
| g / C, Green / Cycle | 0.08 | 0.30 | 0.30 | 0.01 | 0.23 | 0.23 | 0.16 | 0.27 | 0.27 | 0.04 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.02 | 0.02 | 0.00 | 0.02 | 0.15 | 0.13 | 0.13 | 0.06 | 0.01 | 0.08 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 149 | 1045 | 492 | 11 | 416 | 366 | 556 | 971 | 428 | 69 | 542 | 246 |
| d1, Uniform Delay [s] | 34.06 | 19.38 | 19.40 | 38.99 | 23.90 | 27.61 | 32.05 | 23.95 | 22.20 | 36.77 | 30.82 | 28.42 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.31 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.19 | 0.06 | 0.13 | 8.24 | 0.22 | 5.64 | 2.92 | 2.26 | 1.61 | 1.67 | 5.10 | 0.21 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.05 | 0.06 | 0.19 | 0.07 | 0.65 | 0.81 | 0.47 | 0.22 | 0.23 | 0.53 | 0.02 |
| d, Delay for Lane Group [s/veh] | 35.26 | 19.44 | 19.53 | 47.24 | 24.12 | 33.25 | 34.97 | 26.21 | 23.81 | 38.45 | 35.92 | 28.63 |
| Lane Group LOS | D | B | B | D | C | C | C | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.88 | 0.36 | 0.37 | 0.06 | 0.47 | 4.50 | 4.24 | 3.71 | 1.48 | 0.32 | 2.84 | 0.09 |
| 50th-Percentile Queue Length [ft/ln] | 21.95 | 8.96 | 9.19 | 1.55 | 11.65 | 112.46 | 106.02 | 92.79 | 37.00 | 8.12 | 70.89 | 2.32 |
| 95th-Percentile Queue Length [veh/ln] | 1.58 | 0.64 | 0.66 | 0.11 | 0.84 | 7.98 | 7.62 | 6.68 | 2.66 | 0.58 | 5.10 | 0.17 |
| 95th-Percentile Queue Length [ft/ln] | 39.51 | 16.12 | 16.55 | 2.80 | 20.98 | 199.42 | 190.45 | 167.03 | 66.60 | 14.62 | 127.61 | 4.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.26 | 19.44 | 19.53 | 47.24 | 24.12 | 33.25 | 34.97 | 26.21 | 23.81 | 38.45 | 35.92 | 28.63 |
| Movement LOS | D | B | B | D | C | C | C | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 25.13 | | | 32.31 | | | 29.94 | | | 35.93 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 31.03 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.453 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.03 | 4.81 | 2.40 | 0.55 | 8.50 | 65.53 | 62.33 | 63.02 | 12.85 | 19.96 | 359.20 | 6.24 |
| Stops [stops/h] | 40.18 | 32.80 | 16.83 | 2.84 | 21.33 | 205.88 | 388.17 | 339.74 | 67.73 | 14.87 | 259.56 | 4.25 |
| Fuel consumption [US gal/h] | 0.73 | 0.60 | 0.30 | 0.06 | 0.62 | 5.45 | 7.92 | 6.90 | 1.35 | 1.03 | 18.33 | 0.31 |
| CO [g/h] | 50.69 | 41.98 | 21.19 | 4.02 | 43.34 | 381.12 | 553.60 | 482.53 | 94.64 | 71.92 | 1280.99 | 21.62 |
| NOx [g/h] | 9.86 | 8.17 | 4.12 | 0.78 | 8.43 | 74.15 | 107.71 | 93.88 | 18.41 | 13.99 | 249.23 | 4.21 |
| VOC [g/h] | 11.75 | 9.73 | 4.91 | 0.93 | 10.04 | 88.33 | 128.30 | 111.83 | 21.93 | 16.67 | 296.88 | 5.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.10 | 29.10 | 29.10 | 29.10 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.345 | 2.445 | 2.806 | 2.575 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 509 | 509 | 1017 | 1017 |
| d_b, Bicycle Delay [s] | 21.87 | 21.87 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.668 | 2.008 | 2.385 | 1.815 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.192 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 39 | 2 | 52 | 25 | 61 | 137 | 301 | 31 | 1 | 207 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 39 | 2 | 52 | 25 | 61 | 137 | 301 | 31 | 1 | 207 | 65 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 11 | 1 | 14 | 7 | 17 | 37 | 82 | 8 | 0 | 56 | 18 |
| Total Analysis Volume [veh/h] | 18 | 42 | 2 | 57 | 27 | 66 | 149 | 327 | 34 | 1 | 225 | 71 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 11 | 7 | 15 | 15 | 9 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.17 | 0.10 | 0.22 | 0.22 | 0.14 | 0.28 | 0.28 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.02 | 0.01 | 0.04 | 0.04 | 0.09 | 0.02 | 0.00 | 0.06 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1809 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 304 | 350 | 424 | 361 | 495 | 1011 | 456 | 7 | 528 | 429 |
| d1, Uniform Delay [s] | 30.92 | 23.77 | 27.62 | 20.50 | 21.07 | 25.83 | 18.98 | 17.62 | 33.28 | 25.87 | 24.83 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 0.74 | 0.08 | 0.36 | 1.38 | 0.13 | 0.39 | 0.15 | 3.76 | 1.17 | 0.39 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.14 | 0.16 | 0.06 | 0.18 | 0.30 | 0.32 | 0.07 | 0.15 | 0.43 | 0.17 |
| d, Delay for Lane Group [s/veh] | 31.45 | 24.51 | 27.70 | 20.86 | 22.45 | 25.96 | 19.37 | 17.76 | 37.04 | 27.03 | 25.22 |
| Lane Group LOS | C | C | C | C | C | C | B | B | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.28 | 0.63 | 0.38 | 0.33 | 0.87 | 1.02 | 1.93 | 0.38 | 0.02 | 1.44 | 0.43 |
| 50th-Percentile Queue Length [ft/ln] | 7.05 | 15.73 | 9.46 | 8.33 | 21.74 | 25.62 | 48.28 | 9.52 | 0.53 | 36.09 | 10.86 |
| 95th-Percentile Queue Length [veh/ln] | 0.51 | 1.13 | 0.68 | 0.60 | 1.57 | 1.84 | 3.48 | 0.69 | 0.04 | 2.60 | 0.78 |
| 95th-Percentile Queue Length [ft/ln] | 12.69 | 28.32 | 17.03 | 14.99 | 39.13 | 46.11 | 86.90 | 17.13 | 0.95 | 64.97 | 19.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.45 | 24.51 | 24.51 | 27.70 | 20.86 | 22.45 | 25.96 | 19.37 | 17.76 | 37.04 | 27.03 | 25.22 |
| Movement LOS | C | C | C | C | C | C | C | B | B | D | C | C |
| d_A, Approach Delay [s/veh] | 26.52 | | | 24.16 | | | 21.19 | | | 26.63 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.54 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.192 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.33 | 3.26 | 74.00 | 35.05 | 85.68 | 185.84 | 407.84 | 42.41 | 0.17 | 38.92 | 12.28 |
| Stops [stops/h] | 15.19 | 33.91 | 40.79 | 17.95 | 46.86 | 110.44 | 208.12 | 20.51 | 1.13 | 155.59 | 46.81 |
| Fuel consumption [US gal/h] | 0.25 | 0.54 | 3.43 | 1.56 | 3.89 | 9.05 | 19.23 | 1.98 | 0.04 | 6.66 | 2.02 |
| CO [g/h] | 17.75 | 37.82 | 239.44 | 109.32 | 271.92 | 632.42 | 1344.07 | 138.54 | 3.01 | 465.62 | 140.95 |
| NOx [g/h] | 3.45 | 7.36 | 46.59 | 21.27 | 52.91 | 123.05 | 261.51 | 26.95 | 0.59 | 90.59 | 27.42 |
| VOC [g/h] | 4.11 | 8.76 | 55.49 | 25.34 | 63.02 | 146.57 | 311.50 | 32.11 | 0.70 | 107.91 | 32.67 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.31 | 23.31 | 23.31 | 23.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.964 | 2.548 | 2.692 | 2.784 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 599 | 599 | 898 | 898 |
| d_b, Bicycle Delay [s] | 16.40 | 16.40 | 10.14 | 10.14 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.807 | 1.980 | 1.805 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 277 | 544 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 277 | 544 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 69 | 136 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 277 | 544 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Near Term AM MP1.pdf

Scenario 11 Near Term AM MP1
7/8/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.643 | 30.6 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Right | 0.633 | 34.6 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.605 | 30.0 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | EB Left | 0.026 | 52.8 | F |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | WB Thru | 1.699 | 185.7 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.893 | 53.8 | D |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.779 | 39.1 | D |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.704 | 33.0 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.768 | 35.0 | D |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.858 | 44.1 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.528 | 18.9 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Right | 0.997 | 35.3 | D |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 1.022 | 42.8 | E |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Thru | 1.646 | 191.0 | F |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 1.057 | 105.9 | F |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.651 | 35.8 | D |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 1.288 | 94.7 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 1.681 | 383.7 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.776 | 35.0 | C |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | WB Left | 0.095 | 25.0 | D |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.683 | 21.3 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 1.031 | 97.1 | F |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.868 | 35.1 | D |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.714 | 25.8 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.077 | 20.8 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.022 | 18.4 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.427 | 29.8 | D |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Thru | 0.888 | 68.9 | E |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.667 | 25.1 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | EB Right | | 14.5 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.647 | 8.2 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.023 | 93.5 | F |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.521 | 28.1 | D |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Right | 0.679 | 13.6 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.354 | 8.4 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | SB Left | 1.458 | 180.0 | F |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Right | 0.669 | 50.2 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.347 | 27.5 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.174 | 10.8 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.144 | 9.2 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.643 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 437 | 437 | 18 | 56 | 483 | 91 | 20 | 80 | 320 | 8 | 242 | 135 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 437 | 437 | 18 | 56 | 483 | 91 | 20 | 80 | 320 | 8 | 242 | 135 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 142 | 142 | 6 | 18 | 157 | 30 | 6 | 26 | 104 | 3 | 79 | 44 |
| Total Analysis Volume [veh/h] | 568 | 568 | 23 | 73 | 627 | 118 | 26 | 104 | 416 | 10 | 314 | 175 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 16 | 31 | 31 | 7 | 20 | 20 | 4 | 25 | 25 | 2 | 23 | 23 |
| g / C, Green / Cycle | 0.19 | 0.36 | 0.36 | 0.08 | 0.24 | 0.24 | 0.04 | 0.30 | 0.30 | 0.02 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.16 | 0.01 | 0.04 | 0.12 | 0.08 | 0.01 | 0.06 | 0.26 | 0.01 | 0.17 | 0.11 |
| s, saturation flow rate [veh/h] | 3475 | 3560 | 1615 | 1759 | 5065 | 1573 | 1810 | 1877 | 1603 | 1810 | 1894 | 1565 |
| c, Capacity [veh/h] | 656 | 1281 | 581 | 136 | 1200 | 373 | 79 | 562 | 480 | 36 | 509 | 420 |
| d1, Uniform Delay [s] | 33.61 | 20.83 | 17.76 | 37.93 | 28.39 | 26.89 | 39.65 | 22.21 | 28.32 | 41.25 | 27.38 | 25.71 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.33 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.40 | 0.78 | 0.09 | 1.22 | 1.15 | 1.57 | 0.90 | 0.37 | 13.29 | 1.51 | 2.09 | 1.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.87 | 0.44 | 0.04 | 0.54 | 0.52 | 0.32 | 0.33 | 0.19 | 0.87 | 0.28 | 0.62 | 0.42 |
| d, Delay for Lane Group [s/veh] | 35.01 | 21.61 | 17.85 | 39.14 | 29.53 | 28.45 | 40.55 | 22.58 | 41.60 | 42.76 | 29.47 | 26.84 |
| Lane Group LOS | D | C | B | D | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.36 | 3.98 | 0.28 | 1.42 | 3.53 | 1.98 | 0.52 | 1.49 | 9.09 | 0.22 | 5.73 | 2.97 |
| 50th-Percentile Queue Length [ft/ln] | 134.07 | 99.53 | 6.99 | 35.51 | 88.29 | 49.57 | 13.08 | 37.31 | 227.19 | 5.49 | 143.18 | 74.37 |
| 95th-Percentile Queue Length [veh/ln] | 9.16 | 7.17 | 0.50 | 2.56 | 6.36 | 3.57 | 0.94 | 2.69 | 14.03 | 0.40 | 9.65 | 5.35 |
| 95th-Percentile Queue Length [ft/ln] | 229.01 | 179.15 | 12.59 | 63.92 | 158.92 | 89.22 | 23.54 | 67.16 | 350.78 | 9.88 | 241.31 | 133.87 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.01 | 21.61 | 17.85 | 39.14 | 29.53 | 28.45 | 40.55 | 22.58 | 41.60 | 42.76 | 29.47 | 26.84 |
| Movement LOS | D | C | B | D | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 28.10 | | | 30.24 | | | 37.93 | | | 28.81 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.57 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.643 | | | | | | | | | | | |

**Emissions**

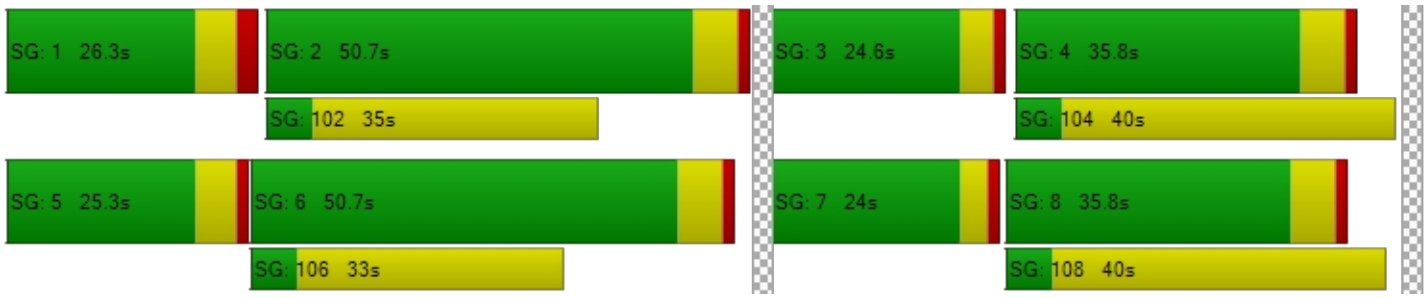
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 286.73 | 286.73 | 11.61 | 7.19 | 61.76 | 11.62 | 2.59 | 10.36 | 41.44 | 10.38 | 325.79 | 181.57 |
| Stops [stops/h] | 453.07 | 336.35 | 11.82 | 60.00 | 447.56 | 83.75 | 22.09 | 63.04 | 383.88 | 9.27 | 241.94 | 125.67 |
| Fuel consumption [US gal/h] | 20.60 | 17.26 | 0.65 | 1.74 | 12.71 | 2.36 | 0.58 | 1.62 | 9.72 | 0.57 | 16.63 | 9.12 |
| CO [g/h] | 1440.19 | 1206.71 | 45.70 | 121.86 | 888.20 | 164.84 | 40.40 | 113.01 | 679.09 | 39.52 | 1162.53 | 637.83 |
| NOx [g/h] | 280.21 | 234.78 | 8.89 | 23.71 | 172.81 | 32.07 | 7.86 | 21.99 | 132.13 | 7.69 | 226.19 | 124.10 |
| VOC [g/h] | 333.78 | 279.67 | 10.59 | 28.24 | 205.85 | 38.20 | 9.36 | 26.19 | 157.39 | 9.16 | 269.43 | 147.82 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.09 | 34.09 | 34.09 | 34.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.174 | 2.961 | 2.751 | 2.300 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1056 | 1056 | 704 | 704 |
| d_b, Bicycle Delay [s] | 9.49 | 9.49 | 17.89 | 17.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.516 | 2.010 | 2.461 | 2.383 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.633 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 130 | 660 | 28 | 76 | 699 | 63 | 77 | 134 | 245 | 215 | 186 | 203 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 130 | 660 | 28 | 76 | 699 | 63 | 77 | 134 | 245 | 215 | 186 | 203 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 185 | 8 | 21 | 196 | 18 | 22 | 38 | 69 | 60 | 52 | 57 |
| Total Analysis Volume [veh/h] | 146 | 742 | 31 | 85 | 785 | 71 | 87 | 151 | 275 | 242 | 209 | 228 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 9 | 27 | 27 | 7 | 25 | 25 | 7 | 20 | 20 | 14 | 26 |
| g / C, Green / Cycle | 0.10 | 0.30 | 0.30 | 0.08 | 0.27 | 0.27 | 0.08 | 0.22 | 0.22 | 0.16 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.14 | 0.02 | 0.05 | 0.15 | 0.04 | 0.05 | 0.08 | 0.17 | 0.14 | 0.25 |
| s, saturation flow rate [veh/h] | 1747 | 5127 | 1567 | 1711 | 5090 | 1615 | 1772 | 1888 | 1577 | 1758 | 1722 |
| c, Capacity [veh/h] | 180 | 1532 | 468 | 133 | 1392 | 442 | 139 | 418 | 349 | 280 | 490 |
| d1, Uniform Delay [s] | 39.97 | 26.18 | 22.84 | 40.76 | 28.43 | 25.15 | 40.69 | 30.00 | 33.43 | 37.36 | 31.23 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.09 | 0.33 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.28 | 0.77 | 0.19 | 1.89 | 1.17 | 0.55 | 1.73 | 0.63 | 4.73 | 6.76 | 15.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.48 | 0.07 | 0.64 | 0.56 | 0.16 | 0.63 | 0.36 | 0.79 | 0.87 | 0.89 |
| d, Delay for Lane Group [s/veh] | 43.25 | 26.95 | 23.03 | 42.65 | 29.60 | 25.70 | 42.42 | 30.63 | 38.15 | 44.11 | 46.39 |
| Lane Group LOS | D | C | C | D | C | C | D | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.17 | 4.14 | 0.47 | 1.81 | 4.66 | 1.15 | 1.89 | 2.75 | 5.89 | 5.68 | 10.96 |
| 50th-Percentile Queue Length [ft/ln] | 79.23 | 103.40 | 11.63 | 45.35 | 116.38 | 28.71 | 47.28 | 68.80 | 147.37 | 141.96 | 273.97 |
| 95th-Percentile Queue Length [veh/ln] | 5.70 | 7.44 | 0.84 | 3.27 | 8.19 | 2.07 | 3.40 | 4.95 | 9.88 | 9.59 | 16.39 |
| 95th-Percentile Queue Length [ft/ln] | 142.62 | 186.12 | 20.94 | 81.63 | 204.84 | 51.68 | 85.10 | 123.84 | 246.92 | 239.65 | 409.70 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.25 | 26.95 | 23.03 | 42.65 | 29.60 | 25.70 | 42.42 | 30.63 | 38.15 | 44.11 | 46.39 | 46.39 |
| Movement LOS | D | C | C | D | C | C | D | C | D | D | D | D |
| d_A, Approach Delay [s/veh] | 29.41 | | | 30.48 | | | 36.66 | | | 45.58 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.56 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.633 | | | | | | | | | | | |

**Emissions**

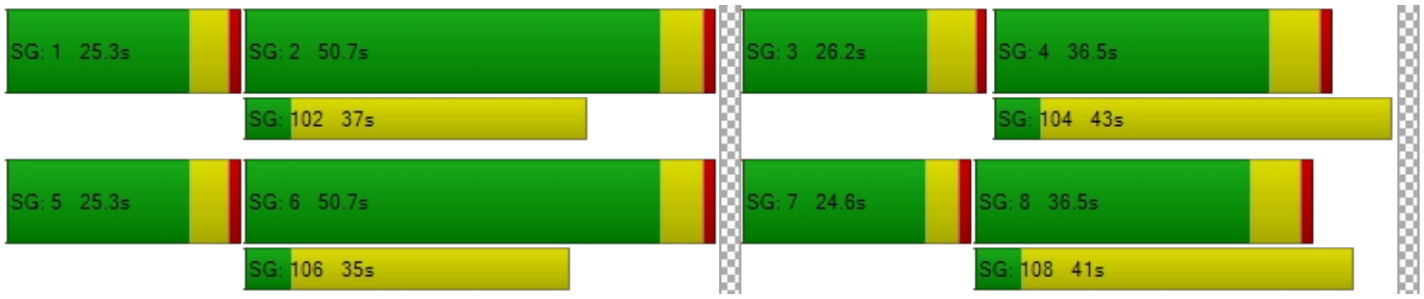
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 147.91 | 751.70 | 31.41 | 42.91 | 396.27 | 35.84 | 9.47 | 16.43 | 29.92 | 251.06 | 453.36 |
| Stops [stops/h] | 125.48 | 491.26 | 18.42 | 71.82 | 552.90 | 45.47 | 74.87 | 108.95 | 233.39 | 224.81 | 433.88 |
| Fuel consumption [US gal/h] | 8.16 | 36.78 | 1.48 | 3.28 | 26.49 | 2.27 | 1.83 | 2.60 | 5.50 | 13.75 | 25.19 |
| CO [g/h] | 570.67 | 2571.18 | 103.44 | 229.07 | 1851.35 | 158.64 | 127.60 | 181.73 | 384.41 | 961.10 | 1760.44 |
| NOx [g/h] | 111.03 | 500.26 | 20.12 | 44.57 | 360.21 | 30.87 | 24.83 | 35.36 | 74.79 | 186.99 | 342.52 |
| VOC [g/h] | 132.26 | 595.90 | 23.97 | 53.09 | 429.07 | 36.77 | 29.57 | 42.12 | 89.09 | 222.74 | 408.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.91 | 36.91 | 36.91 | 36.91 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.179 | 3.133 | 2.438 | 2.250 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 990 | 990 | 660 | 660 |
| d_b, Bicycle Delay [s] | 11.60 | 11.60 | 20.41 | 20.41 |
| l_b,int, Bicycle LOS Score for Intersection | 2.065 | 2.077 | 2.406 | 2.680 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.605 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 113 | 748 | 197 | 91 | 1298 | 231 | 96 | 238 | 158 | 299 | 235 | 83 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 113 | 748 | 197 | 91 | 1298 | 231 | 96 | 238 | 158 | 299 | 235 | 83 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 208 | 55 | 25 | 361 | 64 | 27 | 66 | 44 | 83 | 65 | 23 |
| Total Analysis Volume [veh/h] | 126 | 831 | 219 | 101 | 1442 | 257 | 107 | 264 | 176 | 332 | 261 | 92 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 35 | 35 | 7 | 34 | 34 | 8 | 15 | 15 | 11 | 20 | 20 |
| g / C, Green / Cycle | 0.08 | 0.37 | 0.37 | 0.08 | 0.37 | 0.37 | 0.08 | 0.16 | 0.16 | 0.12 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.16 | 0.14 | 0.03 | 0.28 | 0.17 | 0.03 | 0.07 | 0.11 | 0.09 | 0.07 | 0.06 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1542 | 3467 | 3526 | 1561 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 287 | 1911 | 602 | 274 | 1884 | 571 | 281 | 561 | 248 | 421 | 752 | 336 |
| d1, Uniform Delay [s] | 40.68 | 21.88 | 21.21 | 40.65 | 25.81 | 22.14 | 40.62 | 35.63 | 37.07 | 39.88 | 31.33 | 30.82 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 0.51 | 1.20 | 0.31 | 2.15 | 1.80 | 0.32 | 1.45 | 8.46 | 1.26 | 0.38 | 0.60 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.44 | 0.43 | 0.36 | 0.37 | 0.77 | 0.45 | 0.38 | 0.47 | 0.71 | 0.79 | 0.35 | 0.27 |
| d, Delay for Lane Group [s/veh] | 41.07 | 22.39 | 22.41 | 40.96 | 27.96 | 23.95 | 40.94 | 37.08 | 45.52 | 41.15 | 31.70 | 31.42 |
| Lane Group LOS | D | C | C | D | C | C | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 4.19 | 3.34 | 1.05 | 8.75 | 4.13 | 1.11 | 2.67 | 4.14 | 3.55 | 2.38 | 1.68 |
| 50th-Percentile Queue Length [ft/ln] | 32.95 | 104.81 | 83.60 | 26.30 | 218.64 | 103.14 | 27.87 | 66.87 | 103.43 | 88.80 | 59.51 | 41.99 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 7.55 | 6.02 | 1.89 | 13.60 | 7.43 | 2.01 | 4.81 | 7.45 | 6.39 | 4.28 | 3.02 |
| 95th-Percentile Queue Length [ft/ln] | 59.31 | 188.65 | 150.48 | 47.35 | 339.89 | 185.66 | 50.16 | 120.37 | 186.17 | 159.85 | 107.12 | 75.58 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.07 | 22.39 | 22.41 | 40.96 | 27.96 | 23.95 | 40.94 | 37.08 | 45.52 | 41.15 | 31.70 | 31.42 |
| Movement LOS | D | C | C | D | C | C | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 24.39 | | | 28.11 | | | 40.55 | | | 36.24 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 30.01 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.605 | | | | | | | | | | | |

**Emissions**

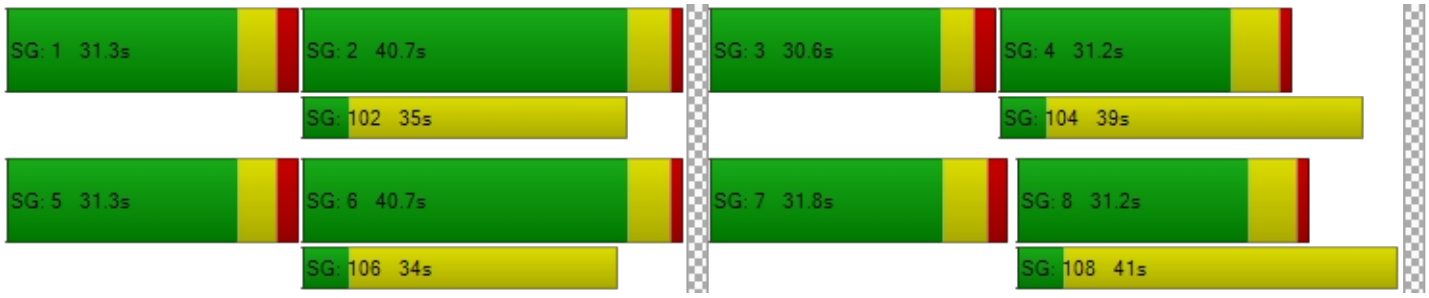
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 20.56 | 135.59 | 35.73 | 102.32 | 1460.85 | 260.36 | 13.98 | 34.50 | 23.00 | 343.98 | 270.41 | 95.32 |
| Stops [stops/h] | 101.95 | 486.47 | 129.35 | 81.39 | 1014.84 | 159.59 | 86.24 | 206.92 | 160.03 | 274.79 | 184.15 | 64.97 |
| Fuel consumption [US gal/h] | 3.31 | 15.79 | 4.18 | 5.52 | 72.70 | 12.42 | 2.68 | 6.32 | 4.86 | 18.52 | 13.57 | 4.78 |
| CO [g/h] | 231.13 | 1104.03 | 292.24 | 385.68 | 5081.95 | 868.24 | 187.57 | 442.00 | 339.50 | 1294.34 | 948.28 | 333.94 |
| NOx [g/h] | 44.97 | 214.80 | 56.86 | 75.04 | 988.76 | 168.93 | 36.49 | 86.00 | 66.05 | 251.83 | 184.50 | 64.97 |
| VOC [g/h] | 53.57 | 255.87 | 67.73 | 89.39 | 1177.79 | 201.22 | 43.47 | 102.44 | 78.68 | 299.97 | 219.77 | 77.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 7375.40 | 0.00 | 350.75 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.97 | 37.97 | 37.97 | 37.97 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.417 | 3.363 | 2.874 | 2.986 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 752 | 752 | 537 | 537 |
| d_b, Bicycle Delay [s] | 18.12 | 18.12 | 24.93 | 24.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.206 | 2.550 | 2.011 | 2.125 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 52.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.026 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 383 | 100 | 0 | 0 | 230 | 16 | 2 | 0 | 114 | 0 | 1 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 383 | 100 | 0 | 0 | 230 | 16 | 2 | 0 | 114 | 0 | 1 | 0 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 117 | 30 | 0 | 0 | 70 | 5 | 1 | 0 | 35 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 467 | 122 | 0 | 0 | 280 | 20 | 2 | 0 | 139 | 0 | 1 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.19 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.95 | 0.00 | 0.00 | 7.44 | 0.00 | 0.00 | 52.77 | 45.50 | 11.29 | 68.57 | 45.03 | 9.29 |
| Movement LOS | A | A | A | A | A | A | F | E | B | F | E | A |
| 95th-Percentile Queue Length [veh/ln] | 1.36 | 1.36 | 1.36 | 0.00 | 0.00 | 0.00 | 0.80 | 0.80 | 0.80 | 0.03 | 0.03 | 0.03 |
| 95th-Percentile Queue Length [ft/ln] | 33.98 | 33.98 | 33.98 | 0.00 | 0.00 | 0.00 | 19.99 | 19.99 | 19.99 | 0.83 | 0.83 | 0.83 |
| d_A, Approach Delay [s/veh] | 7.10 | | | 0.00 | | | 11.88 | | | 45.03 | | |
| Approach LOS | A | | | A | | | B | | | E | | |
| d_I, Intersection Delay [s/veh] | 5.72 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 185.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.699 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 258 | 185 | 20 | 169 | 169 | 7 | 4 | 145 | 62 | 54 | 362 | 305 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 258 | 185 | 20 | 169 | 169 | 7 | 4 | 145 | 62 | 54 | 362 | 305 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 49 | 5 | 45 | 45 | 2 | 1 | 39 | 16 | 14 | 96 | 81 |
| Total Analysis Volume [veh/h] | 274 | 197 | 21 | 180 | 180 | 7 | 4 | 154 | 66 | 57 | 385 | 324 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 492 | 418 | 395 | 766 |
| Degree of Utilization, x | 1.14 | 0.88 | 0.57 | 1.70 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 17.90 | 8.94 | 3.38 | 45.68 |
| 95th-Percentile Queue Length [ft] | 447.47 | 223.57 | 84.61 | 1142.00 |
| Approach Delay [s/veh] | 115.75 | 48.39 | 23.35 | 343.85 |
| Approach LOS | F | E | C | F |
| Intersection Delay [s/veh] | 185.68 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 53.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.893 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 118 | 247 | 95 | 168 | 248 | 108 | 33 | 488 | 622 | 31 | 262 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 118 | 247 | 95 | 168 | 248 | 108 | 33 | 488 | 622 | 31 | 262 | 69 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 73 | 28 | 49 | 73 | 32 | 10 | 144 | 183 | 9 | 77 | 20 |
| Total Analysis Volume [veh/h] | 139 | 291 | 112 | 198 | 292 | 127 | 39 | 574 | 732 | 36 | 308 | 81 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 26 | 26 | 14 | 29 | 7 | 42 | 42 | 7 | 42 | 42 |
| g / C, Green / Cycle | 0.10 | 0.25 | 0.25 | 0.13 | 0.27 | 0.07 | 0.40 | 0.40 | 0.07 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.16 | 0.07 | 0.11 | 0.24 | 0.02 | 0.16 | 0.46 | 0.02 | 0.16 | 0.05 |
| s, saturation flow rate [veh/h] | 1774 | 1855 | 1517 | 1794 | 1780 | 1711 | 3512 | 1601 | 1810 | 1879 | 1568 |
| c, Capacity [veh/h] | 183 | 457 | 374 | 235 | 488 | 123 | 1408 | 642 | 124 | 748 | 624 |
| d1, Uniform Delay [s] | 45.69 | 35.26 | 32.10 | 44.46 | 36.08 | 46.18 | 22.47 | 31.33 | 46.35 | 22.71 | 20.03 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.18 | 0.11 | 0.11 | 0.50 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.27 | 1.47 | 0.44 | 7.95 | 7.09 | 1.47 | 0.19 | 81.01 | 1.27 | 0.36 | 0.09 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.64 | 0.30 | 0.84 | 0.86 | 0.32 | 0.41 | 1.14 | 0.29 | 0.41 | 0.13 |
| d, Delay for Lane Group [s/veh] | 51.96 | 36.73 | 32.54 | 52.41 | 43.17 | 47.65 | 22.66 | 112.33 | 47.62 | 23.08 | 20.12 |
| Lane Group LOS | D | D | C | D | D | D | C | F | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.71 | 6.52 | 2.26 | 5.35 | 10.57 | 0.98 | 4.71 | 29.00 | 0.90 | 5.12 | 1.19 |
| 50th-Percentile Queue Length [ft/ln] | 92.82 | 162.91 | 56.59 | 133.74 | 264.35 | 24.39 | 117.65 | 724.94 | 22.48 | 128.05 | 29.65 |
| 95th-Percentile Queue Length [veh/ln] | 6.68 | 10.70 | 4.07 | 9.14 | 15.91 | 1.76 | 8.26 | 41.38 | 1.62 | 8.83 | 2.14 |
| 95th-Percentile Queue Length [ft/ln] | 167.07 | 267.57 | 101.86 | 228.57 | 397.68 | 43.91 | 206.60 | 1034.51 | 40.46 | 220.84 | 53.38 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.96 | 36.73 | 32.54 | 52.41 | 43.17 | 43.17 | 47.65 | 22.66 | 112.33 | 47.62 | 23.08 | 20.12 |
| Movement LOS | D | D | C | D | D | D | D | C | F | D | C | C |
| d_A, Approach Delay [s/veh] | 39.77 | | | 46.13 | | | 72.19 | | | 24.59 | | |
| Approach LOS | D | | | D | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 53.80 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.893 | | | | | | | | | | | |

**Emissions**

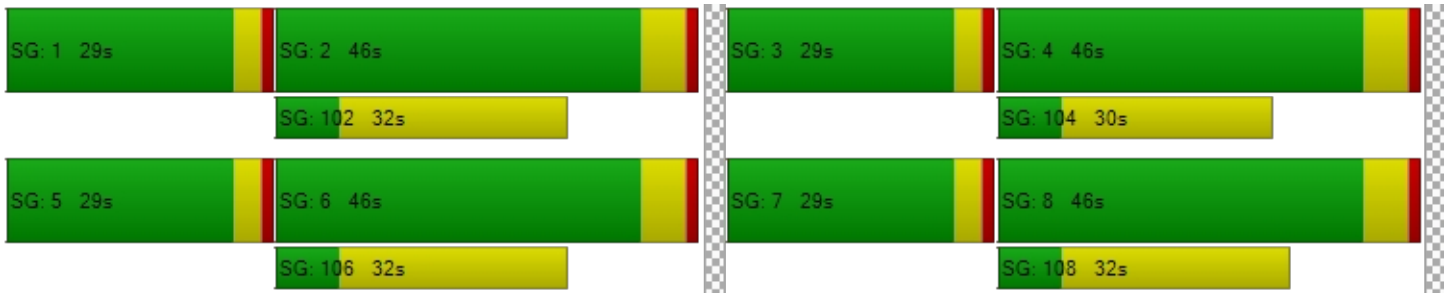
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 16.64 | 34.84 | 13.41 | 198.93 | 420.97 | 40.41 | 594.70 | 758.40 | 18.03 | 154.24 | 40.56 |
| Stops [stops/h] | 127.72 | 224.17 | 77.87 | 184.03 | 363.77 | 33.57 | 323.79 | 997.56 | 30.93 | 176.20 | 40.81 |
| Fuel consumption [US gal/h] | 3.63 | 6.16 | 2.17 | 11.22 | 22.63 | 2.25 | 27.53 | 57.44 | 1.43 | 9.32 | 2.32 |
| CO [g/h] | 253.60 | 430.34 | 151.65 | 784.19 | 1582.08 | 157.04 | 1924.54 | 4015.13 | 99.78 | 651.22 | 161.91 |
| NOx [g/h] | 49.34 | 83.73 | 29.51 | 152.58 | 307.82 | 30.55 | 374.44 | 781.20 | 19.41 | 126.70 | 31.50 |
| VOC [g/h] | 58.77 | 99.74 | 35.15 | 181.74 | 366.66 | 36.39 | 446.03 | 930.55 | 23.12 | 150.93 | 37.53 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 7794.10 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.90 | 41.90 | 41.90 | 41.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.724 | 2.448 | 2.980 | 2.732 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 764 | 764 | 764 | 764 |
| d_b, Bicycle Delay [s] | 19.97 | 19.97 | 19.97 | 19.97 |
| l_b,int, Bicycle LOS Score for Intersection | 2.454 | 2.578 | 2.669 | 2.261 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 233 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 233 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 58 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 233 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.779 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 177 | 59 | 88 | 19 | 71 | 67 | 32 | 459 | 527 | 341 | 129 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 177 | 59 | 88 | 19 | 71 | 67 | 32 | 459 | 527 | 341 | 129 | 48 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 53 | 18 | 27 | 6 | 21 | 20 | 10 | 138 | 159 | 103 | 39 | 14 |
| Total Analysis Volume [veh/h] | 213 | 71 | 106 | 23 | 86 | 81 | 39 | 553 | 635 | 411 | 155 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 16 | 22 | 22 | 6 | 13 | 13 | 8 | 42 | 42 | 16 | 50 | 50 |
| g / C, Green / Cycle | 0.15 | 0.21 | 0.21 | 0.06 | 0.12 | 0.12 | 0.08 | 0.41 | 0.41 | 0.16 | 0.48 | 0.48 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.04 | 0.07 | 0.01 | 0.02 | 0.05 | 0.01 | 0.15 | 0.40 | 0.12 | 0.04 | 0.04 |
| s, saturation flow rate [veh/h] | 1788 | 1705 | 1449 | 3514 | 3618 | 1577 | 3428 | 3618 | 1587 | 3514 | 3509 | 1613 |
| c, Capacity [veh/h] | 275 | 364 | 310 | 223 | 448 | 195 | 282 | 1485 | 651 | 548 | 1699 | 781 |
| d1, Uniform Delay [s] | 41.63 | 33.01 | 34.13 | 45.17 | 40.24 | 41.39 | 43.61 | 21.00 | 29.66 | 41.29 | 14.25 | 14.13 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.48 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.79 | 0.58 | 1.46 | 0.07 | 1.05 | 7.04 | 0.08 | 0.23 | 29.08 | 0.79 | 0.03 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.19 | 0.34 | 0.10 | 0.19 | 0.41 | 0.14 | 0.37 | 0.98 | 0.75 | 0.09 | 0.07 |
| d, Delay for Lane Group [s/veh] | 43.42 | 33.58 | 35.59 | 45.24 | 41.29 | 48.43 | 43.69 | 21.23 | 58.74 | 42.08 | 14.28 | 14.18 |
| Lane Group LOS | D | C | D | D | D | D | D | C | E | D | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.08 | 1.45 | 2.27 | 0.28 | 1.03 | 2.26 | 0.44 | 4.26 | 18.92 | 4.96 | 0.96 | 0.72 |
| 50th-Percentile Queue Length [ft/ln] | 127.11 | 36.18 | 56.74 | 6.91 | 25.83 | 56.43 | 11.05 | 106.49 | 473.06 | 124.11 | 23.97 | 17.96 |
| 95th-Percentile Queue Length [veh/ln] | 8.78 | 2.61 | 4.09 | 0.50 | 1.86 | 4.06 | 0.80 | 7.64 | 26.06 | 8.62 | 1.73 | 1.29 |
| 95th-Percentile Queue Length [ft/ln] | 219.56 | 65.13 | 102.13 | 12.44 | 46.50 | 101.58 | 19.90 | 191.12 | 651.41 | 215.46 | 43.15 | 32.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.42 | 33.58 | 35.59 | 45.24 | 41.29 | 48.43 | 43.69 | 21.23 | 58.74 | 42.08 | 14.28 | 14.18 |
| Movement LOS | D | C | D | D | D | D | D | C | E | D | B | B |
| d_A, Approach Delay [s/veh] | 39.50 | | | 44.81 | | | 41.35 | | | 32.58 | | |
| Approach LOS | D | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 39.07 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.779 | | | | | | | | | | | |

**Emissions**

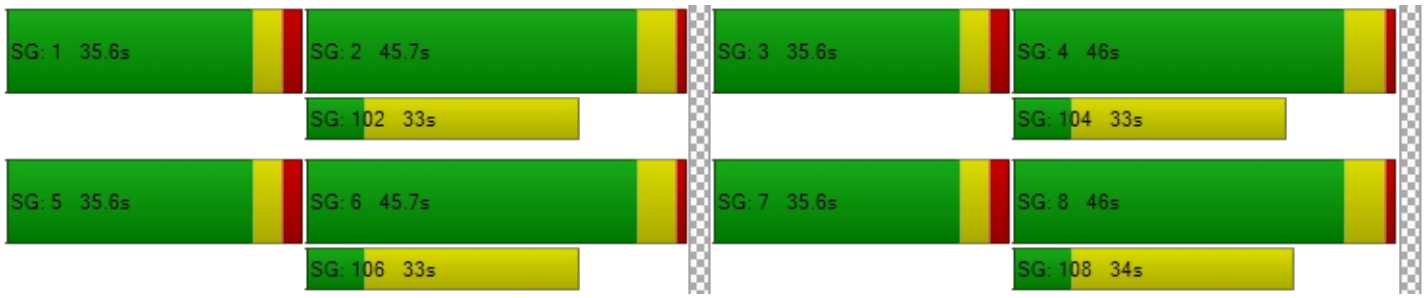
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 216.86 | 72.29 | 107.92 | 23.77 | 88.90 | 83.73 | 19.53 | 276.93 | 317.99 | 206.04 | 77.70 | 29.08 |
| Stops [stops/h] | 179.25 | 51.03 | 80.01 | 19.50 | 72.86 | 79.58 | 31.17 | 300.35 | 667.08 | 350.02 | 67.62 | 25.33 |
| Fuel consumption [US gal/h] | 11.54 | 3.60 | 5.46 | 1.30 | 4.78 | 4.68 | 1.48 | 16.27 | 28.48 | 13.93 | 4.02 | 1.50 |
| CO [g/h] | 806.92 | 251.46 | 381.77 | 90.74 | 334.44 | 327.46 | 103.40 | 1137.51 | 1990.63 | 974.02 | 281.19 | 105.15 |
| NOx [g/h] | 157.00 | 48.93 | 74.28 | 17.65 | 65.07 | 63.71 | 20.12 | 221.32 | 387.30 | 189.51 | 54.71 | 20.46 |
| VOC [g/h] | 187.01 | 58.28 | 88.48 | 21.03 | 77.51 | 75.89 | 23.96 | 263.63 | 461.35 | 225.74 | 65.17 | 24.37 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 4541.32 | 2945.50 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.65 | 40.65 | 40.65 | 40.65 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.751 | 2.650 | 2.989 | 2.782 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 783 | 783 | 783 | 783 |
| d_b, Bicycle Delay [s] | 18.89 | 18.89 | 18.89 | 18.89 |
| l_b,int, Bicycle LOS Score for Intersection | 1.881 | 1.716 | 2.572 | 2.074 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.704 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 44 | 375 | 20 | 181 | 645 | 42 | 36 | 559 | 209 | 35 | 557 | 184 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 44 | 375 | 20 | 181 | 645 | 42 | 36 | 559 | 209 | 35 | 557 | 184 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 108 | 6 | 52 | 185 | 12 | 10 | 161 | 60 | 10 | 160 | 53 |
| Total Analysis Volume [veh/h] | 51 | 431 | 23 | 208 | 741 | 48 | 41 | 643 | 240 | 40 | 640 | 211 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 20 | 20 | 13 | 26 | 26 | 7 | 37 | 37 | 6 | 37 | 37 |
| g / C, Green / Cycle | 0.08 | 0.22 | 0.22 | 0.14 | 0.28 | 0.28 | 0.07 | 0.40 | 0.40 | 0.07 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.12 | 0.02 | 0.12 | 0.21 | 0.21 | 0.02 | 0.35 | 0.15 | 0.02 | 0.34 | 0.13 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1477 | 1724 | 1874 | 1835 | 1810 | 1858 | 1592 | 1810 | 1886 | 1599 |
| c, Capacity [veh/h] | 140 | 758 | 321 | 245 | 526 | 515 | 128 | 741 | 635 | 126 | 750 | 636 |
| d1, Uniform Delay [s] | 40.62 | 32.49 | 28.92 | 38.94 | 30.58 | 30.58 | 41.11 | 25.72 | 19.80 | 41.18 | 25.54 | 19.43 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.34 | 0.17 | 0.04 | 0.33 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.59 | 1.03 | 0.14 | 3.17 | 3.43 | 3.50 | 0.53 | 9.47 | 0.57 | 0.53 | 8.19 | 0.45 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.57 | 0.07 | 0.85 | 0.76 | 0.76 | 0.32 | 0.87 | 0.38 | 0.32 | 0.85 | 0.33 |
| d, Delay for Lane Group [s/veh] | 41.20 | 33.52 | 29.07 | 42.11 | 34.01 | 34.08 | 41.65 | 35.19 | 20.37 | 41.71 | 33.73 | 19.88 |
| Lane Group LOS | D | C | C | D | C | C | D | D | C | D | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.08 | 4.19 | 0.40 | 4.61 | 8.09 | 7.93 | 0.87 | 13.70 | 3.48 | 0.85 | 13.30 | 2.99 |
| 50th-Percentile Queue Length [ft/ln] | 27.07 | 104.84 | 10.02 | 115.19 | 202.36 | 198.32 | 21.87 | 342.40 | 86.89 | 21.36 | 332.57 | 74.70 |
| 95th-Percentile Queue Length [veh/ln] | 1.95 | 7.55 | 0.72 | 8.13 | 12.76 | 12.55 | 1.57 | 19.77 | 6.26 | 1.54 | 19.28 | 5.38 |
| 95th-Percentile Queue Length [ft/ln] | 48.73 | 188.72 | 18.04 | 203.20 | 319.01 | 313.80 | 39.37 | 494.13 | 156.41 | 38.45 | 482.11 | 134.47 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.20 | 33.52 | 29.07 | 42.11 | 34.04 | 34.08 | 41.65 | 35.19 | 20.37 | 41.71 | 33.73 | 19.88 |
| Movement LOS | D | C | C | D | C | C | D | D | C | D | C | B |
| d_A, Approach Delay [s/veh] | 34.10 | | | 35.73 | | | 31.63 | | | 30.81 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 33.02 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.704 | | | | | | | | | | | |

**Emissions**

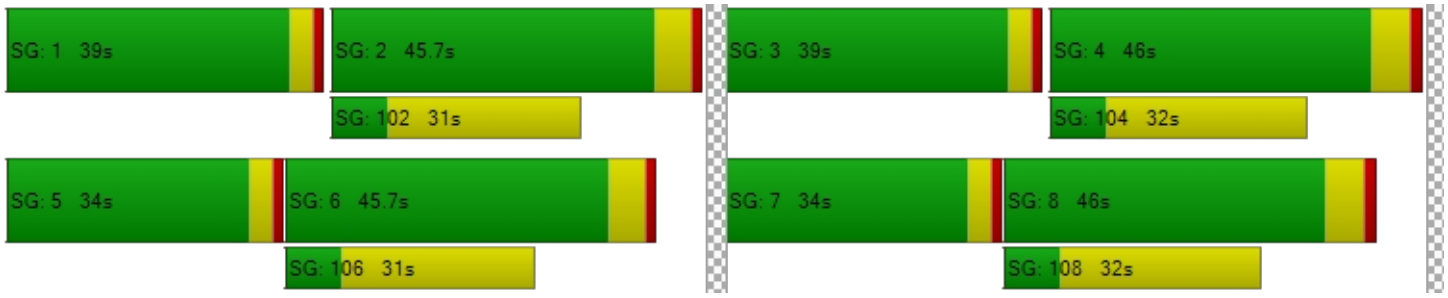
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 26.78 | 226.29 | 12.08 | 211.77 | 405.96 | 397.34 | 3.55 | 55.62 | 20.76 | 24.07 | 385.16 | 126.98 |
| Stops [stops/h] | 41.99 | 325.22 | 15.54 | 178.66 | 313.85 | 307.59 | 33.93 | 531.05 | 134.77 | 33.13 | 515.81 | 115.86 |
| Fuel consumption [US gal/h] | 1.87 | 14.74 | 0.74 | 11.26 | 20.58 | 20.15 | 0.89 | 13.11 | 3.38 | 1.58 | 24.01 | 6.65 |
| CO [g/h] | 130.54 | 1030.35 | 51.95 | 787.26 | 1438.34 | 1408.55 | 62.27 | 916.68 | 236.41 | 110.20 | 1678.21 | 464.62 |
| NOx [g/h] | 25.40 | 200.47 | 10.11 | 153.17 | 279.85 | 274.05 | 12.12 | 178.35 | 46.00 | 21.44 | 326.52 | 90.40 |
| VOC [g/h] | 30.25 | 238.79 | 12.04 | 182.45 | 333.35 | 326.45 | 14.43 | 212.45 | 54.79 | 25.54 | 388.94 | 107.68 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.07 | 36.07 | 36.07 | 36.07 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.826 | 2.792 | 2.787 | 2.817 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 862 | 862 | 862 | 862 |
| d_b, Bicycle Delay [s] | 15.04 | 15.04 | 15.04 | 15.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.976 | 2.382 | 3.084 | 3.030 |
| Bicycle LOS | A | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.768 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 136 | 358 | 46 | 201 | 679 | 44 | 12 | 376 | 324 | 22 | 587 | 53 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 136 | 358 | 46 | 201 | 679 | 44 | 12 | 376 | 324 | 22 | 587 | 53 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 101 | 13 | 56 | 191 | 12 | 3 | 106 | 91 | 6 | 165 | 15 |
| Total Analysis Volume [veh/h] | 153 | 402 | 52 | 226 | 763 | 49 | 13 | 422 | 364 | 25 | 660 | 60 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 22 | 22 | 13 | 23 | 23 | 3 | 31 | 31 | 5 | 33 | 33 |
| g / C, Green / Cycle | 0.14 | 0.26 | 0.26 | 0.15 | 0.27 | 0.27 | 0.03 | 0.36 | 0.36 | 0.05 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.13 | 0.13 | 0.13 | 0.22 | 0.22 | 0.01 | 0.23 | 0.24 | 0.01 | 0.35 | 0.04 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1752 | 1791 | 1891 | 1851 | 1810 | 1835 | 1547 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 242 | 474 | 454 | 263 | 512 | 501 | 61 | 652 | 549 | 100 | 705 | 603 |
| d1, Uniform Delay [s] | 35.53 | 27.30 | 27.34 | 36.20 | 29.52 | 29.52 | 40.85 | 23.46 | 23.56 | 39.33 | 26.08 | 17.55 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.29 | 0.16 | 0.16 | 0.11 | 0.19 | 0.20 | 0.11 | 0.44 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.70 | 0.77 | 0.83 | 18.75 | 4.45 | 4.55 | 1.70 | 1.91 | 2.55 | 1.30 | 19.58 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.49 | 0.49 | 0.86 | 0.80 | 0.80 | 0.21 | 0.65 | 0.66 | 0.25 | 0.94 | 0.10 |
| d, Delay for Lane Group [s/veh] | 38.23 | 28.08 | 28.17 | 54.95 | 33.97 | 34.07 | 42.55 | 25.37 | 26.11 | 40.63 | 45.66 | 17.62 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | D | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.07 | 3.88 | 3.76 | 5.77 | 7.98 | 7.83 | 0.29 | 6.90 | 6.07 | 0.52 | 15.51 | 0.73 |
| 50th-Percentile Queue Length [ft/ln] | 76.82 | 97.05 | 94.01 | 144.20 | 199.58 | 195.76 | 7.18 | 172.61 | 151.76 | 13.08 | 387.68 | 18.15 |
| 95th-Percentile Queue Length [veh/ln] | 5.53 | 6.99 | 6.77 | 9.71 | 12.62 | 12.42 | 0.52 | 11.21 | 10.11 | 0.94 | 21.97 | 1.31 |
| 95th-Percentile Queue Length [ft/ln] | 138.28 | 174.69 | 169.22 | 242.67 | 315.42 | 310.49 | 12.93 | 280.34 | 252.77 | 23.54 | 549.14 | 32.67 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.23 | 28.12 | 28.17 | 54.95 | 34.02 | 34.07 | 42.55 | 25.37 | 26.11 | 40.63 | 45.66 | 17.62 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | D | B |
| d_A, Approach Delay [s/veh] | 30.67 | | | 38.58 | | | 25.99 | | | 43.23 | | |
| Approach LOS | C | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.01 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.768 | | | | | | | | | | | |

**Emissions**

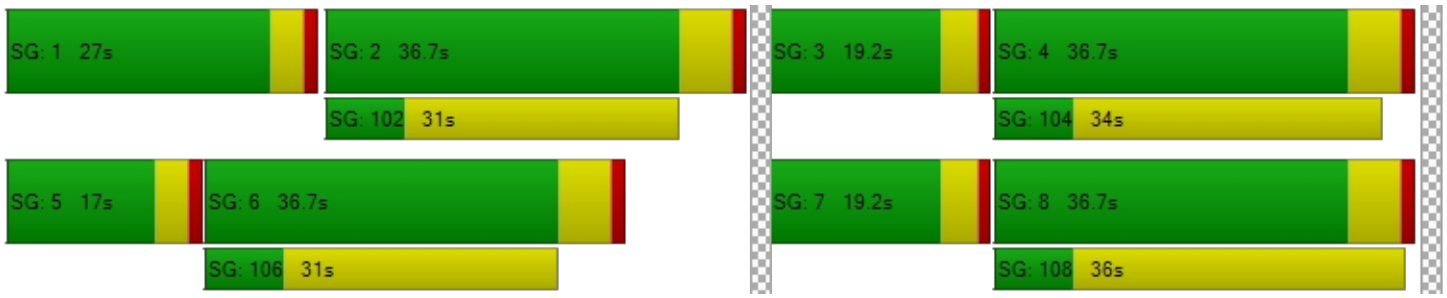
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 81.29 | 122.70 | 118.51 | 118.66 | 215.42 | 210.90 | 1.30 | 42.31 | 36.49 | 11.90 | 314.12 | 28.56 |
| Stops [stops/h] | 127.48 | 161.04 | 156.00 | 239.28 | 331.17 | 324.85 | 11.92 | 286.42 | 251.82 | 21.70 | 643.32 | 30.12 |
| Fuel consumption [US gal/h] | 5.56 | 7.53 | 7.28 | 9.57 | 14.34 | 14.05 | 0.31 | 7.19 | 6.32 | 0.88 | 24.90 | 1.57 |
| CO [g/h] | 388.77 | 526.19 | 508.92 | 668.90 | 1002.22 | 982.34 | 21.35 | 502.60 | 441.51 | 61.82 | 1740.38 | 109.64 |
| NOx [g/h] | 75.64 | 102.38 | 99.02 | 130.14 | 194.99 | 191.13 | 4.15 | 97.79 | 85.90 | 12.03 | 338.62 | 21.33 |
| VOC [g/h] | 90.10 | 121.95 | 117.95 | 155.02 | 232.27 | 227.67 | 4.95 | 116.48 | 102.32 | 14.33 | 403.35 | 25.41 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.09 | 33.09 | 33.09 | 33.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.879 | 2.740 | 2.736 | 2.657 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 714 | 714 | 714 | 714 |
| d_b, Bicycle Delay [s] | 17.93 | 17.93 | 17.93 | 17.93 |
| l_b,int, Bicycle LOS Score for Intersection | 2.060 | 2.416 | 2.878 | 2.789 |
| Bicycle LOS | B | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 44.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.858 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 280 | 279 | 132 | 167 | 376 | 774 | 261 | 1117 | 187 | 143 | 1470 | 243 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 280 | 279 | 132 | 167 | 376 | 774 | 261 | 1117 | 187 | 143 | 1470 | 243 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 75 | 75 | 35 | 45 | 101 | 208 | 70 | 300 | 50 | 38 | 395 | 65 |
| Total Analysis Volume [veh/h] | 301 | 300 | 142 | 180 | 404 | 832 | 281 | 1201 | 201 | 154 | 1581 | 261 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 41 | 41 | 14 | 41 | 41 | 13 | 46 | 46 | 13 | 45 | 45 |
| g / C, Green / Cycle | 0.11 | 0.32 | 0.32 | 0.11 | 0.32 | 0.32 | 0.10 | 0.35 | 0.35 | 0.10 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.09 | 0.09 | 0.05 | 0.08 | 0.29 | 0.08 | 0.24 | 0.13 | 0.05 | 0.31 | 0.17 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1546 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 367 | 1117 | 491 | 366 | 1626 | 899 | 340 | 1773 | 556 | 341 | 1769 | 552 |
| d1, Uniform Delay [s] | 56.78 | 33.11 | 33.35 | 54.67 | 32.89 | 42.91 | 57.32 | 35.88 | 31.30 | 55.18 | 39.97 | 32.91 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.75 | 0.05 | 0.12 | 0.38 | 0.09 | 5.25 | 1.98 | 2.10 | 1.82 | 0.35 | 7.40 | 2.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.27 | 0.29 | 0.49 | 0.25 | 0.93 | 0.83 | 0.68 | 0.36 | 0.45 | 0.89 | 0.47 |
| d, Delay for Lane Group [s/veh] | 58.53 | 33.16 | 33.47 | 55.05 | 32.98 | 48.15 | 59.30 | 37.98 | 33.12 | 55.53 | 47.37 | 35.80 |
| Lane Group LOS | E | C | C | E | C | D | E | D | C | E | D | D |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.86 | 3.50 | 3.34 | 2.74 | 3.09 | 13.06 | 4.53 | 10.79 | 4.86 | 2.35 | 16.49 | 6.67 |
| 50th-Percentile Queue Length [ft/ln] | 121.48 | 87.45 | 83.61 | 68.60 | 77.32 | 326.59 | 113.13 | 269.66 | 121.38 | 58.78 | 412.33 | 166.86 |
| 95th-Percentile Queue Length [veh/ln] | 8.47 | 6.30 | 6.02 | 4.94 | 5.57 | 18.99 | 8.01 | 16.17 | 8.47 | 4.23 | 23.15 | 10.91 |
| 95th-Percentile Queue Length [ft/ln] | 211.87 | 157.40 | 150.50 | 123.47 | 139.18 | 474.78 | 200.35 | 404.31 | 211.72 | 105.80 | 578.83 | 272.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.53 | 33.16 | 33.47 | 55.05 | 32.98 | 48.15 | 59.30 | 37.98 | 33.12 | 55.53 | 47.37 | 35.80 |
| Movement LOS | E | C | C | E | C | D | E | D | C | E | D | D |
| d_A, Approach Delay [s/veh] | 43.49 | | | 44.70 | | | 40.96 | | | 46.49 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 44.08 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.858 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 22.00 | 21.93 | 10.38 | 95.63 | 214.65 | 442.04 | 31.97 | 136.66 | 22.87 | 76.86 | 789.03 | 130.26 |
| Stops [stops/h] | 269.07 | 193.68 | 92.59 | 151.93 | 256.88 | 723.33 | 250.56 | 895.86 | 134.42 | 130.18 | 1369.84 | 184.78 |
| Fuel consumption [US gal/h] | 7.02 | 4.71 | 2.25 | 7.18 | 13.26 | 32.30 | 7.60 | 25.10 | 3.81 | 5.99 | 59.32 | 8.66 |
| CO [g/h] | 490.43 | 329.38 | 157.17 | 502.11 | 927.07 | 2257.61 | 531.35 | 1754.76 | 266.31 | 418.93 | 4146.25 | 605.60 |
| NOx [g/h] | 95.42 | 64.09 | 30.58 | 97.69 | 180.37 | 439.25 | 103.38 | 341.41 | 51.81 | 81.51 | 806.71 | 117.83 |
| VOC [g/h] | 113.66 | 76.34 | 36.42 | 116.37 | 214.86 | 523.22 | 123.15 | 406.68 | 61.72 | 97.09 | 960.93 | 140.35 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.48 | 54.48 | 32.36 | 54.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.987 | 3.396 | 3.718 | 3.439 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 646 | 631 |
| d_b, Bicycle Delay [s] | 31.67 | 32.36 | 29.80 | 30.48 |
| l_b,int, Bicycle LOS Score for Intersection | 1.968 | 2.338 | 2.485 | 2.657 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.528 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 526 | 0 | 0 | 0 | 0 | 1032 | 243 | 0 | 2412 | 66 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 526 | 0 | 0 | 0 | 0 | 1032 | 243 | 0 | 2412 | 66 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 140 | 0 | 0 | 0 | 0 | 274 | 65 | 0 | 641 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 560 | 0 | 0 | 0 | 0 | 1098 | 259 | 0 | 2566 | 70 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 32 | 32 | | 84 | 84 | 84 |
| g / C, Green / Cycle | 0.25 | 0.25 | | 0.65 | 0.65 | 0.65 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.20 | | 0.22 | 0.30 | 0.04 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1274 | 683 | | 3266 | 5487 | 1031 |
| d1, Uniform Delay [s] | 40.73 | 46.22 | | 10.40 | 11.66 | 8.51 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 6.00 | | 0.28 | 0.29 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.82 | | 0.34 | 0.47 | 0.07 |
| d, Delay for Lane Group [s/veh] | 41.20 | 52.22 | | 10.68 | 11.95 | 8.64 |
| Lane Group LOS | D | D | | B | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.20 | 8.69 | | 4.40 | 6.87 | 0.71 |
| 50th-Percentile Queue Length [ft/ln] | 104.95 | 217.36 | | 109.94 | 171.78 | 17.80 |
| 95th-Percentile Queue Length [veh/ln] | 7.56 | 13.53 | | 7.84 | 11.17 | 1.28 |
| 95th-Percentile Queue Length [ft/ln] | 188.91 | 338.25 | | 195.92 | 279.25 | 32.03 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.20 | 0.00 | 52.22 | 0.00 | 0.00 | 0.00 | 0.00 | 10.68 | 0.00 | 0.00 | 11.95 | 8.64 |
| Movement LOS | D | | D | | | | | B | | | B | A |
| d_A, Approach Delay [s/veh] | 47.10 | | | 0.00 | | | 8.74 | | | 11.86 | | |
| Approach LOS | D | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.86 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.528 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 73.41 | | 172.78 | 291.97 | 7.96 |
| Stops [stops/h] | 349.13 | 482.05 | | 365.72 | 952.39 | 19.73 |
| Fuel consumption [US gal/h] | 12.69 | 17.36 | | 12.86 | 28.09 | 0.64 |
| CO [g/h] | 887.07 | 1213.46 | | 898.58 | 1963.46 | 44.84 |
| NOx [g/h] | 172.59 | 236.09 | | 174.83 | 382.02 | 8.72 |
| VOC [g/h] | 205.59 | 281.23 | | 208.25 | 455.05 | 10.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.782 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.164 | 2.429 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.997 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 47 | 0 | 832 | 0 | 1244 | 963 | 0 | 2121 | 787 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 47 | 0 | 832 | 0 | 1244 | 963 | 0 | 2121 | 787 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 12 | 0 | 217 | 0 | 324 | 251 | 0 | 552 | 205 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 49 | 0 | 867 | 0 | 1296 | 1003 | 0 | 2209 | 820 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 40 | 40 | 76 | 76 | 76 |
| g / C, Green / Cycle | | 0.31 | 0.31 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.01 | 0.30 | 0.19 | 0.65 | 0.33 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1073 | 880 | 3945 | 910 | 3968 |
| d1, Uniform Delay [s] | | 31.45 | 44.55 | 13.73 | 26.82 | 16.46 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.04 | 18.96 | 0.22 | 61.93 | 0.57 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.05 | 0.99 | 0.33 | 1.10 | 0.56 |
| d, Delay for Lane Group [s/veh] | | 31.49 | 63.51 | 13.96 | 88.74 | 17.03 |
| Lane Group LOS | | C | E | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.55 | 16.05 | 4.62 | 40.64 | 9.47 |
| 50th-Percentile Queue Length [ft/ln] | | 13.86 | 401.21 | 115.47 | 1016.02 | 236.73 |
| 95th-Percentile Queue Length [veh/ln] | | 1.00 | 22.62 | 8.14 | 55.36 | 14.52 |
| 95th-Percentile Queue Length [ft/ln] | | 24.94 | 565.46 | 203.58 | 1383.99 | 362.90 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 31.49 | 0.00 | 63.51 | 0.00 | 13.96 | 88.74 | 0.00 | 17.03 | 0.00 |
| Movement LOS | | | | C | | E | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 61.80 | | | 46.59 | | | 12.56 | | |
| Approach LOS | A | | | E | | | D | | | B | | |
| d_I, Intersection Delay [s/veh] | 35.30 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.997 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 7.55 | 133.61 | 125.49 | 97.12 | 347.61 |
| Stops [stops/h] | | 30.73 | 889.80 | 512.16 | 1126.65 | 1050.04 |
| Fuel consumption [US gal/h] | | 0.79 | 21.62 | 14.35 | 35.45 | 32.63 |
| CO [g/h] | | 55.54 | 1511.23 | 1003.12 | 2477.84 | 2280.69 |
| NOx [g/h] | | 10.81 | 294.03 | 195.17 | 482.10 | 443.74 |
| VOC [g/h] | | 12.87 | 350.24 | 232.48 | 574.26 | 528.57 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.221 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1174 | 1174 | |
| d_b, Bicycle Delay [s] | 64.93 | 30.95 | 11.09 | 11.09 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.508 | 2.471 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 42.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.022 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 52 | 40 | 26 | 24 | 202 | 72 | 25 | 406 | 123 | 66 | 334 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 52 | 40 | 26 | 24 | 202 | 72 | 25 | 406 | 123 | 66 | 334 | 6 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 10 | 7 | 6 | 52 | 18 | 6 | 104 | 31 | 17 | 85 | 2 |
| Total Analysis Volume [veh/h] | 53 | 41 | 27 | 24 | 206 | 73 | 26 | 414 | 126 | 67 | 341 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 443 | 496 | 566 | 527 |
| Degree of Utilization, x | 0.27 | 0.61 | 1.02 | 0.79 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 1.10 | 4.03 | 15.36 | 7.28 |
| 95th-Percentile Queue Length [ft] | 27.41 | 100.86 | 384.03 | 181.95 |
| Approach Delay [s/veh] | 14.14 | 20.99 | 69.44 | 30.55 |
| Approach LOS | B | C | F | D |
| Intersection Delay [s/veh] | 42.75 | | | |
| Intersection LOS | E | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 191.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.646 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 85 | 18 | 36 | 429 | 102 | 17 | 348 | 369 | 38 | 510 | 25 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 85 | 18 | 36 | 429 | 102 | 17 | 348 | 369 | 38 | 510 | 25 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 22 | 5 | 9 | 113 | 27 | 4 | 92 | 97 | 10 | 134 | 7 |
| Total Analysis Volume [veh/h] | 134 | 89 | 19 | 38 | 452 | 107 | 18 | 366 | 388 | 40 | 537 | 26 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 318 | 357 | 597 | 359 | 379 | 405 | 336 | 563 |
| Degree of Utilization, x | 0.70 | 0.05 | 1.65 | 0.05 | 0.96 | 0.96 | 0.12 | 1.58 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 4.95 | 0.17 | 35.58 | 0.16 | 10.91 | 11.03 | 0.40 | 32.34 |
| 95th-Percentile Queue Length [ft] | 123.72 | 4.20 | 889.59 | 3.95 | 272.73 | 275.72 | 10.01 | 808.39 |
| Approach Delay [s/veh] | 34.76 | | 327.10 | 65.44 | | | 279.66 | |
| Approach LOS | D | | F | F | | | F | |
| Intersection Delay [s/veh] | 190.99 | | | | | | | |
| Intersection LOS | F | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 105.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.057 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 12 | 167 | 32 | 136 | 597 | 178 | 126 | 451 | 110 | 77 | 816 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 167 | 32 | 136 | 597 | 178 | 126 | 451 | 110 | 77 | 816 | 79 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 53 | 10 | 43 | 189 | 56 | 40 | 143 | 35 | 24 | 258 | 25 |
| Total Analysis Volume [veh/h] | 15 | 211 | 41 | 172 | 756 | 225 | 159 | 571 | 139 | 97 | 1033 | 100 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 22 | 22 | 11 | 30 | 30 | 10 | 35 | 35 | 9 | 34 | 34 |
| g / C, Green / Cycle | 0.04 | 0.24 | 0.24 | 0.12 | 0.32 | 0.32 | 0.11 | 0.37 | 0.37 | 0.10 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.07 | 0.10 | 0.28 | 0.28 | 0.09 | 0.30 | 0.09 | 0.05 | 0.55 | 0.06 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1742 | 1737 | 1849 | 1698 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 63 | 439 | 411 | 212 | 593 | 545 | 200 | 702 | 564 | 179 | 680 | 569 |
| d1, Uniform Delay [s] | 43.85 | 29.39 | 29.47 | 40.11 | 29.86 | 29.93 | 40.60 | 26.59 | 20.44 | 40.12 | 30.04 | 20.53 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.31 | 0.32 | 0.11 | 0.37 | 0.11 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.91 | 0.36 | 0.41 | 7.25 | 9.97 | 11.27 | 7.05 | 7.55 | 0.23 | 2.55 | 241.58 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.24 | 0.29 | 0.30 | 0.81 | 0.86 | 0.86 | 0.80 | 0.81 | 0.25 | 0.54 | 1.52 | 0.18 |
| d, Delay for Lane Group [s/veh] | 45.76 | 29.75 | 29.88 | 47.36 | 39.83 | 41.20 | 47.65 | 34.14 | 20.67 | 42.67 | 271.62 | 20.67 |
| Lane Group LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.36 | 2.31 | 2.26 | 4.11 | 11.57 | 10.91 | 3.80 | 11.93 | 1.99 | 2.16 | 59.47 | 1.42 |
| 50th-Percentile Queue Length [ft/ln] | 9.05 | 57.80 | 56.50 | 102.66 | 289.21 | 272.70 | 95.03 | 298.24 | 49.81 | 54.02 | 1486.81 | 35.45 |
| 95th-Percentile Queue Length [veh/ln] | 0.65 | 4.16 | 4.07 | 7.39 | 17.15 | 16.32 | 6.84 | 17.59 | 3.59 | 3.89 | 90.67 | 2.55 |
| 95th-Percentile Queue Length [ft/ln] | 16.29 | 104.05 | 101.71 | 184.79 | 428.66 | 408.11 | 171.06 | 439.86 | 89.65 | 97.23 | 2266.67 | 63.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 45.76 | 29.80 | 29.88 | 47.36 | 40.28 | 41.20 | 47.65 | 34.14 | 20.67 | 42.67 | 271.62 | 20.67 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 30.71 | | | 41.51 | | | 34.46 | | | 233.16 | | |
| Approach LOS | C | | | D | | | C | | | F | | |
| d_I, Intersection Delay [s/veh] | 105.94 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.057 | | | | | | | | | | | |

**Emissions**

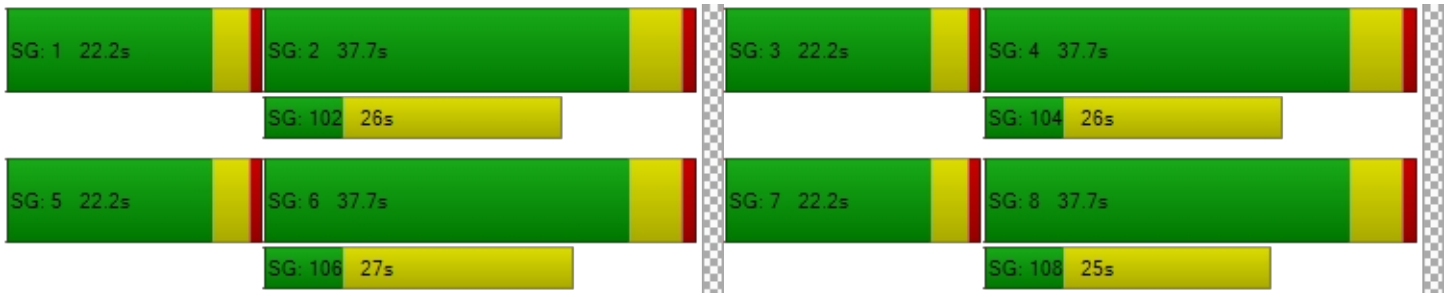
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 8.11 | 69.01 | 67.16 | 85.53 | 253.43 | 234.37 | 75.67 | 271.76 | 66.16 | 47.80 | 509.03 | 49.28 |
| Stops [stops/h] | 13.92 | 88.91 | 86.91 | 157.91 | 444.85 | 419.46 | 146.17 | 458.75 | 76.61 | 83.09 | 2286.95 | 54.53 |
| Fuel consumption [US gal/h] | 0.57 | 4.12 | 4.02 | 6.55 | 18.35 | 17.20 | 5.95 | 18.99 | 3.80 | 3.51 | 102.97 | 2.79 |
| CO [g/h] | 39.61 | 287.90 | 280.67 | 458.03 | 1282.58 | 1202.33 | 416.11 | 1327.14 | 265.96 | 245.61 | 7197.63 | 194.87 |
| NOx [g/h] | 7.71 | 56.01 | 54.61 | 89.12 | 249.54 | 233.93 | 80.96 | 258.21 | 51.75 | 47.79 | 1400.40 | 37.91 |
| VOC [g/h] | 9.18 | 66.72 | 65.05 | 106.15 | 297.25 | 278.65 | 96.44 | 307.58 | 61.64 | 56.92 | 1668.12 | 45.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.46 | 36.46 | 36.46 | 36.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.629 | 2.776 | 2.916 | 2.869 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 684 | 684 | 684 | 684 |
| d_b, Bicycle Delay [s] | 20.29 | 20.28 | 20.28 | 20.28 |
| l_b,int, Bicycle LOS Score for Intersection | 1.780 | 2.511 | 2.993 | 3.589 |
| Bicycle LOS | A | B | C | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.651 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 141 | 101 | 78 | 155 | 372 | 325 | 63 | 848 | 404 | 148 | 1261 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 141 | 101 | 78 | 155 | 372 | 325 | 63 | 848 | 404 | 148 | 1261 | 21 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 27 | 21 | 42 | 100 | 87 | 17 | 228 | 109 | 40 | 339 | 6 |
| Total Analysis Volume [veh/h] | 152 | 109 | 84 | 167 | 400 | 349 | 68 | 912 | 434 | 159 | 1356 | 23 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 30 | 30 | 13 | 30 | 30 | 12 | 48 | 48 | 13 | 49 | 49 |
| g / C, Green / Cycle | 0.11 | 0.25 | 0.25 | 0.11 | 0.25 | 0.25 | 0.10 | 0.40 | 0.40 | 0.11 | 0.41 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.03 | 0.06 | 0.05 | 0.13 | 0.22 | 0.02 | 0.18 | 0.28 | 0.05 | 0.27 | 0.01 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1527 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 363 | 858 | 386 | 359 | 789 | 401 | 348 | 2024 | 626 | 375 | 2080 | 638 |
| d1, Uniform Delay [s] | 50.05 | 34.71 | 35.54 | 50.36 | 38.56 | 43.08 | 49.80 | 26.62 | 30.14 | 50.13 | 28.81 | 21.49 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.19 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.29 | 0.05 | 0.22 | 0.35 | 0.40 | 9.86 | 0.10 | 0.73 | 6.20 | 0.28 | 1.60 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.42 | 0.13 | 0.22 | 0.47 | 0.51 | 0.87 | 0.20 | 0.45 | 0.69 | 0.42 | 0.65 | 0.04 |
| d, Delay for Lane Group [s/veh] | 50.34 | 34.76 | 35.77 | 50.71 | 38.97 | 52.95 | 49.91 | 27.35 | 36.34 | 50.41 | 30.42 | 21.59 |
| Lane Group LOS | D | C | D | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.12 | 1.22 | 1.95 | 2.38 | 5.11 | 10.97 | 0.95 | 6.51 | 11.38 | 2.20 | 10.28 | 0.40 |
| 50th-Percentile Queue Length [ft/ln] | 52.97 | 30.59 | 48.63 | 59.54 | 127.65 | 274.20 | 23.70 | 162.70 | 284.50 | 54.96 | 256.91 | 9.92 |
| 95th-Percentile Queue Length [veh/ln] | 3.81 | 2.20 | 3.50 | 4.29 | 8.81 | 16.40 | 1.71 | 10.69 | 16.91 | 3.96 | 15.53 | 0.71 |
| 95th-Percentile Queue Length [ft/ln] | 95.34 | 55.06 | 87.53 | 107.17 | 220.29 | 409.99 | 42.67 | 267.30 | 422.81 | 98.93 | 388.34 | 17.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.34 | 34.76 | 35.77 | 50.71 | 38.97 | 52.95 | 49.91 | 27.35 | 36.34 | 50.41 | 30.42 | 21.59 |
| Movement LOS | D | C | D | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 41.87 | | | 46.43 | | | 31.19 | | | 32.35 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.80 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.651 | | | | | | | | | | | |

**Emissions**

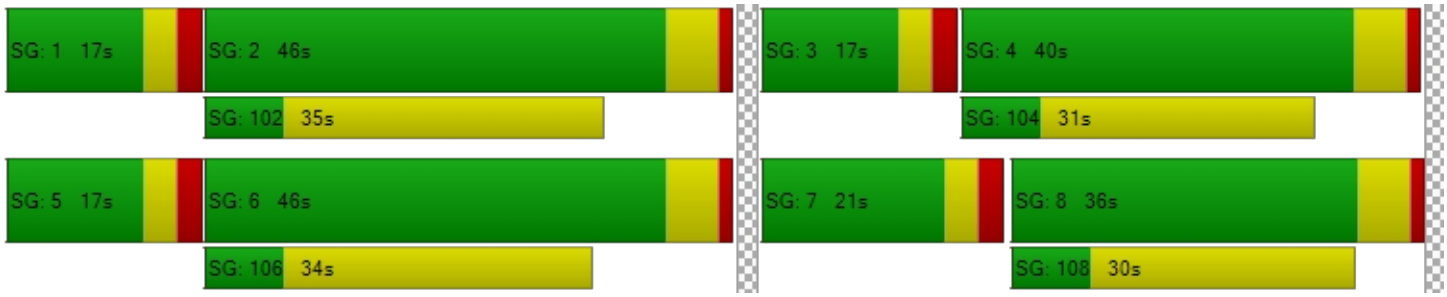
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.91 | 11.41 | 8.79 | 90.24 | 216.15 | 188.59 | 33.94 | 455.15 | 216.60 | 18.33 | 156.29 | 2.65 |
| Stops [stops/h] | 126.95 | 73.31 | 58.28 | 142.70 | 305.94 | 328.60 | 56.81 | 584.94 | 340.94 | 131.73 | 923.62 | 11.89 |
| Fuel consumption [US gal/h] | 3.37 | 1.90 | 1.50 | 6.23 | 13.76 | 13.34 | 2.40 | 27.04 | 14.01 | 3.90 | 25.23 | 0.34 |
| CO [g/h] | 235.83 | 132.80 | 104.76 | 435.23 | 961.82 | 932.41 | 167.86 | 1890.35 | 979.27 | 272.40 | 1763.84 | 23.75 |
| NOx [g/h] | 45.88 | 25.84 | 20.38 | 84.68 | 187.14 | 181.41 | 32.66 | 367.79 | 190.53 | 53.00 | 343.18 | 4.62 |
| VOC [g/h] | 54.66 | 30.78 | 24.28 | 100.87 | 222.91 | 216.10 | 38.90 | 438.11 | 226.96 | 63.13 | 408.79 | 5.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.58 | 49.58 | 49.58 | 49.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.856 | 2.763 | 3.217 | 3.302 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 504 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.68 | 33.60 | 26.54 | 26.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.844 | 2.315 | 2.337 | 2.406 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 94.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.288 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 552 | 140 | 2 | 11 | 64 | 28 | 13 | 16 | 300 | 2 | 148 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 552 | 140 | 2 | 11 | 64 | 28 | 13 | 16 | 300 | 2 | 148 | 5 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 152 | 38 | 1 | 3 | 18 | 8 | 4 | 4 | 82 | 1 | 41 | 1 |
| Total Analysis Volume [veh/h] | 607 | 154 | 2 | 12 | 70 | 31 | 14 | 18 | 330 | 2 | 163 | 5 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 763 | 529 | 599 | 520 |
| Degree of Utilization, x | 1.29 | 0.21 | 0.60 | 0.33 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 30.64 | 0.80 | 4.04 | 1.41 |
| 95th-Percentile Queue Length [ft] | 766.09 | 20.08 | 100.88 | 35.25 |
| Approach Delay [s/veh] | 161.60 | 11.65 | 17.77 | 13.24 |
| Approach LOS | F | B | C | B |
| Intersection Delay [s/veh] | 94.67 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 383.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.681 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 525 | 159 | 30 | 355 | 423 | 31 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 525 | 159 | 30 | 355 | 423 | 31 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 131 | 40 | 8 | 89 | 106 | 8 |
| Total Analysis Volume [veh/h] | 525 | 159 | 30 | 355 | 423 | 31 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.03 | 0.00 | 1.68 | 0.06 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.99 | 0.00 | 383.65 | 376.57 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.05 | 0.05 | 29.90 | 29.90 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 1.27 | 1.27 | 747.38 | 747.38 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.70 | | 383.17 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 114.40 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.776 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 117 | 230 | 48 | 187 | 414 | 142 | 62 | 464 | 51 | 78 | 199 | 382 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 117 | 230 | 48 | 187 | 414 | 142 | 62 | 464 | 51 | 78 | 199 | 382 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 60 | 13 | 49 | 108 | 37 | 16 | 121 | 13 | 20 | 52 | 99 |
| Total Analysis Volume [veh/h] | 122 | 240 | 50 | 195 | 431 | 148 | 65 | 483 | 53 | 81 | 207 | 398 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 31 | 31 | 12 | 35 | 7 | 29 | 29 | 7 | 30 | 30 |
| g / C, Green / Cycle | 0.09 | 0.32 | 0.32 | 0.13 | 0.36 | 0.07 | 0.31 | 0.31 | 0.07 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.13 | 0.03 | 0.11 | 0.32 | 0.04 | 0.15 | 0.15 | 0.05 | 0.11 | 0.25 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1784 | 1810 | 1870 | 1806 | 1782 | 1900 | 1586 |
| c, Capacity [veh/h] | 164 | 604 | 500 | 232 | 644 | 125 | 574 | 555 | 132 | 593 | 495 |
| d1, Uniform Delay [s] | 42.46 | 25.24 | 22.75 | 40.67 | 28.91 | 43.04 | 26.90 | 26.92 | 42.99 | 25.42 | 30.24 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.30 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.53 | 0.42 | 0.09 | 3.12 | 11.66 | 1.25 | 1.13 | 1.18 | 1.72 | 0.65 | 6.78 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.40 | 0.10 | 0.84 | 0.90 | 0.52 | 0.47 | 0.48 | 0.61 | 0.35 | 0.80 |
| d, Delay for Lane Group [s/veh] | 44.99 | 25.67 | 22.83 | 43.79 | 40.57 | 44.29 | 28.03 | 28.10 | 44.72 | 26.07 | 37.02 |
| Lane Group LOS | D | C | C | D | D | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.81 | 4.04 | 0.76 | 4.48 | 13.57 | 1.48 | 4.97 | 4.84 | 1.83 | 3.47 | 8.62 |
| 50th-Percentile Queue Length [ft/ln] | 70.17 | 101.11 | 18.95 | 111.93 | 339.29 | 37.12 | 124.37 | 120.99 | 45.67 | 86.74 | 215.55 |
| 95th-Percentile Queue Length [veh/ln] | 5.05 | 7.28 | 1.36 | 7.95 | 19.61 | 2.67 | 8.63 | 8.45 | 3.29 | 6.25 | 13.44 |
| 95th-Percentile Queue Length [ft/ln] | 126.30 | 182.00 | 34.10 | 198.69 | 490.34 | 66.81 | 215.81 | 211.19 | 82.21 | 156.13 | 335.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 44.99 | 25.67 | 22.83 | 43.79 | 40.57 | 40.57 | 44.29 | 28.06 | 28.10 | 44.72 | 26.07 | 37.02 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 31.04 | | | 41.38 | | | 29.82 | | | 34.62 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.98 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.776 | | | | | | | | | | | |

**Emissions**

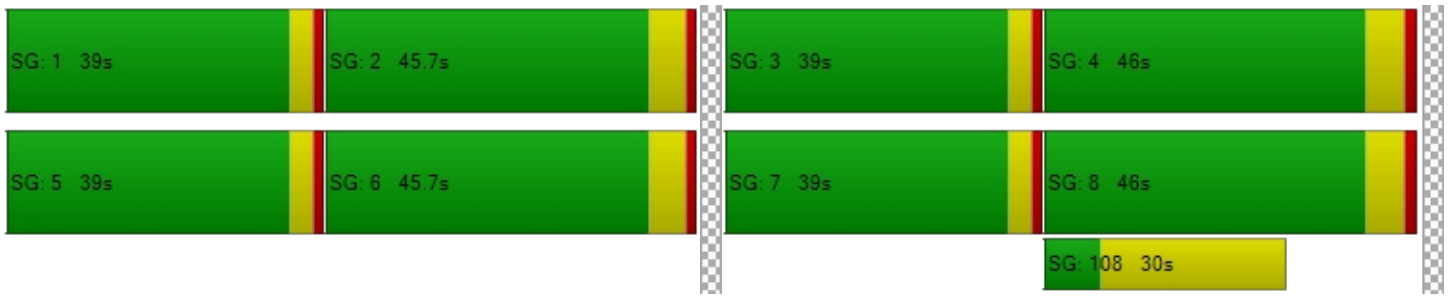
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 61.35 | 120.69 | 25.14 | 97.19 | 288.58 | 32.03 | 134.04 | 130.11 | 21.23 | 54.25 | 104.31 |
| Stops [stops/h] | 105.73 | 152.36 | 28.55 | 168.67 | 511.27 | 55.93 | 187.41 | 182.32 | 68.82 | 130.70 | 324.80 |
| Fuel consumption [US gal/h] | 4.53 | 7.28 | 1.45 | 7.17 | 21.03 | 2.28 | 8.19 | 7.96 | 2.50 | 4.92 | 11.48 |
| CO [g/h] | 316.95 | 509.22 | 101.29 | 500.93 | 1469.92 | 159.56 | 572.75 | 556.50 | 175.06 | 344.01 | 802.26 |
| NOx [g/h] | 61.67 | 99.08 | 19.71 | 97.46 | 285.99 | 31.04 | 111.44 | 108.27 | 34.06 | 66.93 | 156.09 |
| VOC [g/h] | 73.46 | 118.02 | 23.48 | 116.10 | 340.67 | 36.98 | 132.74 | 128.97 | 40.57 | 79.73 | 185.93 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.41 | 40.12 | 39.84 | 39.84 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.588 | 2.666 | 2.487 | 2.764 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 837 | 837 | 837 | 837 |
| d_b, Bicycle Delay [s] | 16.15 | 16.15 | 16.15 | 16.15 |
| l_b,int, Bicycle LOS Score for Intersection | 2.239 | 2.837 | 2.055 | 2.692 |
| Bicycle LOS | B | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 25.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.095 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 288 | 10 | 23 | 337 | 62 | 5 | 44 | 91 | 17 | 8 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 288 | 10 | 23 | 337 | 62 | 5 | 44 | 91 | 17 | 8 | 29 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 79 | 3 | 6 | 93 | 17 | 1 | 12 | 25 | 5 | 2 | 8 |
| Total Analysis Volume [veh/h] | 3 | 316 | 11 | 25 | 370 | 68 | 5 | 48 | 100 | 19 | 9 | 32 |
| Pedestrian Volume [ped/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.15 | 0.15 | 0.09 | 0.03 | 0.05 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.42 | 0.00 | 0.00 | 7.95 | 0.00 | 0.00 | 20.35 | 19.12 | 13.51 | 25.02 | 18.79 | 12.12 |
| Movement LOS | A | A | A | A | A | A | C | C | B | D | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 1.30 | 1.30 | 1.30 | 0.60 | 0.60 | 0.60 |
| 95th-Percentile Queue Length [ft/ln] | 0.21 | 0.00 | 0.00 | 1.54 | 0.00 | 0.00 | 32.57 | 32.57 | 32.57 | 15.03 | 15.03 | 15.03 |
| d_A, Approach Delay [s/veh] | 0.08 | | | 0.43 | | | 15.50 | | | 17.21 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 3.61 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.683 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 174 | 231 | 37 | 3 | 243 | 8 | 49 | 263 | 130 | 260 | 385 | 31 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 174 | 231 | 37 | 3 | 243 | 8 | 49 | 263 | 130 | 260 | 385 | 31 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 47 | 63 | 10 | 1 | 66 | 2 | 13 | 71 | 35 | 71 | 105 | 8 |
| Total Analysis Volume [veh/h] | 189 | 251 | 40 | 3 | 264 | 9 | 53 | 286 | 141 | 283 | 418 | 34 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 19 | 19 | 0 | 11 | 2 | 9 | 9 | 10 | 17 |
| g / C, Green / Cycle | 0.14 | 0.34 | 0.34 | 0.00 | 0.21 | 0.04 | 0.17 | 0.17 | 0.19 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.13 | 0.03 | 0.00 | 0.15 | 0.03 | 0.12 | 0.12 | 0.16 | 0.24 |
| s, saturation flow rate [veh/h] | 1765 | 1859 | 1578 | 1772 | 1876 | 1691 | 1868 | 1666 | 1794 | 1850 |
| c, Capacity [veh/h] | 241 | 639 | 542 | 6 | 394 | 69 | 315 | 281 | 345 | 592 |
| d1, Uniform Delay [s] | 22.83 | 13.62 | 12.09 | 27.22 | 19.97 | 25.99 | 21.48 | 21.56 | 21.20 | 16.75 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.12 | 0.56 | 0.08 | 23.31 | 3.09 | 6.55 | 2.18 | 2.69 | 1.88 | 1.56 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.39 | 0.07 | 0.51 | 0.69 | 0.77 | 0.71 | 0.73 | 0.82 | 0.76 |
| d, Delay for Lane Group [s/veh] | 24.95 | 14.18 | 12.17 | 50.54 | 23.06 | 32.54 | 23.66 | 24.25 | 23.08 | 18.31 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.16 | 1.95 | 0.27 | 0.07 | 3.24 | 0.73 | 2.48 | 2.31 | 3.10 | 4.29 |
| 50th-Percentile Queue Length [ft/ln] | 53.92 | 48.81 | 6.86 | 1.87 | 81.03 | 18.14 | 61.91 | 57.84 | 77.41 | 107.29 |
| 95th-Percentile Queue Length [veh/ln] | 3.88 | 3.51 | 0.49 | 0.13 | 5.83 | 1.31 | 4.46 | 4.16 | 5.57 | 7.69 |
| 95th-Percentile Queue Length [ft/ln] | 97.05 | 87.86 | 12.35 | 3.36 | 145.86 | 32.65 | 111.43 | 104.11 | 139.34 | 192.22 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.95 | 14.18 | 12.17 | 50.54 | 23.06 | 23.06 | 32.54 | 23.79 | 24.25 | 23.08 | 18.31 | 18.31 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | B | B |
| d_A, Approach Delay [s/veh] | 18.25 | | | 23.36 | | | 24.89 | | | 20.14 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.29 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.683 | | | | | | | | | | | |

**Emissions**

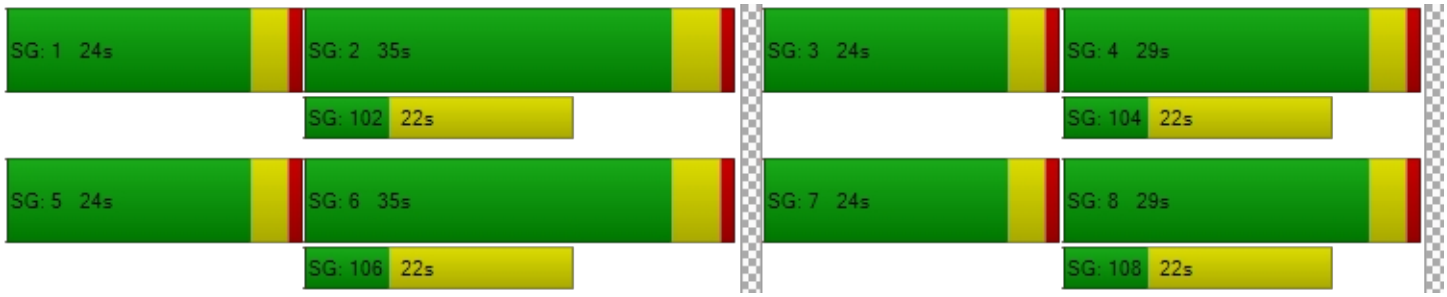
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 94.27 | 125.20 | 19.95 | 1.50 | 136.73 | 26.44 | 111.10 | 101.88 | 283.46 | 452.73 |
| Stops [stops/h] | 142.34 | 128.86 | 18.11 | 4.93 | 213.92 | 47.89 | 163.43 | 152.70 | 204.36 | 283.23 |
| Fuel consumption [US gal/h] | 5.96 | 6.62 | 1.01 | 0.12 | 8.09 | 1.85 | 6.91 | 6.40 | 13.59 | 20.72 |
| CO [g/h] | 416.67 | 462.62 | 70.47 | 8.38 | 565.61 | 129.49 | 483.21 | 447.28 | 949.70 | 1448.61 |
| NOx [g/h] | 81.07 | 90.01 | 13.71 | 1.63 | 110.05 | 25.19 | 94.01 | 87.02 | 184.78 | 281.85 |
| VOC [g/h] | 96.57 | 107.22 | 16.33 | 1.94 | 131.09 | 30.01 | 111.99 | 103.66 | 220.10 | 335.73 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.38 | 17.38 | 17.38 | 17.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.613 | 2.112 | 2.504 | 2.492 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1100 | 1100 | 917 | 917 |
| d_b, Bicycle Delay [s] | 5.52 | 5.52 | 8.00 | 8.00 |
| l_b,int, Bicycle LOS Score for Intersection | 2.352 | 2.015 | 1.956 | 2.772 |
| Bicycle LOS | B | B | A | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 97.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.031 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 497 | 440 | 49 | 43 | 654 | 79 | 36 | 318 | 412 | 77 | 311 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 497 | 440 | 49 | 43 | 654 | 79 | 36 | 318 | 412 | 77 | 311 | 36 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 146 | 129 | 14 | 13 | 192 | 23 | 11 | 94 | 121 | 23 | 91 | 11 |
| Total Analysis Volume [veh/h] | 585 | 518 | 58 | 51 | 769 | 93 | 42 | 374 | 485 | 91 | 366 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 43 | 43 | 7 | 29 | 29 | 7 | 33 | 33 | 8 | 35 | 35 |
| g / C, Green / Cycle | 0.19 | 0.40 | 0.40 | 0.07 | 0.27 | 0.27 | 0.06 | 0.31 | 0.31 | 0.08 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.15 | 0.04 | 0.03 | 0.24 | 0.24 | 0.02 | 0.20 | 0.30 | 0.05 | 0.10 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1562 | 1751 | 1867 | 1797 | 1810 | 1883 | 1596 | 1785 | 3589 | 1612 |
| c, Capacity [veh/h] | 348 | 1398 | 623 | 116 | 506 | 487 | 110 | 580 | 491 | 141 | 1169 | 525 |
| d1, Uniform Delay [s] | 43.58 | 22.93 | 20.29 | 48.54 | 37.56 | 37.56 | 48.82 | 32.33 | 37.21 | 48.36 | 27.38 | 25.25 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.30 | 0.30 | 0.11 | 0.21 | 0.47 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 318.79 | 0.16 | 0.06 | 2.57 | 11.75 | 12.18 | 2.15 | 2.35 | 36.55 | 4.90 | 0.15 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.68 | 0.37 | 0.09 | 0.44 | 0.87 | 0.87 | 0.38 | 0.65 | 0.99 | 0.65 | 0.31 | 0.08 |
| d, Delay for Lane Group [s/veh] | 362.38 | 23.10 | 20.36 | 51.12 | 49.31 | 49.75 | 50.97 | 34.68 | 73.76 | 53.25 | 27.53 | 25.31 |
| Lane Group LOS | F | C | C | D | D | D | D | C | E | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 39.71 | 4.43 | 0.88 | 1.40 | 12.56 | 12.15 | 1.15 | 8.72 | 17.43 | 2.50 | 3.42 | 0.73 |
| 50th-Percentile Queue Length [ft/ln] | 992.81 | 110.67 | 22.05 | 35.10 | 314.06 | 303.84 | 28.85 | 217.95 | 435.86 | 62.53 | 85.43 | 18.18 |
| 95th-Percentile Queue Length [veh/ln] | 61.67 | 7.88 | 1.59 | 2.53 | 18.38 | 17.87 | 2.08 | 13.56 | 24.28 | 4.50 | 6.15 | 1.31 |
| 95th-Percentile Queue Length [ft/ln] | 1541.85 | 196.93 | 39.69 | 63.18 | 459.38 | 446.78 | 51.93 | 339.01 | 607.06 | 112.55 | 153.78 | 32.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 362.38 | 23.10 | 20.36 | 51.12 | 49.50 | 49.75 | 50.97 | 34.68 | 73.76 | 53.25 | 27.53 | 25.31 |
| Movement LOS | F | C | C | D | D | D | D | C | E | D | C | C |
| d_A, Approach Delay [s/veh] | 193.92 | | | 49.62 | | | 56.48 | | | 32.04 | | |
| Approach LOS | F | | | D | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 97.09 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.031 | | | | | | | | | | | |

**Emissions**

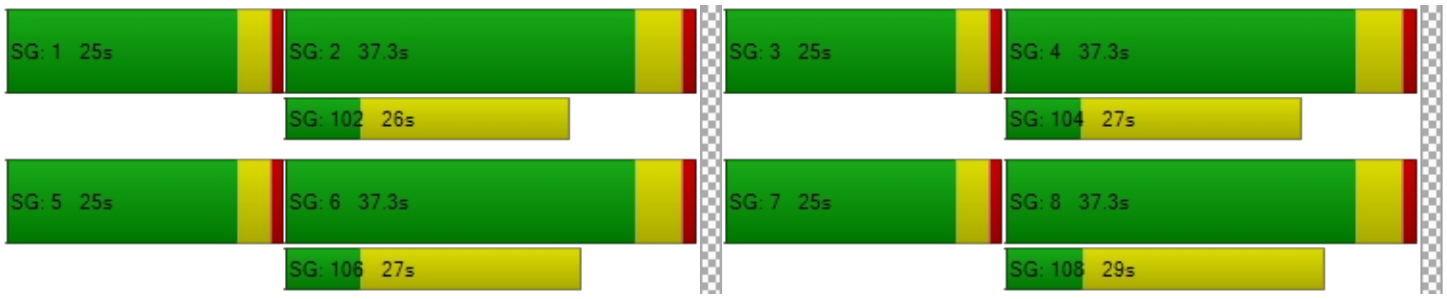
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 116.94 | 103.54 | 11.59 | 25.44 | 219.06 | 210.91 | 20.70 | 184.30 | 238.99 | 9.40 | 37.79 | 4.34 |
| Stops [stops/h] | 1323.54 | 295.07 | 29.40 | 46.79 | 418.68 | 405.06 | 38.46 | 290.55 | 581.06 | 83.36 | 227.79 | 24.24 |
| Fuel consumption [US gal/h] | 63.60 | 9.65 | 1.00 | 1.84 | 15.74 | 15.20 | 1.50 | 11.83 | 20.33 | 2.34 | 6.18 | 0.67 |
| CO [g/h] | 4445.31 | 674.72 | 70.12 | 128.35 | 1100.10 | 1062.51 | 104.85 | 827.01 | 1420.93 | 163.89 | 431.86 | 46.58 |
| NOx [g/h] | 864.90 | 131.28 | 13.64 | 24.97 | 214.04 | 206.73 | 20.40 | 160.91 | 276.46 | 31.89 | 84.02 | 9.06 |
| VOC [g/h] | 1030.24 | 156.37 | 16.25 | 29.75 | 254.96 | 246.25 | 24.30 | 191.67 | 329.31 | 37.98 | 100.09 | 10.80 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.57 | 43.57 | 43.57 | 43.57 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.072 | 2.604 | 2.688 | 2.596 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 592 | 592 | 592 | 592 |
| d_b, Bicycle Delay [s] | 26.75 | 26.75 | 26.75 | 26.75 |
| l_b,int, Bicycle LOS Score for Intersection | 2.517 | 2.313 | 3.046 | 1.971 |
| Bicycle LOS | B | B | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.868 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 470 | 953 | 0 | 0 | 521 | 652 | 0 | 0 | 0 | 168 | 0 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 470 | 953 | 0 | 0 | 521 | 652 | 0 | 0 | 0 | 168 | 0 | 17 |
| Peak Hour Factor | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 1.0000 | 0.8600 | 1.0000 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 137 | 277 | 0 | 0 | 151 | 190 | 0 | 0 | 0 | 49 | 0 | 5 |
| Total Analysis Volume [veh/h] | 547 | 1108 | 0 | 0 | 606 | 758 | 0 | 0 | 0 | 195 | 0 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 99 | 99 | 99 | 99 | | 99 | 99 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 22 | 72 | 45 | 45 | | 14 | 14 |
| g / C, Green / Cycle | 0.22 | 0.73 | 0.45 | 0.45 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.31 | 0.32 | 0.48 | | 0.11 | 0.01 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 606 | 2604 | 849 | 712 | | 248 | 217 |
| d1, Uniform Delay [s] | 37.74 | 5.26 | 21.95 | 27.15 | | 41.36 | 37.34 |
| k, delay calibration | 0.04 | 0.20 | 0.29 | 0.48 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.11 | 0.21 | 2.98 | 51.31 | | 11.07 | 0.39 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.90 | 0.43 | 0.71 | 1.06 | | 0.79 | 0.09 |
| d, Delay for Lane Group [s/veh] | 39.85 | 5.47 | 24.94 | 78.46 | | 52.43 | 37.73 |
| Lane Group LOS | D | A | C | F | | D | D |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 6.30 | 3.19 | 10.99 | 25.12 | | 5.08 | 0.42 |
| 50th-Percentile Queue Length [ft/ln] | 157.53 | 79.71 | 274.86 | 627.93 | | 126.99 | 10.58 |
| 95th-Percentile Queue Length [veh/ln] | 10.42 | 5.74 | 16.43 | 34.91 | | 8.78 | 0.76 |
| 95th-Percentile Queue Length [ft/ln] | 260.44 | 143.48 | 410.81 | 872.70 | | 219.39 | 19.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.85 | 5.47 | 0.00 | 0.00 | 24.94 | 78.46 | 0.00 | 0.00 | 0.00 | 52.43 | 0.00 | 37.73 |
| Movement LOS | D | A | | | C | F | | | | D | | D |
| d_A, Approach Delay [s/veh] | 16.83 | | | 54.68 | | | 0.00 | | | 51.06 | | |
| Approach LOS | B | | | D | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.07 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.868 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 59.13 | 119.77 | 121.13 | 151.52 | | 16.76 | 1.72 |
| Stops [stops/h] | 457.38 | 231.44 | 399.04 | 911.62 | | 184.36 | 15.36 |
| Fuel consumption [US gal/h] | 12.15 | 8.22 | 12.19 | 28.63 | | 6.07 | 0.50 |
| CO [g/h] | 849.25 | 574.31 | 852.00 | 2001.24 | | 423.97 | 34.69 |
| NOx [g/h] | 165.23 | 111.74 | 165.77 | 389.37 | | 82.49 | 6.75 |
| VOC [g/h] | 196.82 | 133.10 | 197.46 | 463.81 | | 98.26 | 8.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.93 | 46.93 | 39.20 | 39.20 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.063 | 3.054 | 2.355 | 1.911 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 907 | 907 | 0 | 605 |
| d_b, Bicycle Delay [s] | 14.80 | 14.81 | 49.59 | 24.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.925 | 2.685 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.714 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1173 | 101 | 14 | 708 | 0 | 228 | 0 | 374 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1173 | 101 | 14 | 708 | 0 | 228 | 0 | 374 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 322 | 28 | 4 | 195 | 0 | 63 | 0 | 103 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1289 | 111 | 15 | 778 | 0 | 251 | 0 | 411 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 51 | 51 | 2 | 59 | 28 | 28 | |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.02 | 0.59 | 0.28 | 0.28 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.22 | 0.07 | 0.26 | |
| s, saturation flow rate [veh/h] | 1877 | 1825 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 958 | 932 | 37 | 2107 | 971 | 450 | |
| d1, Uniform Delay [s] | 19.09 | 19.42 | 48.26 | 10.79 | 27.78 | 34.69 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.37 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.89 | 5.56 | 2.68 | 0.50 | 0.30 | 20.44 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.75 | 0.41 | 0.37 | 0.26 | 0.91 | |
| d, Delay for Lane Group [s/veh] | 23.98 | 24.98 | 50.94 | 11.29 | 28.08 | 55.13 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.74 | 13.07 | 0.38 | 4.05 | 2.19 | 11.36 | |
| 50th-Percentile Queue Length [ft/ln] | 318.45 | 326.83 | 9.62 | 101.27 | 54.84 | 284.03 | |
| 95th-Percentile Queue Length [veh/ln] | 18.59 | 19.00 | 0.69 | 7.29 | 3.95 | 16.89 | |
| 95th-Percentile Queue Length [ft/ln] | 464.78 | 475.07 | 17.31 | 182.29 | 98.71 | 422.23 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 24.43 | 24.98 | 50.94 | 11.29 | 0.00 | 28.08 | 0.00 | 55.13 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 24.48 | | | 12.04 | | | 44.88 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 25.75 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.714 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 46.45 | 46.45 | 1.62 | 84.10 | 29.83 | 48.85 | |
| Stops [stops/h] | 458.77 | 470.84 | 13.86 | 291.79 | 158.01 | 409.19 | |
| Fuel consumption [US gal/h] | 9.59 | 9.85 | 0.38 | 8.30 | 5.37 | 13.85 | |
| CO [g/h] | 670.07 | 688.31 | 26.80 | 580.01 | 375.16 | 967.80 | |
| NOx [g/h] | 130.37 | 133.92 | 5.21 | 112.85 | 72.99 | 188.30 | |
| VOC [g/h] | 155.30 | 159.52 | 6.21 | 134.42 | 86.95 | 224.30 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.958 | 2.968 | 2.339 | 1.781 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.715 | 2.214 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.077 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 168 | 8 | 4 | 434 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 168 | 8 | 4 | 434 |
| Peak Hour Factor | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 72 | 3 | 2 | 187 |
| Total Analysis Volume [veh/h] | 19 | 0 | 290 | 14 | 7 | 748 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.08 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 20.85 | 11.07 | 0.00 | 0.00 | 7.87 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 6.22 | 6.22 | 0.00 | 0.00 | 0.29 | 0.29 |
| d_A, Approach Delay [s/veh] | 20.85 | | 0.00 | | 0.07 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.42 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.022 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 21 | 14 | 430 | 542 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 21 | 14 | 430 | 542 | 13 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 6 | 4 | 121 | 152 | 4 |
| Total Analysis Volume [veh/h] | 6 | 24 | 16 | 483 | 609 | 15 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.04 | 0.02 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 18.38 | 10.69 | 8.84 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.18 | 0.05 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.50 | 4.50 | 1.28 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.23 | | 0.28 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.44 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 29.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.427 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 81 | 20 | 469 | 37 | 5 | 504 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 81 | 20 | 469 | 37 | 5 | 504 |
| Peak Hour Factor | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 7 | 154 | 12 | 2 | 166 |
| Total Analysis Volume [veh/h] | 107 | 26 | 617 | 49 | 7 | 663 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.43 | 0.04 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 29.85 | 20.72 | 0.00 | 0.00 | 8.98 | 0.00 |
| Movement LOS | D | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.32 | 2.32 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 58.11 | 58.11 | 0.00 | 0.00 | 0.58 | 0.00 |
| d_A, Approach Delay [s/veh] | 28.07 | | 0.00 | | 0.09 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.58 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 68.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.888 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 248 | 43 | 2 | 349 | 65 | 92 | 266 | 142 | 194 | 325 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 248 | 43 | 2 | 349 | 65 | 92 | 266 | 142 | 194 | 325 | 30 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 81 | 14 | 1 | 113 | 21 | 30 | 86 | 46 | 63 | 106 | 10 |
| Total Analysis Volume [veh/h] | 48 | 322 | 56 | 3 | 453 | 84 | 119 | 345 | 184 | 252 | 422 | 39 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 30 | 30 | 33 | 33 | 12 | 28 | 28 | 21 | 38 |
| g / C, Green / Cycle | 0.23 | 0.23 | 0.26 | 0.26 | 0.09 | 0.22 | 0.22 | 0.17 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.04 | 0.00 | 0.29 | 0.07 | 0.10 | 0.11 | 0.14 | 0.25 |
| s, saturation flow rate [veh/h] | 1888 | 1519 | 1810 | 1849 | 1738 | 3520 | 1603 | 1752 | 1845 |
| c, Capacity [veh/h] | 438 | 352 | 466 | 477 | 158 | 770 | 351 | 292 | 544 |
| d1, Uniform Delay [s] | 46.97 | 39.21 | 35.33 | 47.52 | 56.83 | 43.32 | 44.14 | 51.93 | 42.44 |
| k, delay calibration | 0.13 | 0.04 | 0.23 | 0.50 | 0.04 | 0.23 | 0.23 | 0.04 | 0.37 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.40 | 0.08 | 0.01 | 80.78 | 2.76 | 0.87 | 2.59 | 2.97 | 11.69 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.85 | 0.16 | 0.01 | 1.13 | 0.76 | 0.45 | 0.52 | 0.86 | 0.85 |
| d, Delay for Lane Group [s/veh] | 52.38 | 39.29 | 35.34 | 128.30 | 59.60 | 44.20 | 46.73 | 54.90 | 54.14 |
| Lane Group LOS | D | D | D | F | E | D | D | D | D |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 11.88 | 1.43 | 0.07 | 25.75 | 3.76 | 4.67 | 5.23 | 7.84 | 14.83 |
| 50th-Percentile Queue Length [ft/ln] | 297.09 | 35.65 | 1.80 | 643.79 | 94.04 | 116.85 | 130.75 | 195.89 | 370.69 |
| 95th-Percentile Queue Length [veh/ln] | 17.54 | 2.57 | 0.13 | 36.57 | 6.77 | 8.22 | 8.98 | 12.43 | 21.14 |
| 95th-Percentile Queue Length [ft/ln] | 438.43 | 64.17 | 3.24 | 914.18 | 169.27 | 205.48 | 224.51 | 310.66 | 528.56 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 52.38 | 52.38 | 39.29 | 35.34 | 128.30 | 128.30 | 59.60 | 44.20 | 46.73 | 54.90 | 54.14 | 54.14 |
| Movement LOS | D | D | D | D | F | F | E | D | D | D | D | D |
| d_A, Approach Delay [s/veh] | 50.65 | | | 127.78 | | | 47.74 | | | 54.40 | | |
| Approach LOS | D | | | F | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 68.89 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.888 | | | | | | | | | | | |

**Emissions**

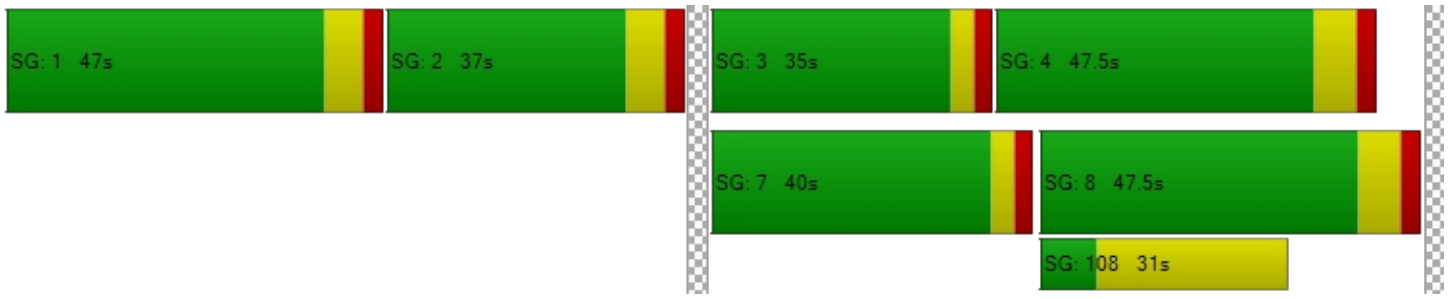
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 368.68 | 55.80 | 0.08 | 15.11 | 43.88 | 127.22 | 67.85 | 127.32 | 232.91 |
| Stops [stops/h] | 334.72 | 40.16 | 2.03 | 725.32 | 105.95 | 263.29 | 147.31 | 220.70 | 417.63 |
| Fuel consumption [US gal/h] | 20.97 | 2.97 | 0.04 | 18.65 | 4.54 | 11.40 | 6.28 | 10.47 | 19.29 |
| CO [g/h] | 1465.78 | 207.37 | 2.53 | 1303.46 | 317.27 | 797.18 | 439.19 | 731.60 | 1348.27 |
| NOx [g/h] | 285.19 | 40.35 | 0.49 | 253.61 | 61.73 | 155.10 | 85.45 | 142.34 | 262.32 |
| VOC [g/h] | 339.71 | 48.06 | 0.59 | 302.09 | 73.53 | 184.75 | 101.79 | 169.56 | 312.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 53.38 | 57.57 | 57.10 | 57.10 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.468 | 2.292 | 2.710 | 2.604 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 626 | 469 | 626 | 626 |
| d_b, Bicycle Delay [s] | 30.17 | 37.43 | 30.17 | 30.17 |
| l_b,int, Bicycle LOS Score for Intersection | 2.263 | 2.451 | 2.094 | 2.736 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.667 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 335 | 63 | 2 | 726 | 236 | 81 | 85 | 75 | 238 | 307 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 335 | 63 | 2 | 726 | 236 | 81 | 85 | 75 | 238 | 307 | 9 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 102 | 19 | 1 | 221 | 72 | 25 | 26 | 23 | 73 | 94 | 3 |
| Total Analysis Volume [veh/h] | 109 | 409 | 77 | 2 | 885 | 288 | 99 | 104 | 91 | 290 | 374 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 33 | 33 | 0 | 25 | 25 | 8 | 13 | 13 | 14 | 19 | 19 |
| g / C, Green / Cycle | 0.11 | 0.43 | 0.43 | 0.00 | 0.33 | 0.33 | 0.10 | 0.17 | 0.17 | 0.19 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.12 | 0.05 | 0.00 | 0.25 | 0.18 | 0.06 | 0.06 | 0.06 | 0.16 | 0.20 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1609 | 1810 | 3592 | 1593 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 188 | 1526 | 697 | 9 | 1189 | 528 | 186 | 302 | 263 | 335 | 467 | 347 |
| d1, Uniform Delay [s] | 32.37 | 13.85 | 12.86 | 37.73 | 22.61 | 20.79 | 32.35 | 28.13 | 28.13 | 30.04 | 26.86 | 21.70 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.07 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.04 | 0.12 | 0.09 | 4.43 | 1.25 | 1.17 | 0.88 | 0.84 | 0.97 | 4.67 | 4.00 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.27 | 0.11 | 0.22 | 0.74 | 0.55 | 0.53 | 0.34 | 0.35 | 0.87 | 0.80 | 0.03 |
| d, Delay for Lane Group [s/veh] | 33.42 | 13.98 | 12.95 | 42.16 | 23.86 | 21.96 | 33.23 | 28.97 | 29.10 | 34.71 | 30.86 | 21.75 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.80 | 1.92 | 0.68 | 0.05 | 6.27 | 3.80 | 1.72 | 1.70 | 1.49 | 5.14 | 6.26 | 0.14 |
| 50th-Percentile Queue Length [ft/ln] | 45.09 | 47.96 | 16.98 | 1.14 | 156.79 | 95.04 | 43.11 | 42.38 | 37.31 | 128.53 | 156.60 | 3.52 |
| 95th-Percentile Queue Length [veh/ln] | 3.25 | 3.45 | 1.22 | 0.08 | 10.38 | 6.84 | 3.10 | 3.05 | 2.69 | 8.86 | 10.37 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 81.17 | 86.32 | 30.56 | 2.05 | 259.47 | 171.08 | 77.59 | 76.28 | 67.16 | 221.50 | 259.21 | 6.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.42 | 13.98 | 12.95 | 42.16 | 23.86 | 21.96 | 33.23 | 28.97 | 29.10 | 34.71 | 30.86 | 21.75 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 17.41 | | | 23.43 | | | 30.44 | | | 32.37 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.08 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.667 | | | | | | | | | | | |

**Emissions**

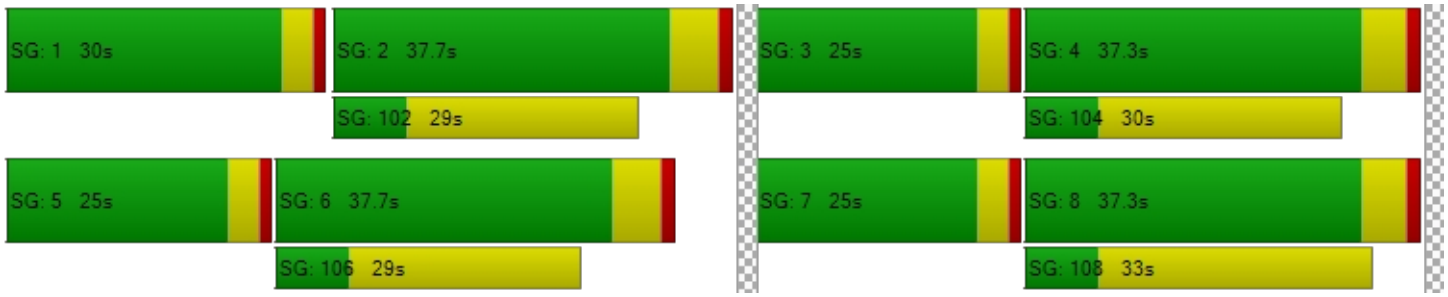
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 49.89 | 187.22 | 35.25 | 1.99 | 881.85 | 286.97 | 99.16 | 104.17 | 91.15 | 145.46 | 187.60 | 5.52 |
| Stops [stops/h] | 85.47 | 181.81 | 32.18 | 2.16 | 594.40 | 180.15 | 81.71 | 80.32 | 70.72 | 243.63 | 296.83 | 6.68 |
| Fuel consumption [US gal/h] | 3.72 | 10.22 | 1.88 | 0.12 | 42.95 | 13.66 | 5.20 | 5.35 | 4.68 | 10.06 | 12.47 | 0.32 |
| CO [g/h] | 260.32 | 714.66 | 131.23 | 8.18 | 3002.42 | 955.03 | 363.68 | 373.63 | 327.26 | 703.46 | 871.64 | 22.43 |
| NOx [g/h] | 50.65 | 139.05 | 25.53 | 1.59 | 584.16 | 185.81 | 70.76 | 72.69 | 63.67 | 136.87 | 169.59 | 4.36 |
| VOC [g/h] | 60.33 | 165.63 | 30.41 | 1.90 | 695.84 | 221.34 | 84.29 | 86.59 | 75.85 | 163.03 | 202.01 | 5.20 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.78 | 27.78 | 27.78 | 27.78 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.948 | 2.902 | 2.381 | 2.435 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 842 | 842 | 842 | 842 |
| d_b, Bicycle Delay [s] | 12.72 | 12.72 | 12.72 | 12.72 |
| l_b,int, Bicycle LOS Score for Intersection | 2.050 | 2.529 | 2.045 | 2.673 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 14.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 182 | 409 | 269 | 89 | 946 | 54 | 33 | 35 | 299 | 231 | 37 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 182 | 409 | 269 | 89 | 946 | 54 | 33 | 35 | 299 | 231 | 37 | 79 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 50 | 112 | 74 | 24 | 260 | 15 | 9 | 10 | 82 | 63 | 10 | 22 |
| Total Analysis Volume [veh/h] | 200 | 449 | 296 | 98 | 1040 | 59 | 36 | 38 | 329 | 254 | 41 | 87 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 178 | | | 508 | | | 1419 | | | 716 | | |
| Exiting Flow Rate [veh/h] | 1649 | | | 599 | | | 304 | | | 442 | | |
| Demand Flow Rate [veh/h] | 182 | 409 | 269 | 89 | 946 | 54 | 33 | 35 | 299 | 231 | 37 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 200 | 449 | 296 | 98 | 1040 | 59 | 36 | 38 | 329 | 254 | 41 | 87 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.96 | 0.98 | 0.99 | 0.96 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 465 | 522 | 572 | 643 | 77 | 332 | 210 | 184 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1208 | 1208 | 847 | 923 | 366 | 426 | 699 | 773 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1154 | 1159 | 833 | 911 | 353 | 422 | 675 | 755 |
| X, volume / capacity | 0.38 | 0.43 | 0.68 | 0.70 | 0.21 | 0.78 | 0.30 | 0.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | C | C | B | E | A | A |
| 95th-Percentile Queue Length [veh] | 1.84 | 2.23 | 5.38 | 5.90 | 0.78 | 6.75 | 1.26 | 0.92 |
| 95th-Percentile Queue Length [ft] | 45.98 | 55.65 | 134.60 | 147.38 | 19.51 | 168.63 | 31.48 | 23.10 |
| Approach Delay [s/veh] | 7.32 | | 16.09 | | 32.65 | | 8.32 | |
| Approach LOS | A | | C | | D | | A | |
| Intersection Delay [s/veh] | 14.53 | | | | | | | |
| Intersection LOS | B | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.647 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 690 | 603 | 0 | 777 | 687 | 0 | 0 | 0 | 67 | 0 | 140 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 690 | 603 | 0 | 777 | 687 | 0 | 0 | 0 | 67 | 0 | 140 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 192 | 168 | 0 | 216 | 191 | 0 | 0 | 0 | 19 | 0 | 39 |
| Total Analysis Volume [veh/h] | 0 | 767 | 670 | 0 | 863 | 763 | 0 | 0 | 0 | 74 | 0 | 156 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 31 | 31 | 31 | | 8 | 8 |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.60 | | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.24 | 0.47 | | 0.04 | 0.10 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2133 | 2129 | 969 | | 267 | 241 |
| d1, Uniform Delay [s] | 5.21 | 5.39 | 7.75 | | 19.26 | 20.46 |
| k, delay calibration | 0.20 | 0.20 | 0.27 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.23 | 3.54 | | 1.19 | 6.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.41 | 0.79 | | 0.28 | 0.65 |
| d, Delay for Lane Group [s/veh] | 5.40 | 5.63 | 11.29 | | 20.45 | 26.59 |
| Lane Group LOS | A | A | B | | C | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.09 | 1.27 | 4.01 | | 0.71 | 1.80 |
| 50th-Percentile Queue Length [ft/ln] | 27.19 | 31.77 | 100.14 | | 17.73 | 45.01 |
| 95th-Percentile Queue Length [veh/ln] | 1.96 | 2.29 | 7.21 | | 1.28 | 3.24 |
| 95th-Percentile Queue Length [ft/ln] | 48.95 | 57.19 | 180.25 | | 31.91 | 81.02 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.40 | 0.00 | 0.00 | 5.63 | 11.29 | 0.00 | 0.00 | 0.00 | 20.45 | 0.00 | 26.59 |
| Movement LOS | | A | | | A | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 3.02 | | | 8.28 | | | 0.00 | | | 24.61 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 8.18 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.647 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 87.74 | 85.14 | 75.28 | | 5.24 | 11.04 |
| Stops [stops/h] | 153.12 | 178.91 | 281.95 | | 49.92 | 126.74 |
| Fuel consumption [US gal/h] | 5.75 | 6.13 | 7.84 | | 1.41 | 3.57 |
| CO [g/h] | 402.18 | 428.57 | 547.91 | | 98.58 | 249.36 |
| NOx [g/h] | 78.25 | 83.38 | 106.60 | | 19.18 | 48.52 |
| VOC [g/h] | 93.21 | 99.32 | 126.98 | | 22.85 | 57.79 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.57 | 22.57 | 15.75 | 15.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.781 | 3.028 | 2.055 | 2.045 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1369 | 1369 | 0 | 782 |
| d_b, Bicycle Delay [s] | 2.55 | 2.55 | 25.57 | 9.48 |
| l_b,int, Bicycle LOS Score for Intersection | 2.192 | 2.901 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 93.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.023 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1001 | 23 | 27 | 823 | 0 | 269 | 0 | 899 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1001 | 23 | 27 | 823 | 0 | 269 | 0 | 899 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 272 | 6 | 7 | 224 | 0 | 73 | 0 | 244 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1088 | 25 | 29 | 895 | 0 | 292 | 0 | 977 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 97 | 97 | 97 | 97 | 97 | 97 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 35 | 35 | 3 | 44 | 40 | 40 | |
| g / C, Green / Cycle | 0.36 | 0.36 | 0.03 | 0.46 | 0.41 | 0.41 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.30 | 0.30 | 0.02 | 0.25 | 0.17 | 0.61 | |
| s, saturation flow rate [veh/h] | 1873 | 1858 | 1758 | 3580 | 1749 | 1597 | |
| c, Capacity [veh/h] | 683 | 678 | 60 | 1640 | 723 | 660 | |
| d1, Uniform Delay [s] | 27.79 | 27.89 | 45.93 | 18.97 | 20.03 | 28.43 | |
| k, delay calibration | 0.24 | 0.24 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 5.24 | 5.55 | 2.21 | 0.51 | 0.78 | 224.65 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.82 | 0.48 | 0.55 | 0.40 | 1.48 | |
| d, Delay for Lane Group [s/veh] | 33.03 | 33.43 | 48.13 | 19.48 | 20.81 | 253.08 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 11.69 | 11.78 | 0.70 | 6.69 | 4.27 | 54.35 | |
| 50th-Percentile Queue Length [ft/ln] | 292.34 | 294.50 | 17.43 | 167.24 | 106.79 | 1358.81 | |
| 95th-Percentile Queue Length [veh/ln] | 17.30 | 17.41 | 1.26 | 10.93 | 7.66 | 83.40 | |
| 95th-Percentile Queue Length [ft/ln] | 432.55 | 435.22 | 31.38 | 273.29 | 191.53 | 2085.03 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 33.23 | 33.43 | 48.13 | 19.48 | 0.00 | 20.81 | 0.00 | 253.08 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 33.23 | | | 20.38 | | | 199.63 | | | 0.00 | | |
| Approach LOS | C | | | C | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 93.51 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.023 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.08 | 45.08 | 3.32 | 102.38 | 22.83 | 76.40 | |
| Stops [stops/h] | 435.15 | 438.36 | 25.95 | 497.88 | 158.96 | 2022.57 | |
| Fuel consumption [US gal/h] | 10.70 | 10.78 | 0.72 | 13.25 | 4.95 | 90.43 | |
| CO [g/h] | 747.67 | 753.63 | 50.35 | 926.01 | 346.21 | 6321.12 | |
| NOx [g/h] | 145.47 | 146.63 | 9.80 | 180.17 | 67.36 | 1229.86 | |
| VOC [g/h] | 173.28 | 174.66 | 11.67 | 214.61 | 80.24 | 1464.98 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.13 | 45.13 | 38.00 | 38.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.233 | 3.025 | 2.852 | 1.744 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 930 | 724 | 827 | 0 |
| d_b, Bicycle Delay [s] | 13.84 | 19.70 | 16.64 | 48.37 |
| l_b,int, Bicycle LOS Score for Intersection | 2.478 | 2.322 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 28.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.521 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 8 | 31 | 124 | 14 | 69 | 10 | 268 | 37 | 15 | 279 | 43 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 61 | 8 | 31 | 124 | 14 | 69 | 10 | 268 | 37 | 15 | 279 | 43 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 3 | 10 | 41 | 5 | 23 | 3 | 89 | 12 | 5 | 93 | 14 |
| Total Analysis Volume [veh/h] | 81 | 11 | 41 | 165 | 19 | 92 | 13 | 357 | 49 | 20 | 372 | 57 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.31 | 0.04 | 0.05 | 0.52 | 0.07 | 0.12 | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.73 | 22.82 | 14.62 | 28.08 | 19.09 | 10.84 | 8.19 | 0.00 | 0.00 | 8.15 | 0.00 | 0.00 |
| Movement LOS | C | C | B | D | C | B | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.53 | 1.53 | 1.53 | 2.84 | 0.66 | 0.66 | 0.03 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 38.32 | 38.32 | 38.32 | 70.91 | 16.61 | 16.61 | 0.86 | 0.00 | 0.00 | 1.31 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 20.85 | | | 21.71 | | | 0.25 | | | 0.36 | | |
| Approach LOS | C | | | C | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.08 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.679 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 6 | 1 | 1 | 5 | 510 | 126 | 2 | 2 | 0 | 4 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 6 | 1 | 1 | 5 | 510 | 126 | 2 | 2 | 0 | 4 | 1 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 2 | 0 | 0 | 2 | 157 | 39 | 1 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 7 | 1 | 1 | 6 | 630 | 156 | 2 | 2 | 0 | 5 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 705 | 938 | 657 | 661 |
| Degree of Utilization, x | 0.02 | 0.68 | 0.24 | 0.01 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.07 | 5.54 | 0.95 | 0.03 |
| 95th-Percentile Queue Length [ft] | 1.63 | 138.55 | 23.76 | 0.69 |
| Approach Delay [s/veh] | 8.22 | 14.57 | 10.23 | 8.50 |
| Approach LOS | A | B | B | A |
| Intersection Delay [s/veh] | 13.56 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.354 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 124 | 16 | 0 | 278 | 141 | 4 | 211 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 124 | 16 | 0 | 278 | 141 | 4 | 211 |
| Peak Hour Factor | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 5 | 0 | 95 | 48 | 1 | 72 |
| Total Analysis Volume [veh/h] | 170 | 22 | 0 | 381 | 193 | 5 | 289 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.00 | 0.33 | 0.33 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.01 | 0.00 | 0.11 | 0.12 | 0.00 | 0.15 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 1900 |
| c, Capacity [veh/h] | 457 | 418 | 1 | 1151 | 517 | 22 | 652 |
| d1, Uniform Delay [s] | 9.18 | 8.41 | 0.00 | 7.58 | 7.70 | 14.77 | 7.69 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.02 | 0.00 | 0.23 | 0.61 | 1.87 | 0.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.05 | 0.00 | 0.33 | 0.37 | 0.22 | 0.44 |
| d, Delay for Lane Group [s/veh] | 9.36 | 8.43 | 0.00 | 7.81 | 8.32 | 16.64 | 8.34 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.65 | 0.08 | 0.00 | 0.42 | 0.48 | 0.04 | 1.01 |
| 50th-Percentile Queue Length [ft/ln] | 16.19 | 1.91 | 0.00 | 10.52 | 12.09 | 0.96 | 25.18 |
| 95th-Percentile Queue Length [veh/ln] | 1.17 | 0.14 | 0.00 | 0.76 | 0.87 | 0.07 | 1.81 |
| 95th-Percentile Queue Length [ft/ln] | 29.14 | 3.43 | 0.00 | 18.93 | 21.76 | 1.73 | 45.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.36 | 8.43 | 0.00 | 7.81 | 8.32 | 16.64 | 8.34 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.26 | | 7.98 | | | 8.48 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.35 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.354 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 127.23 | 16.46 | 0.00 | 190.62 | 96.56 | 6.49 | 375.17 |
| Stops [stops/h] | 77.49 | 9.12 | 0.00 | 100.67 | 57.85 | 4.61 | 120.51 |
| Fuel consumption [US gal/h] | 5.99 | 0.77 | 0.00 | 8.53 | 4.45 | 0.31 | 16.60 |
| CO [g/h] | 418.67 | 53.54 | 0.00 | 596.58 | 310.95 | 21.64 | 1160.40 |
| NOx [g/h] | 81.46 | 10.42 | 0.00 | 116.07 | 60.50 | 4.21 | 225.77 |
| VOC [g/h] | 97.03 | 12.41 | 0.00 | 138.26 | 72.07 | 5.02 | 268.93 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.05 | 11.57 | 11.57 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.996 | 2.591 | 2.256 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1463 | 2127 | 2127 |
| d_b, Bicycle Delay [s] | 1.09 | 0.06 | 0.06 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 2.033 | 2.045 |
| Bicycle LOS | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 180.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.458 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 729 | 8 | 12 | 51 | 11 | 140 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 729 | 8 | 12 | 51 | 11 | 140 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 225 | 2 | 4 | 16 | 3 | 43 |
| Total Analysis Volume [veh/h] | 900 | 10 | 15 | 63 | 14 | 173 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 900 | 781 | 490 | 533 | 617 |
| Degree of Utilization, x | 1.46 | 0.01 | 0.03 | 0.12 | 0.30 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 43.15 | 0.04 | 0.09 | 0.40 | 1.27 |
| 95th-Percentile Queue Length [ft] | 1078.71 | 0.97 | 2.37 | 9.98 | 31.85 |
| Approach Delay [s/veh] | 229.20 | | 10.34 | | 11.35 |
| Approach LOS | F | | B | | B |
| Intersection Delay [s/veh] | 180.00 | | | | |
| Intersection LOS | F | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 50.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.669 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 116 | 33 | 13 | 2 | 88 | 678 | 134 | 215 | 51 | 47 | 521 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 339 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 116 | 33 | 13 | 2 | 88 | 339 | 134 | 215 | 51 | 47 | 521 | 13 |
| Peak Hour Factor | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 11 | 4 | 1 | 28 | 109 | 43 | 69 | 16 | 15 | 167 | 4 |
| Total Analysis Volume [veh/h] | 149 | 42 | 17 | 3 | 113 | 435 | 172 | 276 | 65 | 60 | 668 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 11 | 40 | 40 | 1 | 30 | 30 | 10 | 31 | 31 | 8 | 30 | 30 |
| g / C, Green / Cycle | 0.10 | 0.36 | 0.36 | 0.01 | 0.27 | 0.27 | 0.09 | 0.28 | 0.28 | 0.08 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.01 | 0.01 | 0.00 | 0.06 | 0.27 | 0.05 | 0.08 | 0.04 | 0.04 | 0.19 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 180 | 1132 | 577 | 15 | 494 | 433 | 292 | 925 | 443 | 129 | 959 | 429 |
| d1, Uniform Delay [s] | 48.97 | 22.86 | 22.80 | 54.69 | 31.54 | 40.54 | 48.59 | 31.18 | 29.78 | 49.13 | 36.48 | 29.94 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.45 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.34 | 0.03 | 0.05 | 5.97 | 0.68 | 42.23 | 1.90 | 1.14 | 0.97 | 2.59 | 5.74 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.04 | 0.03 | 0.19 | 0.23 | 1.01 | 0.59 | 0.30 | 0.15 | 0.46 | 0.70 | 0.04 |
| d, Delay for Lane Group [s/veh] | 58.31 | 22.89 | 22.85 | 60.66 | 32.22 | 82.77 | 50.49 | 32.32 | 30.75 | 51.71 | 42.22 | 30.18 |
| Lane Group LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.50 | 0.36 | 0.30 | 0.11 | 2.45 | 16.70 | 2.36 | 3.04 | 1.42 | 1.68 | 8.84 | 0.37 |
| 50th-Percentile Queue Length [ft/ln] | 112.61 | 9.05 | 7.41 | 2.72 | 61.36 | 417.43 | 59.07 | 76.09 | 35.55 | 42.11 | 220.99 | 9.15 |
| 95th-Percentile Queue Length [veh/ln] | 7.98 | 0.65 | 0.53 | 0.20 | 4.42 | 23.48 | 4.25 | 5.48 | 2.56 | 3.03 | 13.72 | 0.66 |
| 95th-Percentile Queue Length [ft/ln] | 199.62 | 16.29 | 13.34 | 4.90 | 110.45 | 586.90 | 106.32 | 136.96 | 63.99 | 75.81 | 342.89 | 16.47 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.31 | 22.89 | 22.85 | 60.66 | 32.22 | 82.77 | 50.49 | 32.32 | 30.75 | 51.71 | 42.22 | 30.18 |
| Movement LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 48.26 | | | 72.28 | | | 38.21 | | | 42.71 | | |
| Approach LOS | D | | | E | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 50.22 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.669 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.79 | 3.60 | 1.46 | 0.82 | 30.98 | 119.28 | 23.77 | 38.14 | 8.98 | 74.83 | 833.14 | 21.20 |
| Stops [stops/h] | 146.14 | 23.49 | 9.62 | 3.53 | 79.63 | 541.73 | 153.31 | 197.49 | 46.14 | 54.66 | 573.59 | 11.87 |
| Fuel consumption [US gal/h] | 3.10 | 0.47 | 0.19 | 0.09 | 2.46 | 15.23 | 3.59 | 4.48 | 1.03 | 4.01 | 43.20 | 1.04 |
| CO [g/h] | 216.80 | 33.12 | 13.44 | 6.32 | 171.70 | 1064.53 | 251.12 | 312.92 | 72.09 | 280.57 | 3020.02 | 72.90 |
| NOx [g/h] | 42.18 | 6.44 | 2.61 | 1.23 | 33.41 | 207.12 | 48.86 | 60.88 | 14.03 | 54.59 | 587.59 | 14.18 |
| VOC [g/h] | 50.24 | 7.68 | 3.11 | 1.46 | 39.79 | 246.72 | 58.20 | 72.52 | 16.71 | 65.03 | 699.92 | 16.89 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.03 | 45.03 | 45.03 | 45.03 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.397 | 3.011 | 2.897 | 2.632 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 360 | 541 | 721 | 721 |
| d_b, Bicycle Delay [s] | 37.28 | 29.54 | 22.69 | 22.69 |
| l_b,int, Bicycle LOS Score for Intersection | 1.731 | 3.028 | 1.983 | 2.174 |
| Bicycle LOS | A | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.347 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 58 | 2 | 112 | 140 | 198 | 47 | 177 | 13 | 1 | 315 | 87 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 58 | 2 | 112 | 140 | 198 | 47 | 177 | 13 | 1 | 315 | 87 |
| Peak Hour Factor | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 17 | 1 | 33 | 42 | 59 | 14 | 53 | 4 | 0 | 94 | 26 |
| Total Analysis Volume [veh/h] | 36 | 69 | 2 | 133 | 167 | 236 | 56 | 211 | 15 | 1 | 375 | 104 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 14 | 9 | 18 | 18 | 7 | 18 | 18 | 0 | 12 | 12 |
| g / C, Green / Cycle | 0.07 | 0.19 | 0.13 | 0.25 | 0.25 | 0.09 | 0.26 | 0.26 | 0.00 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.04 | 0.04 | 0.09 | 0.15 | 0.02 | 0.06 | 0.01 | 0.00 | 0.10 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1762 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 128 | 340 | 449 | 468 | 403 | 320 | 897 | 417 | 6 | 610 | 479 |
| d1, Uniform Delay [s] | 31.58 | 24.39 | 28.31 | 22.17 | 23.66 | 29.96 | 21.08 | 19.98 | 35.74 | 27.63 | 25.68 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.44 | 1.03 | 0.14 | 2.62 | 7.51 | 0.10 | 0.29 | 0.07 | 5.13 | 2.15 | 0.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.28 | 0.21 | 0.30 | 0.36 | 0.59 | 0.17 | 0.24 | 0.04 | 0.17 | 0.62 | 0.22 |
| d, Delay for Lane Group [s/veh] | 32.02 | 25.42 | 28.44 | 24.79 | 31.17 | 30.05 | 21.36 | 20.06 | 40.87 | 29.78 | 26.16 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.59 | 1.07 | 0.95 | 2.38 | 3.92 | 0.44 | 1.37 | 0.19 | 0.02 | 2.71 | 0.68 |
| 50th-Percentile Queue Length [ft/ln] | 14.74 | 26.85 | 23.64 | 59.58 | 98.02 | 10.90 | 34.35 | 4.73 | 0.59 | 67.73 | 17.08 |
| 95th-Percentile Queue Length [veh/ln] | 1.06 | 1.93 | 1.70 | 4.29 | 7.06 | 0.78 | 2.47 | 0.34 | 0.04 | 4.88 | 1.23 |
| 95th-Percentile Queue Length [ft/ln] | 26.52 | 48.33 | 42.54 | 107.24 | 176.44 | 19.62 | 61.83 | 8.51 | 1.06 | 121.92 | 30.75 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.02 | 25.42 | 25.42 | 28.44 | 24.79 | 31.17 | 30.05 | 21.36 | 20.06 | 40.87 | 29.78 | 26.16 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.64 | | | 28.51 | | | 23.02 | | | 29.02 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.52 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.347 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.67 | 5.26 | 172.66 | 216.80 | 306.37 | 69.84 | 263.16 | 18.71 | 0.17 | 64.86 | 17.99 |
| Stops [stops/h] | 29.57 | 53.89 | 94.88 | 119.58 | 196.74 | 43.75 | 137.90 | 9.49 | 1.19 | 271.89 | 68.58 |
| Fuel consumption [US gal/h] | 0.51 | 0.88 | 8.01 | 9.94 | 14.78 | 3.46 | 12.51 | 0.88 | 0.05 | 11.64 | 2.97 |
| CO [g/h] | 35.49 | 61.61 | 559.77 | 694.69 | 1032.90 | 241.82 | 874.63 | 61.78 | 3.16 | 813.52 | 207.89 |
| NOx [g/h] | 6.91 | 11.99 | 108.91 | 135.16 | 200.96 | 47.05 | 170.17 | 12.02 | 0.62 | 158.28 | 40.45 |
| VOC [g/h] | 8.23 | 14.28 | 129.73 | 161.00 | 239.38 | 56.04 | 202.70 | 14.32 | 0.73 | 188.54 | 48.18 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.72 | 25.72 | 25.72 | 25.72 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.022 | 2.648 | 2.711 | 2.831 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 558 | 558 | 836 | 836 |
| d_b, Bicycle Delay [s] | 18.66 | 18.66 | 12.15 | 12.15 |
| l_b,int, Bicycle LOS Score for Intersection | 1.736 | 2.444 | 1.792 | 1.956 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.174 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 131 | 0 | 274 | 477 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 131 | 0 | 274 | 477 | 15 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 33 | 0 | 69 | 119 | 4 |
| Total Analysis Volume [veh/h] | 0 | 131 | 0 | 274 | 477 | 15 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.59 | 10.77 | 8.37 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.63 | 0.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.64 | 15.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.77 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.57 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.144 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 145 | 0 | 0 | 26 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 145 | 0 | 0 | 26 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 0 | 0 | 7 | 0 | 0 |
| Total Analysis Volume [veh/h] | 145 | 0 | 0 | 26 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.18 | 8.97 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.50 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 12.57 | 12.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.18 | | 0.00 | | 3.63 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.78 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Near Term MP1 PM.pdf

Scenario 12 Near Term PM MP1
9/4/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.575 | 24.6 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.482 | 24.1 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.604 | 29.9 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | WB Left | 0.023 | 47.1 | E |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | SB Thru | 1.492 | 174.2 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.698 | 29.8 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.713 | 37.6 | D |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | EB Thru | 0.813 | 48.9 | D |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.709 | 34.6 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.877 | 57.7 | E |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.820 | 54.2 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.604 | 12.9 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.735 | 18.0 | C |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | NB Thru | 2.310 | 327.3 | F |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Left | 0.602 | 24.8 | C |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.807 | 55.3 | E |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 1.188 | 75.6 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 1.082 | 146.6 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.633 | 21.9 | C |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | EB Left | 0.107 | 32.9 | D |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.784 | 25.8 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.608 | 19.5 | B |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.572 | 14.6 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.752 | 32.2 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.032 | 20.0 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.002 | 12.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.086 | 12.0 | B |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.784 | 48.5 | D |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.600 | 20.0 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 10.0 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.452 | 4.7 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.094 | 98.9 | F |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Thru | 0.078 | 39.3 | E |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | EB Left | 0.581 | 12.2 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.450 | 8.9 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | WB Right | 1.021 | 46.8 | E |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | EB Left | 0.541 | 38.7 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.215 | 24.2 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.162 | 10.4 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.117 | 9.3 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.575 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 299 | 545 | 24 | 183 | 283 | 92 | 9 | 116 | 256 | 9 | 92 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 299 | 545 | 24 | 183 | 283 | 92 | 9 | 116 | 256 | 9 | 92 | 65 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 85 | 155 | 7 | 52 | 80 | 26 | 3 | 33 | 73 | 3 | 26 | 18 |
| Total Analysis Volume [veh/h] | 340 | 619 | 27 | 208 | 322 | 105 | 10 | 132 | 291 | 10 | 105 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 9 | 20 | 20 | 10 | 19 | 19 | 1 | 16 | 16 | 1 | 16 | 16 |
| g / C, Green / Cycle | 0.13 | 0.29 | 0.29 | 0.14 | 0.29 | 0.29 | 0.02 | 0.24 | 0.24 | 0.02 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.17 | 0.02 | 0.11 | 0.06 | 0.07 | 0.01 | 0.07 | 0.18 | 0.01 | 0.06 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 3618 | 1615 | 1810 | 5159 | 1615 | 1810 | 1900 | 1604 | 1810 | 1864 | 1615 |
| c, Capacity [veh/h] | 454 | 1046 | 467 | 256 | 1481 | 463 | 37 | 461 | 389 | 37 | 436 | 377 |
| d1, Uniform Delay [s] | 28.53 | 20.71 | 17.46 | 28.29 | 18.43 | 18.48 | 32.78 | 20.95 | 23.82 | 32.78 | 21.15 | 20.91 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.94 | 1.74 | 0.17 | 2.36 | 0.24 | 0.80 | 1.42 | 0.80 | 6.63 | 1.42 | 0.49 | 0.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.59 | 0.06 | 0.81 | 0.22 | 0.23 | 0.27 | 0.29 | 0.75 | 0.27 | 0.24 | 0.20 |
| d, Delay for Lane Group [s/veh] | 29.47 | 22.45 | 17.63 | 30.65 | 18.66 | 19.28 | 34.20 | 21.75 | 30.45 | 34.20 | 21.63 | 21.34 |
| Lane Group LOS | C | C | B | C | B | B | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.43 | 3.83 | 0.28 | 3.08 | 1.14 | 1.18 | 0.16 | 1.62 | 4.52 | 0.17 | 1.34 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 60.80 | 95.83 | 7.12 | 76.90 | 28.39 | 29.62 | 4.11 | 40.50 | 113.01 | 4.28 | 33.59 | 23.52 |
| 95th-Percentile Queue Length [veh/ln] | 4.38 | 6.90 | 0.51 | 5.54 | 2.04 | 2.13 | 0.30 | 2.92 | 8.01 | 0.31 | 2.42 | 1.69 |
| 95th-Percentile Queue Length [ft/ln] | 109.43 | 172.49 | 12.82 | 138.41 | 51.10 | 53.32 | 7.39 | 72.90 | 200.19 | 7.70 | 60.46 | 42.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.47 | 22.45 | 17.63 | 30.65 | 18.66 | 19.28 | 34.20 | 21.75 | 30.45 | 34.20 | 21.63 | 21.34 |
| Movement LOS | C | C | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 24.74 | | | 22.69 | | | 27.89 | | | 22.18 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.55 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.575 | | | | | | | | | | | |

**Emissions**

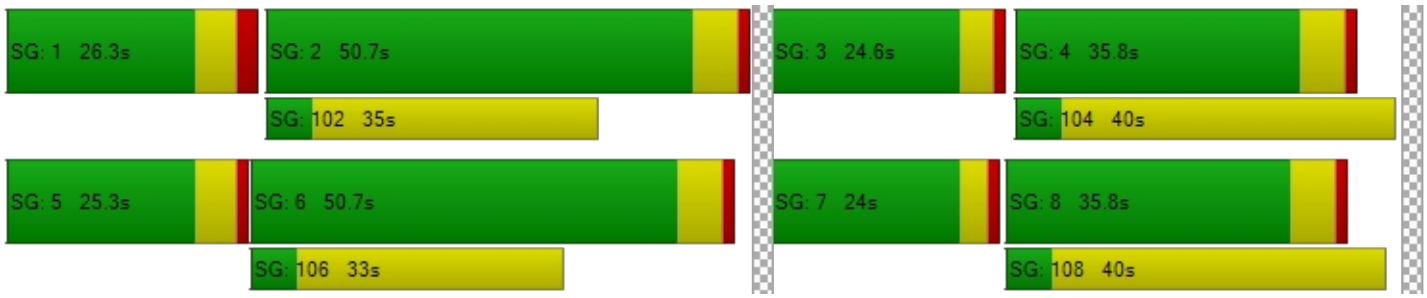
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 171.63 | 312.47 | 13.63 | 20.49 | 31.72 | 10.34 | 1.00 | 13.15 | 28.99 | 10.38 | 108.94 | 76.78 |
| Stops [stops/h] | 258.35 | 407.23 | 15.13 | 163.39 | 180.97 | 62.94 | 8.73 | 86.06 | 240.13 | 9.09 | 71.37 | 49.97 |
| Fuel consumption [US gal/h] | 11.75 | 19.54 | 0.79 | 4.49 | 5.06 | 1.72 | 0.21 | 2.10 | 5.78 | 0.55 | 5.34 | 3.76 |
| CO [g/h] | 821.50 | 1366.05 | 54.91 | 313.95 | 353.91 | 120.53 | 14.84 | 147.14 | 404.21 | 38.23 | 373.36 | 262.70 |
| NOx [g/h] | 159.83 | 265.78 | 10.68 | 61.08 | 68.86 | 23.45 | 2.89 | 28.63 | 78.64 | 7.44 | 72.64 | 51.11 |
| VOC [g/h] | 190.39 | 316.60 | 12.73 | 72.76 | 82.02 | 27.93 | 3.44 | 34.10 | 93.68 | 8.86 | 86.53 | 60.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.48 | 25.48 | 25.48 | 25.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.039 | 2.892 | 2.575 | 2.254 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1328 | 1328 | 885 | 885 |
| d_b, Bicycle Delay [s] | 3.83 | 3.83 | 10.53 | 10.53 |
| l_b,int, Bicycle LOS Score for Intersection | 2.373 | 1.909 | 2.274 | 1.871 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.482 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 818 | 97 | 105 | 476 | 49 | 18 | 95 | 154 | 59 | 155 | 104 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 818 | 97 | 105 | 476 | 49 | 18 | 95 | 154 | 59 | 155 | 104 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 222 | 26 | 29 | 129 | 13 | 5 | 26 | 42 | 16 | 42 | 28 |
| Total Analysis Volume [veh/h] | 121 | 889 | 105 | 114 | 517 | 53 | 20 | 103 | 167 | 64 | 168 | 113 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 26 | 26 | 7 | 26 | 26 | 3 | 13 | 13 | 6 | 15 |
| g / C, Green / Cycle | 0.10 | 0.34 | 0.34 | 0.10 | 0.34 | 0.34 | 0.04 | 0.18 | 0.18 | 0.08 | 0.20 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.17 | 0.07 | 0.06 | 0.10 | 0.03 | 0.01 | 0.05 | 0.10 | 0.04 | 0.16 |
| s, saturation flow rate [veh/h] | 1781 | 5176 | 1615 | 1810 | 5135 | 1615 | 1810 | 1882 | 1605 | 1810 | 1774 |
| c, Capacity [veh/h] | 176 | 1785 | 557 | 177 | 1764 | 555 | 67 | 342 | 292 | 144 | 360 |
| d1, Uniform Delay [s] | 32.49 | 19.33 | 17.12 | 32.42 | 17.87 | 16.62 | 34.98 | 26.41 | 27.87 | 32.77 | 28.16 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.77 | 0.70 | 0.53 | 1.48 | 0.30 | 0.24 | 0.92 | 0.59 | 2.13 | 0.80 | 8.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.69 | 0.50 | 0.19 | 0.65 | 0.29 | 0.10 | 0.30 | 0.30 | 0.57 | 0.45 | 0.78 |
| d, Delay for Lane Group [s/veh] | 34.27 | 20.03 | 17.65 | 33.89 | 18.17 | 16.86 | 35.90 | 27.00 | 30.00 | 33.57 | 36.16 |
| Lane Group LOS | C | C | B | C | B | B | D | C | C | C | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.01 | 3.61 | 1.18 | 1.88 | 1.92 | 0.57 | 0.35 | 1.54 | 2.70 | 1.10 | 5.34 |
| 50th-Percentile Queue Length [ft/ln] | 50.32 | 90.13 | 29.42 | 47.02 | 48.07 | 14.33 | 8.81 | 38.41 | 67.62 | 27.59 | 133.55 |
| 95th-Percentile Queue Length [veh/ln] | 3.62 | 6.49 | 2.12 | 3.39 | 3.46 | 1.03 | 0.63 | 2.77 | 4.87 | 1.99 | 9.13 |
| 95th-Percentile Queue Length [ft/ln] | 90.57 | 162.23 | 52.95 | 84.63 | 86.52 | 25.79 | 15.85 | 69.14 | 121.72 | 49.66 | 228.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.27 | 20.03 | 17.65 | 33.89 | 18.17 | 16.86 | 35.90 | 27.00 | 30.00 | 33.57 | 36.16 | 36.16 |
| Movement LOS | C | C | B | C | B | B | D | C | C | C | D | D |
| d_A, Approach Delay [s/veh] | 21.35 | | | 20.69 | | | 29.34 | | | 35.68 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 24.15 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.482 | | | | | | | | | | | |

**Emissions**

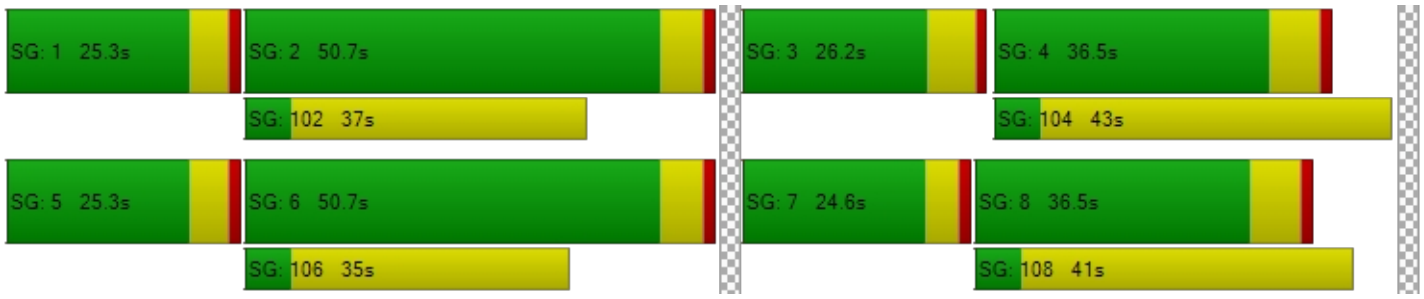
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 122.58 | 900.62 | 106.37 | 57.55 | 260.98 | 26.75 | 2.18 | 11.21 | 18.17 | 66.40 | 291.52 |
| Stops [stops/h] | 97.35 | 523.16 | 56.92 | 90.97 | 279.02 | 27.72 | 17.04 | 74.32 | 130.84 | 53.38 | 258.41 |
| Fuel consumption [US gal/h] | 6.44 | 41.81 | 4.81 | 4.11 | 14.93 | 1.50 | 0.39 | 1.70 | 2.96 | 3.47 | 15.50 |
| CO [g/h] | 450.38 | 2922.82 | 336.43 | 287.28 | 1043.94 | 105.08 | 27.36 | 118.66 | 206.60 | 242.24 | 1083.19 |
| NOx [g/h] | 87.63 | 568.67 | 65.46 | 55.89 | 203.11 | 20.45 | 5.32 | 23.09 | 40.20 | 47.13 | 210.75 |
| VOC [g/h] | 104.38 | 677.39 | 77.97 | 66.58 | 241.94 | 24.35 | 6.34 | 27.50 | 47.88 | 56.14 | 251.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.76 | 28.76 | 28.76 | 28.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.096 | 3.064 | 2.328 | 2.149 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1209 | 1209 | 806 | 806 |
| d_b, Bicycle Delay [s] | 5.82 | 5.82 | 13.26 | 13.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.173 | 1.936 | 2.038 | 2.129 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.604 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 211 | 941 | 455 | 98 | 953 | 143 | 222 | 315 | 163 | 198 | 246 | 37 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 211 | 941 | 455 | 98 | 953 | 143 | 222 | 315 | 163 | 198 | 246 | 37 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 59 | 261 | 126 | 27 | 265 | 40 | 62 | 88 | 45 | 55 | 68 | 10 |
| Total Analysis Volume [veh/h] | 234 | 1046 | 506 | 109 | 1059 | 159 | 247 | 350 | 181 | 220 | 273 | 41 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 34 | 34 | 7 | 33 | 33 | 9 | 15 | 15 | 8 | 15 | 15 |
| g / C, Green / Cycle | 0.09 | 0.38 | 0.38 | 0.08 | 0.37 | 0.37 | 0.10 | 0.17 | 0.17 | 0.09 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.20 | 0.31 | 0.03 | 0.21 | 0.10 | 0.07 | 0.10 | 0.11 | 0.06 | 0.08 | 0.03 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1592 | 3514 | 3600 | 1583 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 323 | 1967 | 612 | 294 | 1910 | 594 | 337 | 596 | 262 | 315 | 626 | 279 |
| d1, Uniform Delay [s] | 39.47 | 21.48 | 25.00 | 38.69 | 22.16 | 19.52 | 39.30 | 34.47 | 35.04 | 39.51 | 33.07 | 31.37 |
| k, delay calibration | 0.04 | 0.35 | 0.42 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.17 | 0.73 | 10.36 | 0.29 | 0.82 | 0.78 | 1.17 | 2.16 | 7.43 | 1.05 | 0.66 | 0.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.53 | 0.83 | 0.37 | 0.55 | 0.27 | 0.73 | 0.59 | 0.69 | 0.70 | 0.44 | 0.15 |
| d, Delay for Lane Group [s/veh] | 40.65 | 22.21 | 35.36 | 38.98 | 22.98 | 20.30 | 40.47 | 36.63 | 42.47 | 40.56 | 33.73 | 31.70 |
| Lane Group LOS | D | C | D | D | C | C | D | D | D | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.40 | 5.18 | 10.29 | 1.08 | 5.37 | 2.20 | 2.53 | 3.45 | 3.99 | 2.25 | 2.52 | 0.73 |
| 50th-Percentile Queue Length [ft/ln] | 59.98 | 129.54 | 257.24 | 26.89 | 134.23 | 55.04 | 63.23 | 86.36 | 99.63 | 56.22 | 63.10 | 18.21 |
| 95th-Percentile Queue Length [veh/ln] | 4.32 | 8.91 | 15.55 | 1.94 | 9.17 | 3.96 | 4.55 | 6.22 | 7.17 | 4.05 | 4.54 | 1.31 |
| 95th-Percentile Queue Length [ft/ln] | 107.97 | 222.87 | 388.76 | 48.40 | 229.24 | 99.07 | 113.81 | 155.45 | 179.33 | 101.19 | 113.59 | 32.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.65 | 22.21 | 35.36 | 38.98 | 22.98 | 20.30 | 40.47 | 36.63 | 42.47 | 40.56 | 33.73 | 31.70 |
| Movement LOS | D | C | D | D | C | C | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 28.35 | | | 23.97 | | | 39.21 | | | 36.38 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.92 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.604 | | | | | | | | | | | |

**Emissions**

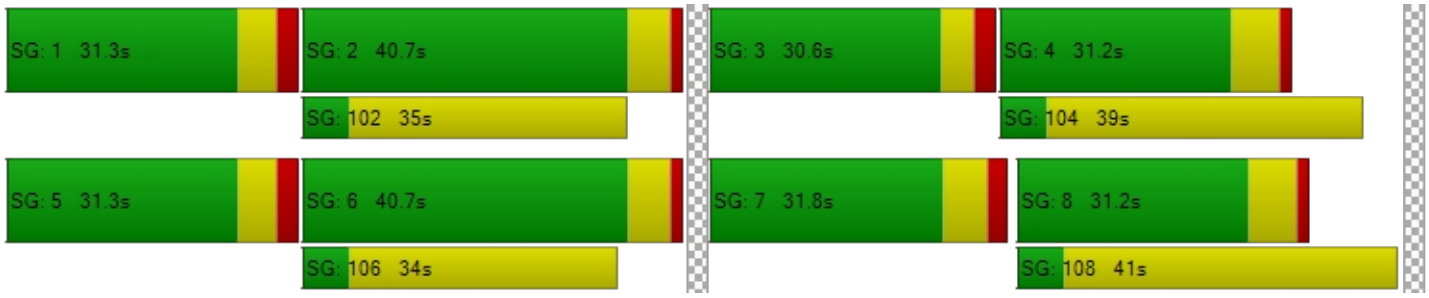
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.18 | 170.67 | 82.56 | 110.42 | 1072.84 | 161.08 | 32.27 | 45.73 | 23.65 | 227.94 | 282.85 | 42.48 |
| Stops [stops/h] | 193.62 | 627.23 | 415.17 | 86.80 | 649.94 | 88.83 | 204.10 | 278.77 | 160.79 | 181.47 | 203.69 | 29.39 |
| Fuel consumption [US gal/h] | 6.19 | 20.07 | 12.78 | 5.89 | 50.86 | 7.41 | 6.25 | 8.42 | 4.82 | 12.23 | 14.47 | 2.14 |
| CO [g/h] | 432.42 | 1403.00 | 893.26 | 412.06 | 3554.85 | 518.28 | 436.74 | 588.54 | 337.24 | 855.18 | 1011.62 | 149.46 |
| NOx [g/h] | 84.13 | 272.97 | 173.80 | 80.17 | 691.65 | 100.84 | 84.97 | 114.51 | 65.61 | 166.39 | 196.82 | 29.08 |
| VOC [g/h] | 100.22 | 325.16 | 207.02 | 95.50 | 823.87 | 120.12 | 101.22 | 136.40 | 78.16 | 198.20 | 234.45 | 34.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2463.38 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.06 | 36.06 | 36.06 | 36.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.436 | 3.331 | 2.930 | 3.031 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 785 | 785 | 560 | 560 |
| d_b, Bicycle Delay [s] | 16.48 | 16.48 | 23.18 | 23.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.542 | 2.289 | 2.201 | 2.000 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 47.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.023 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 179 | 264 | 2 | 1 | 267 | 8 | 13 | 0 | 284 | 2 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 179 | 264 | 2 | 1 | 267 | 8 | 13 | 0 | 284 | 2 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 72 | 1 | 0 | 73 | 2 | 4 | 0 | 77 | 1 | 0 | 0 |
| Total Analysis Volume [veh/h] | 195 | 287 | 2 | 1 | 290 | 9 | 14 | 0 | 309 | 2 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.41 | 0.02 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.09 | 0.00 | 0.00 | 7.83 | 0.00 | 0.00 | 29.00 | 27.48 | 14.86 | 47.14 | 23.48 | 10.72 |
| Movement LOS | A | A | A | A | A | A | D | D | B | E | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.36 | 0.36 | 0.36 | 0.00 | 0.00 | 0.00 | 2.68 | 2.68 | 2.68 | 0.07 | 0.07 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 9.11 | 9.11 | 9.11 | 0.04 | 0.04 | 0.04 | 67.01 | 67.01 | 67.01 | 1.74 | 1.74 | 1.74 |
| d_A, Approach Delay [s/veh] | 3.26 | | | 0.03 | | | 15.48 | | | 47.14 | | |
| Approach LOS | A | | | A | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 6.02 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 174.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.492 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 73 | 208 | 52 | 201 | 345 | 5 | 4 | 248 | 42 | 18 | 274 | 258 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 73 | 208 | 52 | 201 | 345 | 5 | 4 | 248 | 42 | 18 | 274 | 258 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 57 | 14 | 55 | 94 | 1 | 1 | 67 | 11 | 5 | 74 | 70 |
| Total Analysis Volume [veh/h] | 79 | 226 | 57 | 218 | 375 | 5 | 4 | 270 | 46 | 20 | 298 | 280 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 398 | 598 | 389 | 598 |
| Degree of Utilization, x | 0.91 | 1.49 | 0.82 | 1.43 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 9.65 | 31.71 | 7.47 | 30.07 |
| 95th-Percentile Queue Length [ft] | 241.19 | 792.72 | 186.82 | 751.67 |
| Approach Delay [s/veh] | 56.17 | 257.73 | 43.30 | 232.01 |
| Approach LOS | F | F | E | F |
| Intersection Delay [s/veh] | 174.15 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.698 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 405 | 329 | 74 | 107 | 251 | 41 | 95 | 373 | 131 | 31 | 218 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 405 | 329 | 74 | 107 | 251 | 41 | 95 | 373 | 131 | 31 | 218 | 36 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 109 | 88 | 20 | 29 | 67 | 11 | 26 | 100 | 35 | 8 | 59 | 10 |
| Total Analysis Volume [veh/h] | 435 | 354 | 80 | 115 | 270 | 44 | 102 | 401 | 141 | 33 | 234 | 39 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 28 | 28 | 10 | 17 | 10 | 18 | 18 | 6 | 14 | 14 |
| g / C, Green / Cycle | 0.27 | 0.36 | 0.36 | 0.13 | 0.22 | 0.13 | 0.23 | 0.23 | 0.07 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.19 | 0.05 | 0.06 | 0.17 | 0.06 | 0.11 | 0.09 | 0.02 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1886 | 1615 | 1810 | 1845 | 1810 | 3618 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 484 | 679 | 581 | 236 | 411 | 229 | 834 | 373 | 131 | 336 | 286 |
| d1, Uniform Delay [s] | 27.37 | 19.53 | 16.69 | 31.30 | 28.20 | 31.33 | 25.79 | 25.13 | 33.94 | 29.94 | 26.91 |
| k, delay calibration | 0.26 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.17 | 0.62 | 0.11 | 1.56 | 2.97 | 1.36 | 0.43 | 0.63 | 0.99 | 2.61 | 0.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.90 | 0.52 | 0.14 | 0.49 | 0.76 | 0.45 | 0.48 | 0.38 | 0.25 | 0.70 | 0.14 |
| d, Delay for Lane Group [s/veh] | 40.54 | 20.15 | 16.80 | 32.86 | 31.17 | 32.69 | 26.22 | 25.76 | 34.94 | 32.55 | 27.12 |
| Lane Group LOS | D | C | B | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 8.75 | 4.56 | 0.88 | 1.96 | 5.31 | 1.71 | 2.92 | 2.03 | 0.58 | 3.95 | 0.57 |
| 50th-Percentile Queue Length [ft/ln] | 218.63 | 114.00 | 21.88 | 48.98 | 132.75 | 42.63 | 73.05 | 50.83 | 14.46 | 98.80 | 14.31 |
| 95th-Percentile Queue Length [veh/ln] | 13.60 | 8.06 | 1.58 | 3.53 | 9.09 | 3.07 | 5.26 | 3.66 | 1.04 | 7.11 | 1.03 |
| 95th-Percentile Queue Length [ft/ln] | 339.88 | 201.55 | 39.39 | 88.16 | 227.23 | 76.73 | 131.49 | 91.50 | 26.03 | 177.84 | 25.76 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.54 | 20.15 | 16.80 | 32.86 | 31.17 | 31.17 | 32.69 | 26.22 | 25.76 | 34.94 | 32.55 | 27.12 |
| Movement LOS | D | C | B | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 30.05 | | | 31.62 | | | 27.15 | | | 32.12 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.698 | | | | | | | | | | | |

**Emissions**

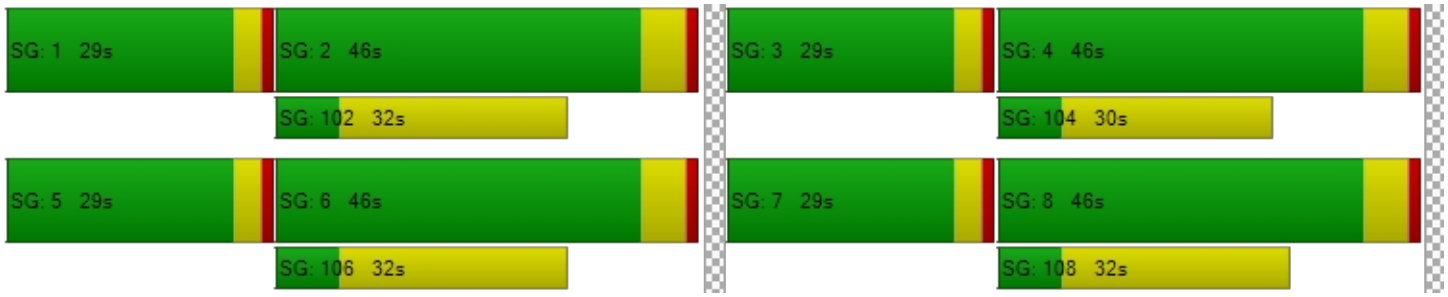
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 52.08 | 42.38 | 9.58 | 115.54 | 315.48 | 105.68 | 415.46 | 146.09 | 16.53 | 117.18 | 19.53 |
| Stops [stops/h] | 407.01 | 212.23 | 40.74 | 91.18 | 247.13 | 79.36 | 271.98 | 94.63 | 26.93 | 183.93 | 26.64 |
| Fuel consumption [US gal/h] | 10.43 | 5.54 | 1.11 | 5.86 | 15.88 | 5.44 | 20.23 | 7.08 | 1.20 | 8.30 | 1.28 |
| CO [g/h] | 729.37 | 387.48 | 77.47 | 409.84 | 1109.90 | 379.97 | 1413.93 | 495.17 | 83.97 | 580.00 | 89.35 |
| NOx [g/h] | 141.91 | 75.39 | 15.07 | 79.74 | 215.95 | 73.93 | 275.10 | 96.34 | 16.34 | 112.85 | 17.38 |
| VOC [g/h] | 169.04 | 89.80 | 17.96 | 94.98 | 257.23 | 88.06 | 327.69 | 114.76 | 19.46 | 134.42 | 20.71 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.46 | 28.46 | 28.46 | 28.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.603 | 2.382 | 2.812 | 2.585 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1034 | 1034 | 1034 | 1034 |
| d_b, Bicycle Delay [s] | 9.02 | 9.02 | 9.02 | 9.02 |
| l_b,int, Bicycle LOS Score for Intersection | 2.993 | 2.267 | 2.091 | 2.065 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 124 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 124 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 31 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 124 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.713 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 554 | 43 | 145 | 10 | 24 | 26 | 33 | 309 | 295 | 277 | 128 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 554 | 43 | 145 | 10 | 24 | 26 | 33 | 309 | 295 | 277 | 128 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 146 | 11 | 38 | 3 | 6 | 7 | 9 | 81 | 78 | 73 | 34 | 2 |
| Total Analysis Volume [veh/h] | 583 | 45 | 153 | 11 | 25 | 27 | 35 | 325 | 311 | 292 | 135 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 32 | 37 | 37 | 4 | 9 | 9 | 8 | 24 | 24 | 12 | 28 | 28 |
| g / C, Green / Cycle | 0.34 | 0.40 | 0.40 | 0.04 | 0.10 | 0.10 | 0.08 | 0.26 | 0.26 | 0.13 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.32 | 0.02 | 0.10 | 0.00 | 0.01 | 0.02 | 0.01 | 0.09 | 0.19 | 0.09 | 0.04 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1879 | 1595 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1612 |
| c, Capacity [veh/h] | 617 | 743 | 631 | 156 | 357 | 159 | 288 | 932 | 415 | 428 | 1106 | 493 |
| d1, Uniform Delay [s] | 29.66 | 17.34 | 18.72 | 42.43 | 37.89 | 38.27 | 39.43 | 28.05 | 31.64 | 38.46 | 23.20 | 22.43 |
| k, delay calibration | 0.44 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 22.72 | 0.08 | 0.44 | 0.07 | 0.42 | 2.54 | 0.07 | 0.33 | 4.01 | 0.72 | 0.07 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.94 | 0.06 | 0.24 | 0.07 | 0.07 | 0.17 | 0.12 | 0.35 | 0.75 | 0.68 | 0.12 | 0.01 |
| d, Delay for Lane Group [s/veh] | 52.37 | 17.42 | 19.17 | 42.50 | 38.31 | 40.81 | 39.50 | 28.38 | 35.66 | 39.18 | 23.27 | 22.44 |
| Lane Group LOS | D | B | B | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 15.38 | 0.57 | 2.10 | 0.12 | 0.28 | 0.67 | 0.35 | 2.77 | 6.36 | 3.16 | 1.06 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 384.42 | 14.17 | 52.52 | 3.03 | 6.90 | 16.73 | 8.82 | 69.32 | 158.92 | 79.06 | 26.51 | 2.69 |
| 95th-Percentile Queue Length [veh/ln] | 21.81 | 1.02 | 3.78 | 0.22 | 0.50 | 1.20 | 0.63 | 4.99 | 10.49 | 5.69 | 1.91 | 0.19 |
| 95th-Percentile Queue Length [ft/ln] | 545.19 | 25.50 | 94.53 | 5.45 | 12.42 | 30.11 | 15.87 | 124.78 | 262.29 | 142.32 | 47.72 | 4.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 52.37 | 17.42 | 19.17 | 42.50 | 38.31 | 40.81 | 39.50 | 28.38 | 35.66 | 39.18 | 23.27 | 22.44 |
| Movement LOS | D | B | B | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 43.85 | | | 40.12 | | | 32.33 | | | 33.96 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 37.56 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.713 | | | | | | | | | | | |

**Emissions**

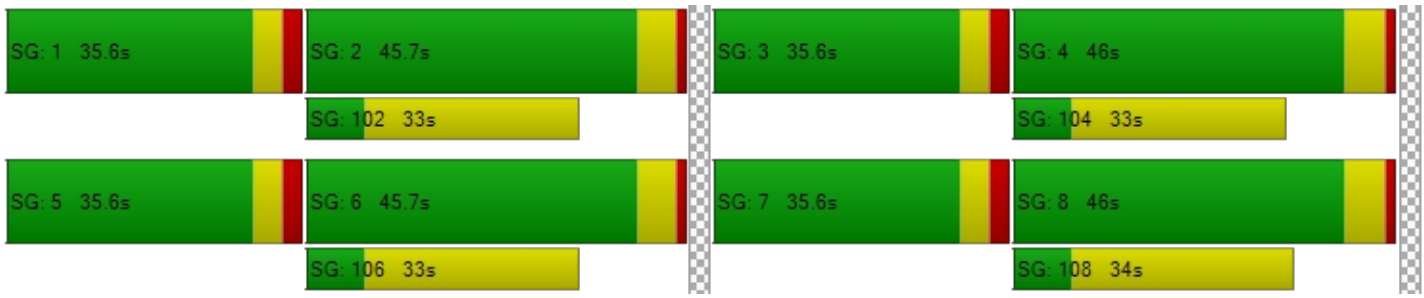
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 593.57 | 45.82 | 155.77 | 11.37 | 25.84 | 27.91 | 17.53 | 162.75 | 155.74 | 146.38 | 67.68 | 3.51 |
| Stops [stops/h] | 598.53 | 22.06 | 81.77 | 9.43 | 21.49 | 26.04 | 27.46 | 215.86 | 247.43 | 246.20 | 82.56 | 4.19 |
| Fuel consumption [US gal/h] | 34.00 | 2.00 | 6.95 | 0.62 | 1.38 | 1.52 | 1.29 | 10.64 | 11.27 | 9.71 | 3.88 | 0.20 |
| CO [g/h] | 2376.69 | 140.10 | 486.01 | 43.01 | 96.28 | 106.04 | 90.15 | 743.79 | 787.79 | 679.04 | 271.31 | 13.95 |
| NOx [g/h] | 462.42 | 27.26 | 94.56 | 8.37 | 18.73 | 20.63 | 17.54 | 144.71 | 153.28 | 132.12 | 52.79 | 2.71 |
| VOC [g/h] | 550.82 | 32.47 | 112.64 | 9.97 | 22.31 | 24.58 | 20.89 | 172.38 | 182.58 | 157.37 | 62.88 | 3.23 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5317.82 | 0.00 | 4540.79 |
| d_p, Pedestrian Delay [s] | 35.90 | 35.90 | 35.90 | 35.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.713 | 2.616 | 2.924 | 2.723 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 865 | 865 | 865 | 865 |
| d_b, Bicycle Delay [s] | 14.89 | 14.89 | 14.89 | 14.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.204 | 1.612 | 2.113 | 1.918 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.813 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 94 | 901 | 47 | 72 | 423 | 27 | 30 | 715 | 130 | 37 | 685 | 151 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 94 | 901 | 47 | 72 | 423 | 27 | 30 | 715 | 130 | 37 | 685 | 151 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 237 | 12 | 19 | 111 | 7 | 8 | 188 | 34 | 10 | 180 | 40 |
| Total Analysis Volume [veh/h] | 99 | 948 | 49 | 76 | 445 | 28 | 32 | 753 | 137 | 39 | 721 | 159 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 35 | 35 | 9 | 35 | 35 | 6 | 42 | 42 | 7 | 43 | 43 |
| g / C, Green / Cycle | 0.09 | 0.32 | 0.32 | 0.08 | 0.32 | 0.32 | 0.06 | 0.38 | 0.38 | 0.06 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.26 | 0.03 | 0.04 | 0.13 | 0.13 | 0.02 | 0.40 | 0.09 | 0.02 | 0.38 | 0.10 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1564 | 1801 | 1888 | 1849 | 1810 | 1897 | 1606 | 1810 | 1883 | 1615 |
| c, Capacity [veh/h] | 158 | 1166 | 506 | 149 | 602 | 590 | 104 | 728 | 616 | 116 | 735 | 630 |
| d1, Uniform Delay [s] | 48.24 | 33.99 | 25.86 | 48.08 | 29.06 | 29.08 | 49.50 | 33.73 | 22.72 | 49.01 | 32.96 | 22.57 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.50 | 0.17 | 0.04 | 0.50 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.53 | 2.16 | 0.13 | 1.01 | 0.65 | 0.66 | 0.62 | 42.53 | 0.28 | 0.63 | 28.77 | 0.31 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.81 | 0.10 | 0.51 | 0.40 | 0.40 | 0.31 | 1.03 | 0.22 | 0.34 | 0.98 | 0.25 |
| d, Delay for Lane Group [s/veh] | 49.77 | 36.15 | 25.99 | 49.09 | 29.71 | 29.74 | 50.12 | 76.26 | 23.00 | 49.64 | 61.74 | 22.87 |
| Lane Group LOS | D | D | C | D | C | C | D | F | C | D | E | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.60 | 11.28 | 0.88 | 1.97 | 4.78 | 4.71 | 0.83 | 26.48 | 2.31 | 1.01 | 23.33 | 2.69 |
| 50th-Percentile Queue Length [ft/ln] | 64.93 | 281.90 | 21.93 | 49.24 | 119.61 | 117.73 | 20.86 | 662.06 | 57.86 | 25.29 | 583.13 | 67.20 |
| 95th-Percentile Queue Length [veh/ln] | 4.67 | 16.78 | 1.58 | 3.55 | 8.37 | 8.27 | 1.50 | 35.79 | 4.17 | 1.82 | 31.25 | 4.84 |
| 95th-Percentile Queue Length [ft/ln] | 116.87 | 419.58 | 39.47 | 88.63 | 209.29 | 206.71 | 37.55 | 894.73 | 104.15 | 45.52 | 781.15 | 120.97 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.77 | 36.15 | 25.99 | 49.09 | 29.72 | 29.74 | 50.12 | 76.26 | 23.00 | 49.64 | 61.74 | 22.87 |
| Movement LOS | D | D | C | D | C | C | D | F | C | D | E | C |
| d_A, Approach Delay [s/veh] | 36.92 | | | 32.40 | | | 67.44 | | | 54.50 | | |
| Approach LOS | D | | | C | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 48.91 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.813 | | | | | | | | | | | |

**Emissions**

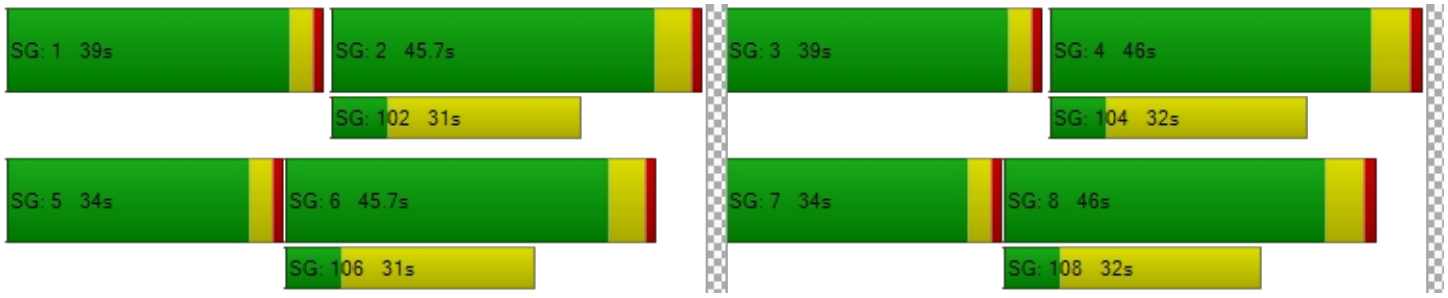
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 51.98 | 497.73 | 25.73 | 77.38 | 242.83 | 238.75 | 2.77 | 65.13 | 11.85 | 23.47 | 433.91 | 95.69 |
| Stops [stops/h] | 85.51 | 742.58 | 28.88 | 64.85 | 157.53 | 155.06 | 27.48 | 871.99 | 76.21 | 33.31 | 768.03 | 88.51 |
| Fuel consumption [US gal/h] | 3.85 | 33.27 | 1.50 | 4.22 | 11.72 | 11.53 | 0.76 | 24.76 | 1.99 | 1.61 | 33.48 | 5.12 |
| CO [g/h] | 268.94 | 2325.34 | 104.86 | 294.83 | 819.50 | 806.02 | 53.32 | 1730.61 | 139.44 | 112.72 | 2340.25 | 357.93 |
| NOx [g/h] | 52.33 | 452.43 | 20.40 | 57.36 | 159.45 | 156.82 | 10.37 | 336.71 | 27.13 | 21.93 | 455.33 | 69.64 |
| VOC [g/h] | 62.33 | 538.92 | 24.30 | 68.33 | 189.93 | 186.80 | 12.36 | 401.08 | 32.32 | 26.12 | 542.38 | 82.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.22 | 44.22 | 44.22 | 44.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.881 | 2.803 | 2.827 | 2.835 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 732 | 732 | 732 | 732 |
| d_b, Bicycle Delay [s] | 21.98 | 21.98 | 21.98 | 21.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.464 | 2.013 | 3.081 | 3.076 |
| Bicycle LOS | B | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.709 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 123 | 1000 | 36 | 96 | 434 | 13 | 16 | 421 | 320 | 23 | 403 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 123 | 1000 | 36 | 96 | 434 | 13 | 16 | 421 | 320 | 23 | 403 | 33 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 272 | 10 | 26 | 118 | 4 | 4 | 114 | 87 | 6 | 110 | 9 |
| Total Analysis Volume [veh/h] | 134 | 1087 | 39 | 104 | 472 | 14 | 17 | 458 | 348 | 25 | 438 | 36 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 31 | 31 | 11 | 31 | 31 | 4 | 28 | 28 | 5 | 30 | 30 |
| g / C, Green / Cycle | 0.13 | 0.34 | 0.34 | 0.12 | 0.34 | 0.34 | 0.04 | 0.31 | 0.31 | 0.05 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.30 | 0.30 | 0.06 | 0.13 | 0.13 | 0.01 | 0.24 | 0.22 | 0.01 | 0.23 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1866 | 1810 | 1874 | 1854 | 1810 | 1874 | 1580 | 1761 | 1876 | 1583 |
| c, Capacity [veh/h] | 229 | 646 | 637 | 220 | 631 | 624 | 74 | 579 | 488 | 95 | 604 | 510 |
| d1, Uniform Delay [s] | 37.91 | 28.46 | 28.50 | 37.67 | 23.27 | 23.28 | 42.72 | 29.06 | 28.04 | 41.77 | 27.58 | 21.62 |
| k, delay calibration | 0.11 | 0.37 | 0.37 | 0.11 | 0.11 | 0.11 | 0.11 | 0.25 | 0.20 | 0.11 | 0.23 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.37 | 11.97 | 12.40 | 1.58 | 0.39 | 0.39 | 1.56 | 5.54 | 3.52 | 1.46 | 3.45 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.59 | 0.88 | 0.88 | 0.47 | 0.39 | 0.39 | 0.23 | 0.79 | 0.71 | 0.26 | 0.72 | 0.07 |
| d, Delay for Lane Group [s/veh] | 40.29 | 40.43 | 40.90 | 39.24 | 23.66 | 23.68 | 44.28 | 34.60 | 31.56 | 43.22 | 31.03 | 21.68 |
| Lane Group LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.86 | 12.84 | 12.78 | 2.18 | 3.82 | 3.79 | 0.39 | 9.42 | 6.73 | 0.56 | 8.43 | 0.51 |
| 50th-Percentile Queue Length [ft/ln] | 71.49 | 321.02 | 319.53 | 54.38 | 95.41 | 94.65 | 9.77 | 235.41 | 168.17 | 14.00 | 210.67 | 12.85 |
| 95th-Percentile Queue Length [veh/ln] | 5.15 | 18.72 | 18.64 | 3.92 | 6.87 | 6.81 | 0.70 | 14.45 | 10.98 | 1.01 | 13.19 | 0.92 |
| 95th-Percentile Queue Length [ft/ln] | 128.68 | 467.94 | 466.10 | 97.89 | 171.74 | 170.36 | 17.59 | 361.22 | 274.51 | 25.21 | 329.68 | 23.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.29 | 40.66 | 40.90 | 39.24 | 23.67 | 23.68 | 44.28 | 34.60 | 31.56 | 43.22 | 31.03 | 21.68 |
| Movement LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 40.62 | | | 26.41 | | | 33.51 | | | 30.97 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.62 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.709 | | | | | | | | | | | |

**Emissions**

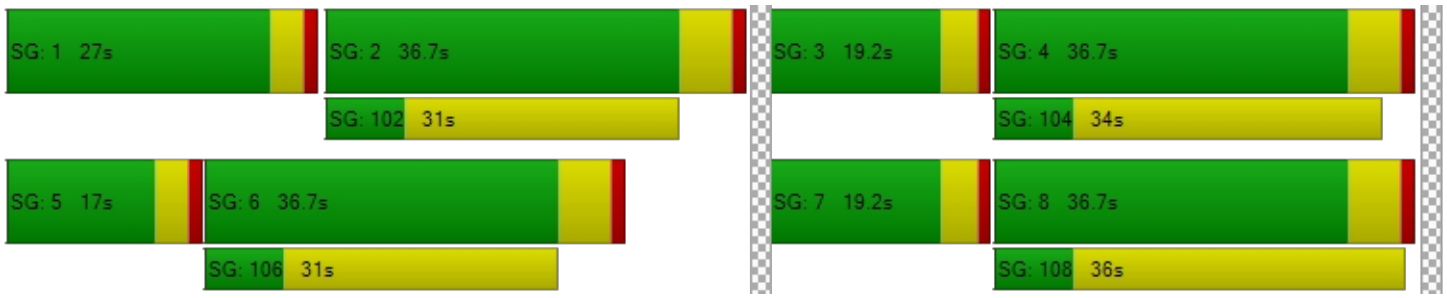
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 71.19 | 300.79 | 297.45 | 54.60 | 128.13 | 127.03 | 1.70 | 45.92 | 34.89 | 11.90 | 208.46 | 17.13 |
| Stops [stops/h] | 112.09 | 503.36 | 501.02 | 85.28 | 149.61 | 148.40 | 15.32 | 369.11 | 263.70 | 21.96 | 330.32 | 20.14 |
| Fuel consumption [US gal/h] | 4.93 | 21.23 | 21.08 | 3.76 | 7.43 | 7.37 | 0.40 | 9.39 | 6.71 | 0.90 | 14.02 | 1.00 |
| CO [g/h] | 344.79 | 1483.79 | 1473.83 | 262.99 | 519.17 | 514.84 | 28.11 | 656.21 | 468.97 | 62.96 | 979.88 | 69.66 |
| NOx [g/h] | 67.08 | 288.69 | 286.75 | 51.17 | 101.01 | 100.17 | 5.47 | 127.67 | 91.25 | 12.25 | 190.65 | 13.55 |
| VOC [g/h] | 79.91 | 343.88 | 341.57 | 60.95 | 120.32 | 119.32 | 6.51 | 152.08 | 108.69 | 14.59 | 227.10 | 16.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.58 | 35.58 | 35.58 | 35.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.966 | 2.806 | 2.647 | 2.534 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 675 | 675 | 675 | 675 |
| d_b, Bicycle Delay [s] | 20.15 | 20.15 | 20.15 | 20.17 |
| l_b,int, Bicycle LOS Score for Intersection | 2.599 | 2.046 | 2.918 | 2.383 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 57.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.877 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 536 | 548 | 280 | 310 | 323 | 337 | 637 | 1683 | 428 | 351 | 1459 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 319 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 536 | 548 | 280 | 310 | 323 | 18 | 637 | 1683 | 428 | 351 | 1459 | 236 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 141 | 144 | 74 | 82 | 85 | 5 | 168 | 443 | 113 | 92 | 384 | 62 |
| Total Analysis Volume [veh/h] | 564 | 577 | 295 | 326 | 340 | 19 | 671 | 1772 | 451 | 369 | 1536 | 248 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 28 | 45 | 0 | 19 | 36 | 0 | 24 | 44 | 0 | 24 | 44 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 28 | 28 | 15 | 19 | 19 | 28 | 57 | 57 | 16 | 45 | 45 |
| g / C, Green / Cycle | 0.18 | 0.22 | 0.22 | 0.11 | 0.15 | 0.15 | 0.21 | 0.43 | 0.43 | 0.12 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.16 | 0.18 | 0.09 | 0.07 | 0.01 | 0.19 | 0.34 | 0.28 | 0.11 | 0.30 | 0.15 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2767 | 3478 | 5147 | 1605 | 3495 | 5151 | 1605 |
| c, Capacity [veh/h] | 427 | 774 | 345 | 389 | 752 | 404 | 727 | 2208 | 688 | 426 | 1761 | 549 |
| d1, Uniform Delay [s] | 54.05 | 48.42 | 49.82 | 57.47 | 51.57 | 48.49 | 51.23 | 32.86 | 29.97 | 56.96 | 40.78 | 33.84 |
| k, delay calibration | 0.04 | 0.04 | 0.11 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 145.40 | 0.54 | 6.39 | 1.88 | 0.48 | 0.05 | 2.25 | 3.20 | 4.82 | 2.12 | 6.29 | 2.68 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.32 | 0.75 | 0.85 | 0.84 | 0.45 | 0.05 | 0.92 | 0.80 | 0.66 | 0.87 | 0.87 | 0.45 |
| d, Delay for Lane Group [s/veh] | 199.45 | 48.96 | 56.21 | 59.35 | 52.05 | 48.54 | 53.48 | 36.06 | 34.79 | 59.08 | 47.07 | 36.52 |
| Lane Group LOS | F | D | E | E | D | D | D | D | C | E | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 15.59 | 8.81 | 9.82 | 5.32 | 3.40 | 0.27 | 10.81 | 16.29 | 11.81 | 6.04 | 16.02 | 6.43 |
| 50th-Percentile Queue Length [ft/ln] | 389.86 | 220.15 | 245.41 | 133.05 | 85.11 | 6.72 | 270.33 | 407.15 | 295.18 | 150.94 | 400.41 | 160.84 |
| 95th-Percentile Queue Length [veh/ln] | 24.91 | 13.67 | 14.95 | 9.11 | 6.13 | 0.48 | 16.21 | 22.90 | 17.44 | 10.07 | 22.58 | 10.59 |
| 95th-Percentile Queue Length [ft/ln] | 622.73 | 341.82 | 373.87 | 227.64 | 153.20 | 12.09 | 405.15 | 572.61 | 436.06 | 251.69 | 564.50 | 264.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 199.45 | 48.96 | 56.21 | 59.35 | 52.05 | 48.54 | 53.48 | 36.06 | 34.79 | 59.08 | 47.07 | 36.52 |
| Movement LOS | F | D | E | E | D | D | D | D | C | E | D | D |
| d_A, Approach Delay [s/veh] | 109.56 | | | 55.43 | | | 39.90 | | | 47.91 | | |
| Approach LOS | F | | | E | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 57.75 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.877 | | | | | | | | | | | |

**Emissions**

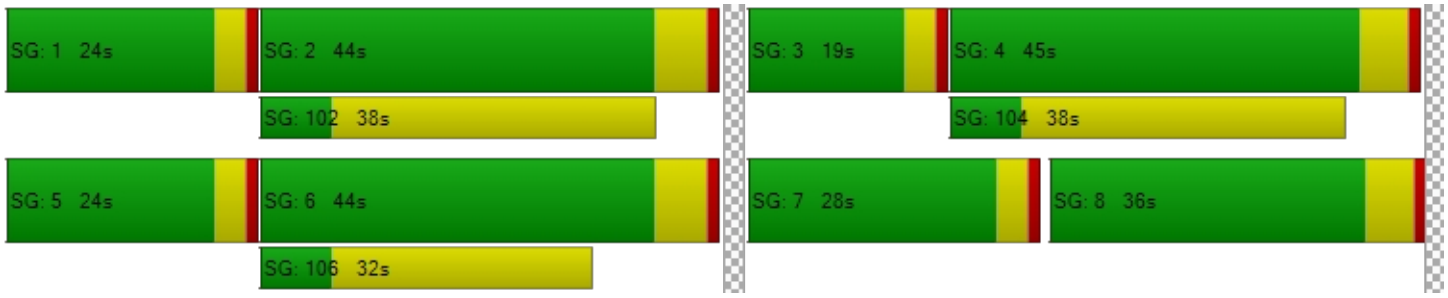
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 41.23 | 42.18 | 21.57 | 173.21 | 180.64 | 10.09 | 76.35 | 201.63 | 51.32 | 184.16 | 766.58 | 123.77 |
| Stops [stops/h] | 850.17 | 480.08 | 267.58 | 290.15 | 278.40 | 14.65 | 589.50 | 1331.80 | 321.84 | 329.16 | 1309.77 | 175.38 |
| Fuel consumption [US gal/h] | 32.72 | 11.98 | 6.78 | 13.48 | 13.25 | 0.72 | 17.25 | 36.47 | 8.95 | 14.84 | 57.27 | 8.27 |
| CO [g/h] | 2286.82 | 837.08 | 473.60 | 942.36 | 926.48 | 50.04 | 1205.67 | 2549.57 | 625.86 | 1037.40 | 4003.40 | 577.79 |
| NOx [g/h] | 444.93 | 162.87 | 92.14 | 183.35 | 180.26 | 9.74 | 234.58 | 496.05 | 121.77 | 201.84 | 778.92 | 112.42 |
| VOC [g/h] | 529.99 | 194.00 | 109.76 | 218.40 | 214.72 | 11.60 | 279.43 | 590.89 | 145.05 | 240.43 | 927.83 | 133.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.49 | 55.49 | 39.21 | 55.49 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.166 | 3.883 | 3.839 | 3.606 |
| Crosswalk LOS | C | D | D | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 595 | 459 | 575 | 575 |
| d_b, Bicycle Delay [s] | 32.58 | 39.25 | 33.50 | 33.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.349 | 2.112 | 3.151 | 2.744 |
| Bicycle LOS | B | B | C | B |

## Sequence

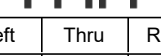
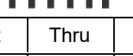
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 54.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.820 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 578 | 0 | 1276 | 0 | 0 | 0 | 0 | 1479 | 489 | 0 | 1978 | 247 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 578 | 0 | 1276 | 0 | 0 | 0 | 0 | 1479 | 489 | 0 | 1978 | 247 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 154 | 0 | 339 | 0 | 0 | 0 | 0 | 393 | 130 | 0 | 526 | 66 |
| Total Analysis Volume [veh/h] | 615 | 0 | 1357 | 0 | 0 | 0 | 0 | 1573 | 520 | 0 | 2104 | 263 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.48 | | 0.31 | 0.24 | 0.16 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4442 | 828 |
| d1, Uniform Delay [s] | 29.97 | 41.07 | | 22.16 | 20.38 | 18.41 |
| k, delay calibration | 0.27 | 0.30 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 124.93 | | 0.97 | 0.36 | 1.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.39 | 1.27 | | 0.59 | 0.47 | 0.32 |
| d, Delay for Lane Group [s/veh] | 30.35 | 166.00 | | 23.13 | 20.74 | 19.42 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.57 | 34.73 | | 10.91 | 7.97 | 4.68 |
| 50th-Percentile Queue Length [ft/ln] | 114.26 | 868.34 | | 272.82 | 199.18 | 117.03 |
| 95th-Percentile Queue Length [veh/ln] | 8.08 | 51.44 | | 16.33 | 12.60 | 8.23 |
| 95th-Percentile Queue Length [ft/ln] | 201.91 | 1285.98 | | 408.26 | 314.91 | 205.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.35 | 0.00 | 166.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23.13 | 0.00 | 0.00 | 20.74 | 19.42 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 123.70 | | | 0.00 | | | 17.64 | | | 20.59 | | |
| Approach LOS | F | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 54.20 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.820 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 80.62 | 177.88 | | 247.53 | 239.40 | 29.93 |
| Stops [stops/h] | 374.34 | 1896.61 | | 893.83 | 1087.61 | 127.80 |
| Fuel consumption [US gal/h] | 13.45 | 87.01 | | 27.00 | 30.61 | 3.65 |
| CO [g/h] | 940.05 | 6082.05 | | 1887.40 | 2139.57 | 255.43 |
| NOx [g/h] | 182.90 | 1183.35 | | 367.22 | 416.28 | 49.70 |
| VOC [g/h] | 217.86 | 1409.57 | | 437.42 | 495.87 | 59.20 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.059 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.425 | 2.341 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.604 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 70 | 0 | 420 | 0 | 1910 | 628 | 0 | 1902 | 716 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 70 | 0 | 420 | 0 | 1910 | 628 | 0 | 1902 | 716 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 112 | 0 | 508 | 167 | 0 | 506 | 190 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 74 | 0 | 447 | 0 | 2032 | 668 | 0 | 2023 | 762 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 26 | 26 | 90 | 90 | 90 |
| g / C, Green / Cycle | | 0.20 | 0.20 | 0.70 | 0.70 | 0.70 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.16 | 0.30 | 0.42 | 0.29 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 700 | 568 | 4762 | 1108 | 4792 |
| d1, Uniform Delay [s] | | 42.54 | 49.38 | 8.53 | 10.33 | 8.49 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.16 | 5.92 | 0.28 | 2.43 | 0.27 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.11 | 0.79 | 0.43 | 0.60 | 0.42 |
| d, Delay for Lane Group [s/veh] | | 42.70 | 55.30 | 8.81 | 12.76 | 8.77 |
| Lane Group LOS | | D | E | A | B | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.00 | 7.36 | 5.45 | 9.28 | 5.40 |
| 50th-Percentile Queue Length [ft/ln] | | 24.97 | 184.01 | 136.24 | 231.98 | 135.00 |
| 95th-Percentile Queue Length [veh/ln] | | 1.80 | 11.81 | 9.28 | 14.28 | 9.21 |
| 95th-Percentile Queue Length [ft/ln] | | 44.95 | 295.24 | 231.95 | 356.88 | 230.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 42.70 | 0.00 | 55.30 | 0.00 | 8.81 | 12.76 | 0.00 | 8.77 | 0.00 |
| Movement LOS | | | | D | | E | | A | B | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 53.51 | | | 9.79 | | | 6.47 | | |
| Approach LOS | A | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 12.85 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.604 | | | | | | | | | | | |

**Emissions**

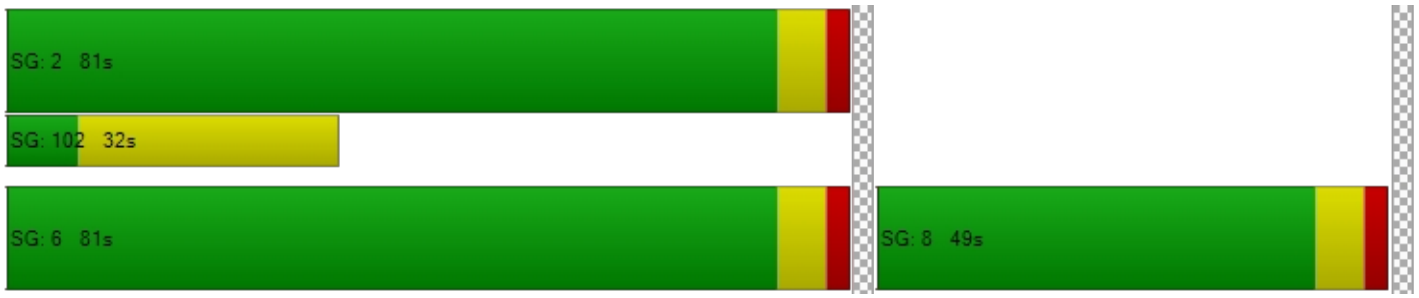
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.40 | 68.88 | 196.76 | 64.68 | 318.34 |
| Stops [stops/h] | | 55.35 | 407.87 | 603.95 | 257.10 | 598.46 |
| Fuel consumption [US gal/h] | | 1.42 | 10.12 | 17.90 | 7.15 | 21.96 |
| CO [g/h] | | 99.13 | 707.33 | 1251.06 | 499.71 | 1535.14 |
| NOx [g/h] | | 19.29 | 137.62 | 243.41 | 97.23 | 298.68 |
| VOC [g/h] | | 22.98 | 163.93 | 289.94 | 115.81 | 355.78 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.058 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1142 | 1142 |
| d_b, Bicycle Delay [s] | 64.97 | 29.62 | 11.95 | 11.95 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.673 | 2.394 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 18.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.735 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 39 | 176 | 78 | 0 | 77 | 50 | 58 | 298 | 71 | 54 | 161 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 39 | 176 | 78 | 0 | 77 | 50 | 58 | 298 | 71 | 54 | 161 | 7 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 47 | 21 | 0 | 20 | 13 | 15 | 79 | 19 | 14 | 43 | 2 |
| Total Analysis Volume [veh/h] | 41 | 187 | 83 | 0 | 82 | 53 | 62 | 317 | 76 | 57 | 171 | 7 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 580 | 548 | 619 | 568 |
| Degree of Utilization, x | 0.54 | 0.25 | 0.73 | 0.41 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.17 | 0.96 | 6.35 | 2.02 |
| 95th-Percentile Queue Length [ft] | 79.30 | 24.09 | 158.79 | 50.47 |
| Approach Delay [s/veh] | 16.16 | 11.71 | 23.20 | 13.74 |
| Approach LOS | C | B | C | B |
| Intersection Delay [s/veh] | 17.95 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 327.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.310 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 276 | 374 | 107 | 14 | 196 | 40 | 76 | 370 | 339 | 45 | 547 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 276 | 374 | 107 | 14 | 196 | 40 | 76 | 370 | 339 | 45 | 547 | 30 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 79 | 107 | 31 | 4 | 56 | 11 | 22 | 106 | 97 | 13 | 157 | 9 |
| Total Analysis Volume [veh/h] | 317 | 430 | 123 | 16 | 225 | 46 | 87 | 425 | 390 | 52 | 629 | 34 |
| Pedestrian Volume [ped/h] | 5 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 747 | 353 | 323 | 338 | 408 | 408 | 311 | 663 |
| Degree of Utilization, x | 2.31 | 0.35 | 0.89 | 0.26 | 1.15 | 1.07 | 0.17 | 2.03 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 57.81 | 1.53 | 8.35 | 1.01 | 16.10 | 14.23 | 0.59 | 47.26 |
| 95th-Percentile Queue Length [ft] | 1445.17 | 38.15 | 208.82 | 25.14 | 402.49 | 355.85 | 14.83 | 1181.44 |
| Approach Delay [s/veh] | 537.13 | | 60.22 | 103.15 | | | 461.88 | |
| Approach LOS | F | | F | F | | | F | |
| Intersection Delay [s/veh] | 327.28 | | | | | | | |
| Intersection LOS | F | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.602 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 614 | 98 | 124 | 422 | 24 | 71 | 297 | 273 | 37 | 318 | 113 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 614 | 98 | 124 | 422 | 24 | 71 | 297 | 273 | 37 | 318 | 113 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 162 | 26 | 33 | 111 | 6 | 19 | 78 | 72 | 10 | 84 | 30 |
| Total Analysis Volume [veh/h] | 117 | 646 | 103 | 131 | 444 | 25 | 75 | 313 | 287 | 39 | 335 | 119 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 19 | 19 | 9 | 20 | 20 | 8 | 20 | 20 | 6 | 17 | 17 |
| g / C, Green / Cycle | 0.13 | 0.28 | 0.28 | 0.13 | 0.28 | 0.28 | 0.11 | 0.28 | 0.28 | 0.08 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.21 | 0.21 | 0.07 | 0.13 | 0.13 | 0.04 | 0.17 | 0.19 | 0.02 | 0.18 | 0.08 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1775 | 1810 | 1868 | 1828 | 1810 | 1892 | 1549 | 1810 | 1874 | 1579 |
| c, Capacity [veh/h] | 234 | 514 | 490 | 244 | 522 | 510 | 205 | 534 | 437 | 144 | 466 | 392 |
| d1, Uniform Delay [s] | 28.34 | 23.17 | 23.18 | 28.33 | 20.88 | 20.89 | 28.80 | 21.68 | 22.15 | 30.39 | 24.14 | 21.40 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.64 | 2.17 | 2.30 | 1.84 | 0.62 | 0.64 | 1.09 | 1.03 | 1.69 | 1.00 | 2.11 | 0.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.50 | 0.75 | 0.75 | 0.54 | 0.45 | 0.46 | 0.37 | 0.59 | 0.66 | 0.27 | 0.72 | 0.30 |
| d, Delay for Lane Group [s/veh] | 29.98 | 25.34 | 25.48 | 30.17 | 21.49 | 21.53 | 29.89 | 22.71 | 23.84 | 31.38 | 26.25 | 21.84 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.80 | 5.50 | 5.26 | 2.00 | 2.92 | 2.88 | 1.13 | 4.05 | 3.86 | 0.61 | 4.78 | 1.47 |
| 50th-Percentile Queue Length [ft/ln] | 45.07 | 137.45 | 131.48 | 49.89 | 72.95 | 71.91 | 28.30 | 101.30 | 96.42 | 15.28 | 119.51 | 36.67 |
| 95th-Percentile Queue Length [veh/ln] | 3.24 | 9.34 | 9.02 | 3.59 | 5.25 | 5.18 | 2.04 | 7.29 | 6.94 | 1.10 | 8.37 | 2.64 |
| 95th-Percentile Queue Length [ft/ln] | 81.12 | 233.59 | 225.50 | 89.80 | 131.31 | 129.44 | 50.95 | 182.33 | 173.56 | 27.50 | 209.16 | 66.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.98 | 25.40 | 25.48 | 30.17 | 21.51 | 21.53 | 29.89 | 22.71 | 23.84 | 31.38 | 26.25 | 21.84 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.03 | | | 23.40 | | | 23.99 | | | 25.59 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.82 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.602 | | | | | | | | | | | |

**Emissions**

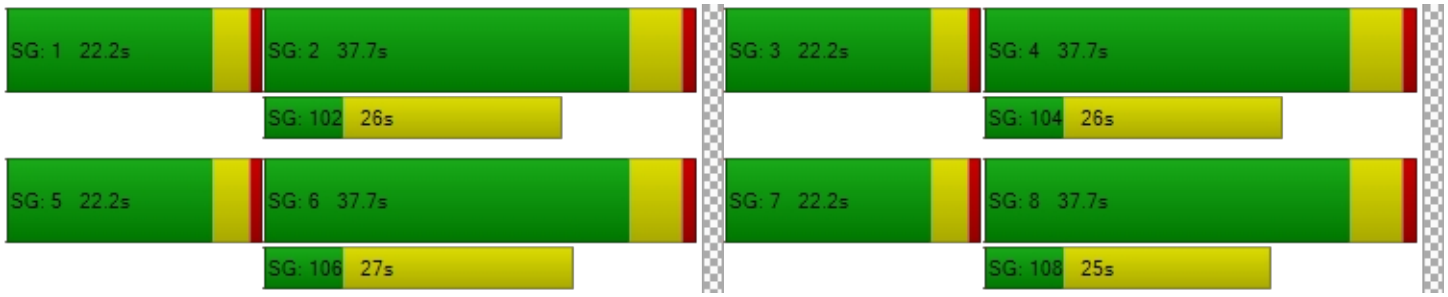
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.22 | 207.22 | 197.52 | 65.14 | 117.54 | 115.67 | 35.70 | 148.97 | 136.59 | 19.22 | 165.08 | 58.64 |
| Stops [stops/h] | 92.74 | 282.87 | 270.57 | 102.67 | 150.13 | 147.98 | 58.25 | 208.46 | 198.43 | 31.44 | 245.94 | 75.46 |
| Fuel consumption [US gal/h] | 3.89 | 12.18 | 11.63 | 4.31 | 6.93 | 6.82 | 2.40 | 9.14 | 8.54 | 1.30 | 10.51 | 3.48 |
| CO [g/h] | 271.89 | 851.33 | 812.82 | 301.51 | 484.37 | 477.00 | 168.04 | 639.23 | 597.06 | 90.78 | 734.36 | 243.05 |
| NOx [g/h] | 52.90 | 165.64 | 158.14 | 58.66 | 94.24 | 92.81 | 32.69 | 124.37 | 116.17 | 17.66 | 142.88 | 47.29 |
| VOC [g/h] | 63.01 | 197.30 | 188.38 | 69.88 | 112.26 | 110.55 | 38.94 | 148.15 | 138.37 | 21.04 | 170.19 | 56.33 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.85 | 24.85 | 24.85 | 24.85 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.711 | 2.707 | 2.538 | 2.497 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 915 | 915 | 915 | 915 |
| d_b, Bicycle Delay [s] | 10.30 | 10.31 | 10.31 | 10.31 |
| l_b,int, Bicycle LOS Score for Intersection | 2.274 | 2.055 | 2.673 | 2.373 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 55.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 355 | 331 | 161 | 396 | 275 | 192 | 355 | 1311 | 581 | 168 | 1268 | 159 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 175 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 355 | 331 | 161 | 396 | 275 | 17 | 355 | 1311 | 581 | 168 | 1268 | 159 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 92 | 86 | 42 | 103 | 72 | 4 | 92 | 341 | 151 | 44 | 330 | 41 |
| Total Analysis Volume [veh/h] | 370 | 345 | 168 | 413 | 286 | 18 | 370 | 1366 | 605 | 175 | 1321 | 166 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 21 | 21 | 14 | 14 | 14 | 13 | 68 | 68 | 13 | 68 | 68 |
| g / C, Green / Cycle | 0.16 | 0.16 | 0.16 | 0.11 | 0.11 | 0.11 | 0.10 | 0.51 | 0.51 | 0.10 | 0.51 | 0.51 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.10 | 0.11 | 0.12 | 0.08 | 0.01 | 0.11 | 0.26 | 0.38 | 0.05 | 0.26 | 0.10 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 259 | 577 | 259 | 372 | 396 | 177 | 347 | 2644 | 821 | 344 | 2633 | 825 |
| d1, Uniform Delay [s] | 55.53 | 51.31 | 51.79 | 59.03 | 56.88 | 52.97 | 59.53 | 21.44 | 25.31 | 56.50 | 21.23 | 17.59 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 194.13 | 0.80 | 2.20 | 53.04 | 2.01 | 0.20 | 35.29 | 0.72 | 5.84 | 0.43 | 0.69 | 0.55 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.43 | 0.60 | 0.65 | 1.11 | 0.72 | 0.10 | 1.07 | 0.52 | 0.74 | 0.51 | 0.50 | 0.20 |
| d, Delay for Lane Group [s/veh] | 249.66 | 52.10 | 53.99 | 112.08 | 58.89 | 53.17 | 94.83 | 22.16 | 31.15 | 56.94 | 21.91 | 18.14 |
| Lane Group LOS | F | D | D | F | E | D | F | C | C | E | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 11.23 | 5.30 | 5.30 | 8.97 | 4.74 | 0.55 | 7.51 | 9.47 | 15.91 | 2.74 | 8.66 | 2.78 |
| 50th-Percentile Queue Length [ft/ln] | 280.76 | 132.45 | 132.60 | 224.20 | 118.42 | 13.80 | 187.85 | 236.77 | 397.78 | 68.47 | 216.54 | 69.49 |
| 95th-Percentile Queue Length [veh/ln] | 19.10 | 9.07 | 9.08 | 14.45 | 8.31 | 0.99 | 12.30 | 14.52 | 22.45 | 4.93 | 13.49 | 5.00 |
| 95th-Percentile Queue Length [ft/ln] | 477.59 | 226.81 | 227.02 | 361.22 | 207.65 | 24.85 | 307.54 | 362.95 | 561.32 | 123.24 | 337.20 | 125.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 249.66 | 52.10 | 53.99 | 112.08 | 58.89 | 53.17 | 94.83 | 22.16 | 31.15 | 56.94 | 21.91 | 18.14 |
| Movement LOS | F | D | D | F | E | D | F | C | C | E | C | B |
| d_A, Approach Delay [s/veh] | 135.24 | | | 89.38 | | | 35.97 | | | 25.22 | | |
| Approach LOS | F | | | F | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 55.26 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.807 | | | | | | | | | | | |

**Emissions**

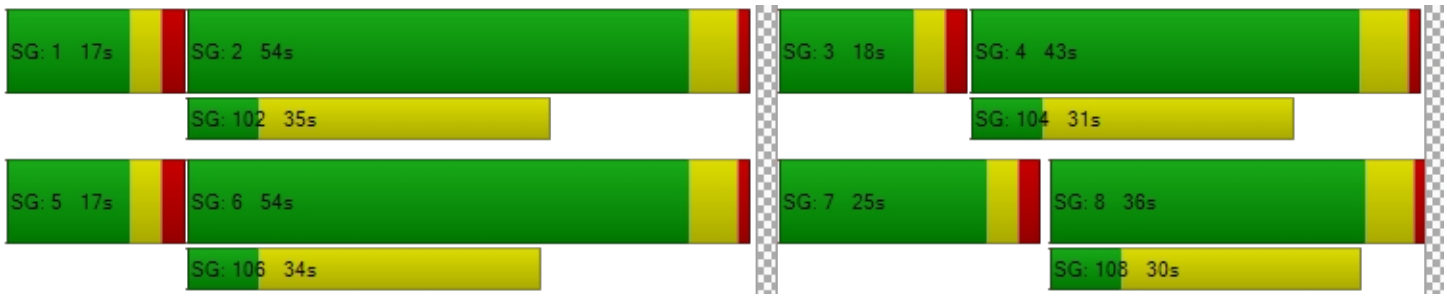
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.73 | 36.11 | 17.58 | 223.17 | 154.55 | 9.73 | 184.66 | 681.73 | 301.94 | 20.17 | 152.26 | 19.13 |
| Stops [stops/h] | 612.30 | 288.85 | 144.59 | 488.95 | 258.26 | 15.05 | 409.69 | 774.56 | 433.75 | 149.32 | 708.36 | 75.77 |
| Fuel consumption [US gal/h] | 26.20 | 7.79 | 3.90 | 21.31 | 11.22 | 0.68 | 17.00 | 38.50 | 18.66 | 4.58 | 19.92 | 2.21 |
| CO [g/h] | 1831.11 | 544.43 | 272.33 | 1489.33 | 783.98 | 47.41 | 1188.57 | 2691.42 | 1304.41 | 319.81 | 1392.19 | 154.53 |
| NOx [g/h] | 356.27 | 105.93 | 52.99 | 289.77 | 152.53 | 9.23 | 231.25 | 523.65 | 253.79 | 62.22 | 270.87 | 30.07 |
| VOC [g/h] | 424.38 | 126.18 | 63.11 | 345.17 | 181.70 | 10.99 | 275.46 | 623.76 | 302.31 | 74.12 | 322.65 | 35.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.49 | 55.49 | 55.49 | 55.49 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.974 | 3.108 | 3.325 | 3.454 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.00 | 39.20 | 26.56 | 26.56 |
| l_b,int, Bicycle LOS Score for Intersection | 2.288 | 2.296 | 2.847 | 2.474 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 75.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.188 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 450 | 79 | 6 | 2 | 83 | 27 | 30 | 118 | 326 | 0 | 90 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 450 | 79 | 6 | 2 | 83 | 27 | 30 | 118 | 326 | 0 | 90 | 23 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 131 | 23 | 2 | 1 | 24 | 8 | 9 | 34 | 95 | 0 | 26 | 7 |
| Total Analysis Volume [veh/h] | 523 | 92 | 7 | 2 | 97 | 31 | 35 | 137 | 379 | 0 | 105 | 27 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 622 | 486 | 587 | 484 |
| Degree of Utilization, x | 1.19 | 0.27 | 0.94 | 0.27 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 22.63 | 1.07 | 12.30 | 1.10 |
| 95th-Percentile Queue Length [ft] | 565.75 | 26.72 | 307.49 | 27.44 |
| Approach Delay [s/veh] | 126.24 | 13.08 | 48.07 | 13.21 |
| Approach LOS | F | B | E | B |
| Intersection Delay [s/veh] | 75.58 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 146.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.082 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 274 | 467 | 22 | 445 | 283 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 274 | 467 | 22 | 445 | 283 | 49 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 117 | 6 | 111 | 71 | 12 |
| Total Analysis Volume [veh/h] | 274 | 467 | 22 | 445 | 283 | 49 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.03 | 0.00 | 1.08 | 0.09 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 9.18 | 0.00 | 146.56 | 139.18 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.04 | 0.04 | 14.54 | 14.54 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.93 | 0.93 | 363.48 | 363.48 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.43 | | 145.47 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 31.49 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.633 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 484 | 15 | 158 | 313 | 104 | 125 | 195 | 67 | 96 | 137 | 122 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 484 | 15 | 158 | 313 | 104 | 125 | 195 | 67 | 96 | 137 | 122 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 126 | 4 | 41 | 82 | 27 | 33 | 51 | 17 | 25 | 36 | 32 |
| Total Analysis Volume [veh/h] | 3 | 504 | 16 | 165 | 326 | 108 | 130 | 203 | 70 | 100 | 143 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 21 | 21 | 9 | 29 | 7 | 11 | 11 | 7 | 10 | 10 |
| g / C, Green / Cycle | 0.01 | 0.33 | 0.33 | 0.14 | 0.46 | 0.11 | 0.17 | 0.17 | 0.11 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.27 | 0.01 | 0.09 | 0.24 | 0.07 | 0.07 | 0.08 | 0.06 | 0.08 | 0.08 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1806 | 1810 | 1900 | 1738 | 1787 | 1900 | 1605 |
| c, Capacity [veh/h] | 13 | 620 | 535 | 245 | 830 | 208 | 327 | 299 | 189 | 310 | 262 |
| d1, Uniform Delay [s] | 30.94 | 19.19 | 14.16 | 25.78 | 12.06 | 26.48 | 23.20 | 23.26 | 26.57 | 23.74 | 23.84 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.06 | 2.64 | 0.02 | 1.21 | 0.51 | 1.16 | 1.66 | 1.91 | 0.86 | 1.99 | 2.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.22 | 0.81 | 0.03 | 0.67 | 0.52 | 0.63 | 0.43 | 0.44 | 0.53 | 0.46 | 0.48 |
| d, Delay for Lane Group [s/veh] | 34.01 | 21.84 | 14.19 | 27.00 | 12.57 | 27.64 | 24.86 | 25.17 | 27.42 | 25.73 | 26.42 |
| Lane Group LOS | C | C | B | C | B | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.05 | 6.02 | 0.13 | 2.16 | 3.45 | 1.76 | 1.83 | 1.74 | 1.29 | 1.84 | 1.67 |
| 50th-Percentile Queue Length [ft/ln] | 1.31 | 150.56 | 3.34 | 54.11 | 86.34 | 43.89 | 45.73 | 43.61 | 32.27 | 45.88 | 41.79 |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 10.05 | 0.24 | 3.90 | 6.22 | 3.16 | 3.29 | 3.14 | 2.32 | 3.30 | 3.01 |
| 95th-Percentile Queue Length [ft/ln] | 2.37 | 251.18 | 6.02 | 97.39 | 155.40 | 79.00 | 82.32 | 78.49 | 58.08 | 82.58 | 75.23 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.01 | 21.84 | 14.19 | 27.00 | 12.57 | 12.57 | 27.64 | 24.96 | 25.17 | 27.42 | 25.73 | 26.42 |
| Movement LOS | C | C | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 21.67 | | | 16.54 | | | 25.86 | | | 26.43 | | |
| Approach LOS | C | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.87 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.633 | | | | | | | | | | | |

**Emissions**

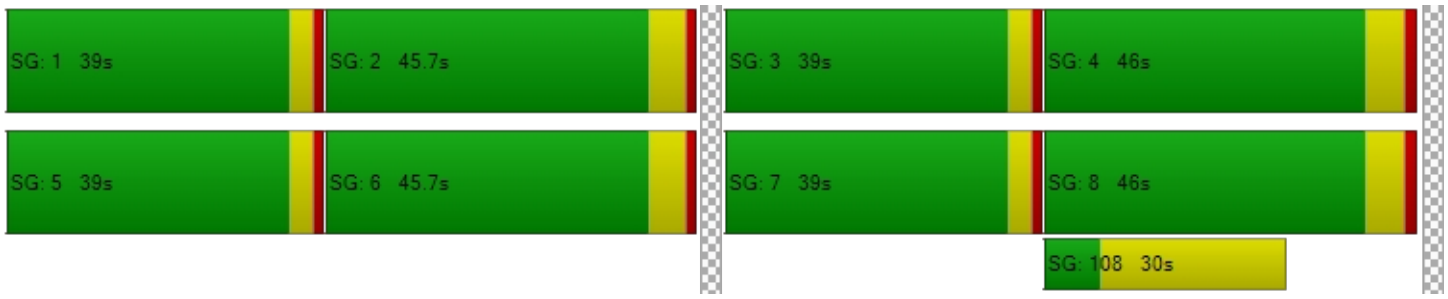
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.51 | 253.45 | 8.05 | 82.24 | 216.31 | 64.07 | 69.27 | 65.27 | 26.21 | 37.48 | 33.29 |
| Stops [stops/h] | 3.02 | 346.34 | 7.69 | 124.46 | 198.60 | 100.95 | 105.20 | 100.31 | 74.22 | 105.54 | 96.14 |
| Fuel consumption [US gal/h] | 0.11 | 15.23 | 0.42 | 5.27 | 10.99 | 4.02 | 4.23 | 4.00 | 2.58 | 3.62 | 3.27 |
| CO [g/h] | 7.69 | 1064.83 | 29.19 | 368.57 | 768.48 | 280.84 | 295.39 | 279.73 | 180.00 | 253.32 | 228.81 |
| NOx [g/h] | 1.50 | 207.18 | 5.68 | 71.71 | 149.52 | 54.64 | 57.47 | 54.42 | 35.02 | 49.29 | 44.52 |
| VOC [g/h] | 1.78 | 246.78 | 6.77 | 85.42 | 178.10 | 65.09 | 68.46 | 64.83 | 41.72 | 58.71 | 53.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.27 | 23.81 | 23.55 | 23.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.578 | 2.588 | 2.329 | 2.529 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1278 | 1278 | 1278 | 1278 |
| d_b, Bicycle Delay [s] | 4.08 | 4.08 | 4.08 | 4.08 |
| l_b,int, Bicycle LOS Score for Intersection | 2.423 | 2.548 | 1.892 | 2.170 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 32.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.107 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 439 | 13 | 10 | 488 | 8 | 15 | 14 | 6 | 1 | 53 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 439 | 13 | 10 | 488 | 8 | 15 | 14 | 6 | 1 | 53 | 9 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 114 | 3 | 3 | 127 | 2 | 4 | 4 | 2 | 0 | 14 | 2 |
| Total Analysis Volume [veh/h] | 18 | 457 | 14 | 10 | 508 | 8 | 16 | 15 | 6 | 1 | 55 | 9 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.11 | 0.07 | 0.01 | 0.01 | 0.24 | 0.01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.55 | 0.00 | 0.00 | 8.43 | 0.00 | 0.00 | 32.94 | 24.78 | 15.28 | 29.17 | 25.94 | 16.07 |
| Movement LOS | A | A | A | A | A | A | D | C | C | D | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.65 | 0.65 | 0.65 | 1.02 | 1.02 | 1.02 |
| 95th-Percentile Queue Length [ft/ln] | 1.33 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 16.30 | 16.30 | 16.30 | 25.53 | 25.53 | 25.53 |
| d_A, Approach Delay [s/veh] | 0.31 | | | 0.16 | | | 26.77 | | | 24.62 | | |
| Approach LOS | A | | | A | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 2.53 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.784 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 254 | 278 | 158 | 32 | 394 | 24 | 13 | 355 | 125 | 96 | 403 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 254 | 278 | 158 | 32 | 394 | 24 | 13 | 355 | 125 | 96 | 403 | 19 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 76 | 43 | 9 | 107 | 7 | 4 | 96 | 34 | 26 | 110 | 5 |
| Total Analysis Volume [veh/h] | 276 | 302 | 172 | 35 | 428 | 26 | 14 | 386 | 136 | 104 | 438 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 31 | 31 | 2 | 20 | 1 | 14 | 14 | 5 | 19 |
| g / C, Green / Cycle | 0.18 | 0.45 | 0.45 | 0.03 | 0.30 | 0.01 | 0.21 | 0.21 | 0.08 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.16 | 0.11 | 0.02 | 0.24 | 0.01 | 0.14 | 0.15 | 0.06 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1882 | 1595 | 1810 | 1872 | 1810 | 1900 | 1720 | 1810 | 1885 |
| c, Capacity [veh/h] | 327 | 847 | 717 | 52 | 558 | 25 | 403 | 365 | 137 | 516 |
| d1, Uniform Delay [s] | 27.09 | 12.32 | 11.58 | 32.89 | 22.24 | 33.51 | 24.75 | 24.86 | 31.00 | 23.83 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.04 | 0.08 | 0.08 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.33 | 0.36 | 0.24 | 5.63 | 4.46 | 7.18 | 1.45 | 1.74 | 3.28 | 8.55 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.84 | 0.36 | 0.24 | 0.68 | 0.81 | 0.56 | 0.67 | 0.69 | 0.76 | 0.89 |
| d, Delay for Lane Group [s/veh] | 29.42 | 12.68 | 11.82 | 38.52 | 26.70 | 40.69 | 26.20 | 26.59 | 34.28 | 32.38 |
| Lane Group LOS | C | B | B | D | C | D | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.11 | 2.55 | 1.37 | 0.63 | 6.94 | 0.26 | 3.75 | 3.52 | 1.66 | 7.41 |
| 50th-Percentile Queue Length [ft/ln] | 102.71 | 63.85 | 34.24 | 15.87 | 173.39 | 6.58 | 93.72 | 88.07 | 41.61 | 185.35 |
| 95th-Percentile Queue Length [veh/ln] | 7.40 | 4.60 | 2.47 | 1.14 | 11.25 | 0.47 | 6.75 | 6.34 | 3.00 | 11.88 |
| 95th-Percentile Queue Length [ft/ln] | 184.88 | 114.94 | 61.64 | 28.57 | 281.37 | 11.84 | 168.69 | 158.53 | 74.89 | 296.99 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.42 | 12.68 | 11.82 | 38.52 | 26.70 | 26.70 | 40.69 | 26.32 | 26.59 | 34.28 | 32.38 | 32.38 |
| Movement LOS | C | B | B | D | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 18.64 | | | 27.54 | | | 26.76 | | | 32.73 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.76 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.784 | | | | | | | | | | | |

**Emissions**

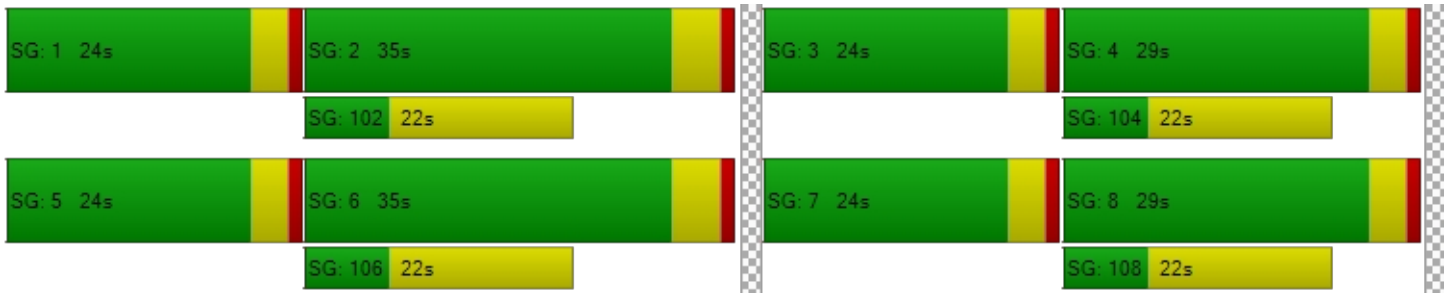
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 137.67 | 150.64 | 85.80 | 17.53 | 227.38 | 6.98 | 134.96 | 125.40 | 104.17 | 459.75 |
| Stops [stops/h] | 216.83 | 134.80 | 72.29 | 33.51 | 366.05 | 13.88 | 197.85 | 185.93 | 87.84 | 391.29 |
| Fuel consumption [US gal/h] | 9.07 | 7.62 | 4.25 | 1.18 | 13.85 | 0.53 | 8.53 | 7.97 | 5.39 | 23.65 |
| CO [g/h] | 633.81 | 532.59 | 297.32 | 82.56 | 968.06 | 36.90 | 596.15 | 557.17 | 376.64 | 1653.06 |
| NOx [g/h] | 123.32 | 103.62 | 57.85 | 16.06 | 188.35 | 7.18 | 115.99 | 108.40 | 73.28 | 321.63 |
| VOC [g/h] | 146.89 | 123.43 | 68.91 | 19.13 | 224.36 | 8.55 | 138.16 | 129.13 | 87.29 | 383.11 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.99 | 23.99 | 23.99 | 23.99 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.699 | 2.193 | 2.582 | 2.538 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 880 | 880 | 733 | 733 |
| d_b, Bicycle Delay [s] | 10.71 | 10.71 | 13.69 | 13.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.797 | 2.366 | 2.002 | 2.489 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.608 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 721 | 103 | 27 | 655 | 31 | 25 | 338 | 148 | 32 | 263 | 61 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 152 | 721 | 103 | 27 | 655 | 31 | 25 | 338 | 148 | 32 | 263 | 61 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 188 | 27 | 7 | 171 | 8 | 7 | 88 | 39 | 8 | 68 | 16 |
| Total Analysis Volume [veh/h] | 158 | 751 | 107 | 28 | 682 | 32 | 26 | 352 | 154 | 33 | 274 | 64 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 21 | 21 | 3 | 16 | 16 | 3 | 15 | 15 | 4 | 16 | 16 |
| g / C, Green / Cycle | 0.14 | 0.35 | 0.35 | 0.06 | 0.27 | 0.27 | 0.05 | 0.25 | 0.25 | 0.06 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.21 | 0.07 | 0.02 | 0.19 | 0.19 | 0.01 | 0.19 | 0.10 | 0.02 | 0.08 | 0.04 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1608 | 1810 | 1888 | 1856 | 1810 | 1888 | 1598 | 1810 | 3618 | 1592 |
| c, Capacity [veh/h] | 254 | 1266 | 566 | 103 | 505 | 496 | 97 | 481 | 408 | 117 | 962 | 423 |
| d1, Uniform Delay [s] | 23.84 | 15.66 | 13.27 | 26.64 | 19.56 | 19.57 | 26.80 | 20.13 | 18.12 | 26.29 | 17.20 | 16.56 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.50 | 0.45 | 0.16 | 1.39 | 1.88 | 1.93 | 1.45 | 2.16 | 0.58 | 1.30 | 0.16 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.62 | 0.59 | 0.19 | 0.27 | 0.71 | 0.71 | 0.27 | 0.73 | 0.38 | 0.28 | 0.28 | 0.15 |
| d, Delay for Lane Group [s/veh] | 26.34 | 16.10 | 13.43 | 28.04 | 21.44 | 21.50 | 28.24 | 22.29 | 18.70 | 27.58 | 17.36 | 16.72 |
| Lane Group LOS | C | B | B | C | C | C | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.99 | 3.41 | 0.83 | 0.40 | 4.30 | 4.24 | 0.37 | 4.31 | 1.65 | 0.44 | 1.27 | 0.58 |
| 50th-Percentile Queue Length [ft/ln] | 49.65 | 85.19 | 20.73 | 9.90 | 107.52 | 106.12 | 9.27 | 107.69 | 41.21 | 10.90 | 31.78 | 14.53 |
| 95th-Percentile Queue Length [veh/ln] | 3.58 | 6.13 | 1.49 | 0.71 | 7.70 | 7.62 | 0.67 | 7.71 | 2.97 | 0.78 | 2.29 | 1.05 |
| 95th-Percentile Queue Length [ft/ln] | 89.38 | 153.35 | 37.31 | 17.82 | 192.54 | 190.60 | 16.68 | 192.79 | 74.18 | 19.61 | 57.20 | 26.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.34 | 16.10 | 13.43 | 28.04 | 21.47 | 21.50 | 28.24 | 22.29 | 18.70 | 27.58 | 17.36 | 16.72 |
| Movement LOS | C | B | B | C | C | C | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 17.41 | | | 21.72 | | | 21.54 | | | 18.16 | | |
| Approach LOS | B | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.54 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.608 | | | | | | | | | | | |

**Emissions**

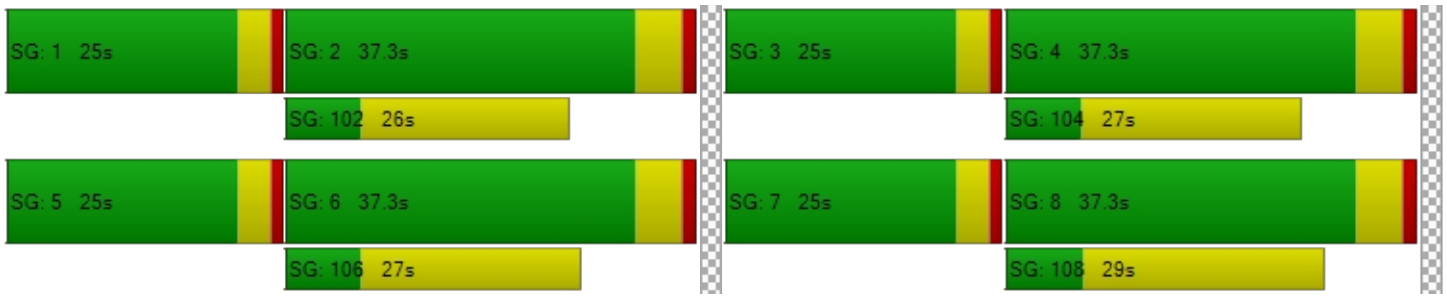
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 31.58 | 150.12 | 21.39 | 13.97 | 179.40 | 176.75 | 12.81 | 173.46 | 75.89 | 3.41 | 28.29 | 6.61 |
| Stops [stops/h] | 121.64 | 417.40 | 50.77 | 24.25 | 263.39 | 259.98 | 22.70 | 263.82 | 100.96 | 26.69 | 155.69 | 35.58 |
| Fuel consumption [US gal/h] | 3.44 | 12.80 | 1.66 | 0.87 | 10.41 | 10.26 | 0.80 | 10.19 | 4.27 | 0.63 | 3.87 | 0.89 |
| CO [g/h] | 240.58 | 894.48 | 115.81 | 60.72 | 727.67 | 717.36 | 56.08 | 712.61 | 298.32 | 44.31 | 270.78 | 61.98 |
| NOx [g/h] | 46.81 | 174.03 | 22.53 | 11.81 | 141.58 | 139.57 | 10.91 | 138.65 | 58.04 | 8.62 | 52.68 | 12.06 |
| VOC [g/h] | 55.76 | 207.30 | 26.84 | 14.07 | 168.64 | 166.26 | 13.00 | 165.15 | 69.14 | 10.27 | 62.75 | 14.36 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.42 | 19.42 | 19.42 | 19.42 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.889 | 2.585 | 2.470 | 2.527 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1089 | 1089 | 1089 | 1089 |
| d_b, Bicycle Delay [s] | 6.10 | 6.10 | 6.10 | 6.10 |
| l_b,int, Bicycle LOS Score for Intersection | 2.398 | 2.172 | 2.437 | 1.866 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.572 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 497 | 1001 | 0 | 0 | 501 | 300 | 0 | 0 | 0 | 127 | 0 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 497 | 1001 | 0 | 0 | 501 | 300 | 0 | 0 | 0 | 127 | 0 | 12 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 132 | 266 | 0 | 0 | 133 | 80 | 0 | 0 | 0 | 34 | 0 | 3 |
| Total Analysis Volume [veh/h] | 529 | 1065 | 0 | 0 | 533 | 319 | 0 | 0 | 0 | 135 | 0 | 13 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 59 | 59 | 59 | 59 | | 59 | 59 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 11 | 39 | 22 | 22 | | 7 | 7 |
| g / C, Green / Cycle | 0.19 | 0.66 | 0.37 | 0.37 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.30 | 0.23 | 0.26 | | 0.08 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1646 | | 1787 | 1615 |
| c, Capacity [veh/h] | 676 | 2361 | 692 | 605 | | 220 | 199 |
| d1, Uniform Delay [s] | 22.81 | 4.98 | 15.38 | 16.05 | | 24.74 | 23.06 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.77 | 0.25 | 1.66 | 2.79 | | 5.82 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.45 | 0.62 | 0.70 | | 0.61 | 0.07 |
| d, Delay for Lane Group [s/veh] | 23.58 | 5.23 | 17.04 | 18.85 | | 30.56 | 23.35 |
| Lane Group LOS | C | A | B | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.11 | 1.68 | 4.10 | 4.42 | | 1.88 | 0.15 |
| 50th-Percentile Queue Length [ft/ln] | 77.77 | 41.91 | 102.61 | 110.52 | | 47.03 | 3.83 |
| 95th-Percentile Queue Length [veh/ln] | 5.60 | 3.02 | 7.39 | 7.87 | | 3.39 | 0.28 |
| 95th-Percentile Queue Length [ft/ln] | 139.99 | 75.44 | 184.69 | 196.73 | | 84.65 | 6.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.58 | 5.23 | 0.00 | 0.00 | 17.40 | 18.85 | 0.00 | 0.00 | 0.00 | 30.56 | 0.00 | 23.35 |
| Movement LOS | C | A | | | B | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 11.32 | | | 17.94 | | | 0.00 | | | 29.93 | | |
| Approach LOS | B | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 14.56 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.572 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 57.18 | 115.13 | 85.15 | 85.15 | | 11.60 | 1.12 |
| Stops [stops/h] | 377.05 | 203.19 | 248.72 | 267.91 | | 114.00 | 9.28 |
| Fuel consumption [US gal/h] | 9.19 | 7.61 | 7.49 | 7.88 | | 3.35 | 0.27 |
| CO [g/h] | 642.13 | 531.75 | 523.44 | 551.08 | | 233.83 | 18.98 |
| NOx [g/h] | 124.94 | 103.46 | 101.84 | 107.22 | | 45.49 | 3.69 |
| VOC [g/h] | 148.82 | 123.24 | 121.31 | 127.72 | | 54.19 | 4.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.06 | 27.06 | 19.72 | 19.72 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.994 | 2.826 | 2.105 | 1.824 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1515 | 1515 | 0 | 1010 |
| d_b, Bicycle Delay [s] | 1.75 | 1.75 | 29.70 | 7.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.875 | 2.263 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.752 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 929 | 301 | 20 | 610 | 0 | 576 | 0 | 467 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 929 | 301 | 20 | 610 | 0 | 576 | 0 | 467 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 242 | 78 | 5 | 159 | 0 | 150 | 0 | 122 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 968 | 314 | 21 | 635 | 0 | 600 | 0 | 486 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 3 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.03 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.34 | 0.37 | 0.01 | 0.18 | 0.17 | 0.30 | |
| s, saturation flow rate [veh/h] | 1889 | 1739 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 922 | 849 | 48 | 2040 | 1037 | 478 | |
| d1, Uniform Delay [s] | 19.81 | 20.73 | 47.83 | 11.10 | 29.73 | 35.06 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.44 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.31 | 6.19 | 2.33 | 0.40 | 1.09 | 43.02 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.69 | 0.76 | 0.44 | 0.31 | 0.58 | 1.02 | |
| d, Delay for Lane Group [s/veh] | 24.12 | 26.91 | 50.16 | 11.50 | 30.82 | 78.08 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 11.65 | 12.49 | 0.53 | 3.32 | 5.76 | 16.23 | |
| 50th-Percentile Queue Length [ft/ln] | 291.21 | 312.32 | 13.24 | 83.08 | 144.00 | 405.87 | |
| 95th-Percentile Queue Length [veh/ln] | 17.25 | 18.29 | 0.95 | 5.98 | 9.70 | 23.09 | |
| 95th-Percentile Queue Length [ft/ln] | 431.14 | 457.23 | 23.83 | 149.55 | 242.40 | 577.21 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 25.06 | 26.91 | 50.16 | 11.50 | 0.00 | 30.82 | 0.00 | 78.08 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 25.51 | | | 12.74 | | | 51.97 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 32.24 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.752 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.54 | 42.54 | 2.27 | 68.64 | 71.31 | 57.76 | |
| Stops [stops/h] | 419.52 | 449.93 | 19.07 | 239.39 | 414.91 | 584.71 | |
| Fuel consumption [US gal/h] | 8.79 | 9.45 | 0.53 | 6.82 | 13.86 | 20.51 | |
| CO [g/h] | 614.47 | 660.85 | 37.00 | 476.41 | 968.50 | 1433.94 | |
| NOx [g/h] | 119.55 | 128.58 | 7.20 | 92.69 | 188.44 | 278.99 | |
| VOC [g/h] | 142.41 | 153.16 | 8.57 | 110.41 | 224.46 | 332.33 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.898 | 2.936 | 2.592 | 1.883 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.617 | 2.101 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.032 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 4 | 469 | 4 | 2 | 311 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 4 | 469 | 4 | 2 | 311 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 156 | 1 | 1 | 104 |
| Total Analysis Volume [veh/h] | 8 | 5 | 625 | 5 | 3 | 415 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 19.96 | 13.01 | 0.00 | 0.00 | 8.80 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.13 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 3.32 | 3.32 | 0.00 | 0.00 | 0.13 | 0.13 |
| d_A, Approach Delay [s/veh] | 17.28 | | 0.00 | | 0.06 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.24 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.002 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 1 | 13 | 15 | 230 | 297 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 13 | 15 | 230 | 297 | 3 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 4 | 4 | 63 | 82 | 1 |
| Total Analysis Volume [veh/h] | 1 | 14 | 16 | 253 | 326 | 3 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.16 | 9.28 | 7.97 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.40 | 1.40 | 0.99 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.47 | | 0.47 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.44 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.086 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 12 | 225 | 62 | 12 | 279 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 12 | 225 | 62 | 12 | 279 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 3 | 59 | 16 | 3 | 73 |
| Total Analysis Volume [veh/h] | 49 | 13 | 237 | 65 | 13 | 294 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.97 | 9.57 | 0.00 | 0.00 | 7.86 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.33 | 0.33 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.32 | 8.32 | 0.00 | 0.00 | 0.78 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.47 | | 0.00 | | 0.33 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.21 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.784 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 221 | 354 | 47 | 40 | 276 | 63 | 109 | 170 | 31 | 144 | 85 | 109 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 221 | 354 | 47 | 40 | 276 | 63 | 109 | 170 | 31 | 144 | 85 | 109 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 58 | 93 | 12 | 11 | 73 | 17 | 29 | 45 | 8 | 38 | 22 | 29 |
| Total Analysis Volume [veh/h] | 233 | 373 | 49 | 42 | 291 | 66 | 115 | 179 | 33 | 152 | 89 | 115 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 41 | 41 | 27 | 27 | 10 | 16 | 16 | 13 | 20 |
| g / C, Green / Cycle | 0.36 | 0.36 | 0.24 | 0.24 | 0.09 | 0.14 | 0.14 | 0.12 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.03 | 0.02 | 0.19 | 0.06 | 0.05 | 0.02 | 0.09 | 0.12 |
| s, saturation flow rate [veh/h] | 1864 | 1615 | 1810 | 1840 | 1810 | 3600 | 1587 | 1659 | 1723 |
| c, Capacity [veh/h] | 668 | 579 | 435 | 443 | 159 | 516 | 227 | 194 | 297 |
| d1, Uniform Delay [s] | 34.58 | 24.07 | 33.48 | 40.58 | 50.40 | 43.79 | 42.48 | 48.70 | 44.06 |
| k, delay calibration | 0.39 | 0.04 | 0.23 | 0.33 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 14.99 | 0.02 | 0.20 | 10.10 | 2.36 | 0.85 | 0.62 | 2.65 | 5.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.91 | 0.08 | 0.10 | 0.81 | 0.73 | 0.35 | 0.15 | 0.79 | 0.69 |
| d, Delay for Lane Group [s/veh] | 49.56 | 24.09 | 33.69 | 50.68 | 52.75 | 44.64 | 43.10 | 51.35 | 49.97 |
| Lane Group LOS | D | C | C | D | D | D | D | D | D |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 18.31 | 0.88 | 0.93 | 10.54 | 3.16 | 2.24 | 0.82 | 4.16 | 5.63 |
| 50th-Percentile Queue Length [ft/ln] | 457.72 | 21.94 | 23.19 | 263.59 | 79.03 | 56.03 | 20.47 | 103.90 | 140.81 |
| 95th-Percentile Queue Length [veh/ln] | 25.33 | 1.58 | 1.67 | 15.87 | 5.69 | 4.03 | 1.47 | 7.48 | 9.52 |
| 95th-Percentile Queue Length [ft/ln] | 633.15 | 39.49 | 41.74 | 396.72 | 142.26 | 100.85 | 36.85 | 187.01 | 238.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.56 | 49.56 | 24.09 | 33.69 | 50.68 | 50.68 | 52.75 | 44.64 | 43.10 | 51.35 | 49.97 | 49.97 |
| Movement LOS | D | D | C | C | D | D | D | D | D | D | D | D |
| d_A, Approach Delay [s/veh] | 47.66 | | | 48.89 | | | 47.34 | | | 50.56 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 48.48 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.784 | | | | | | | | | | | |

**Emissions**

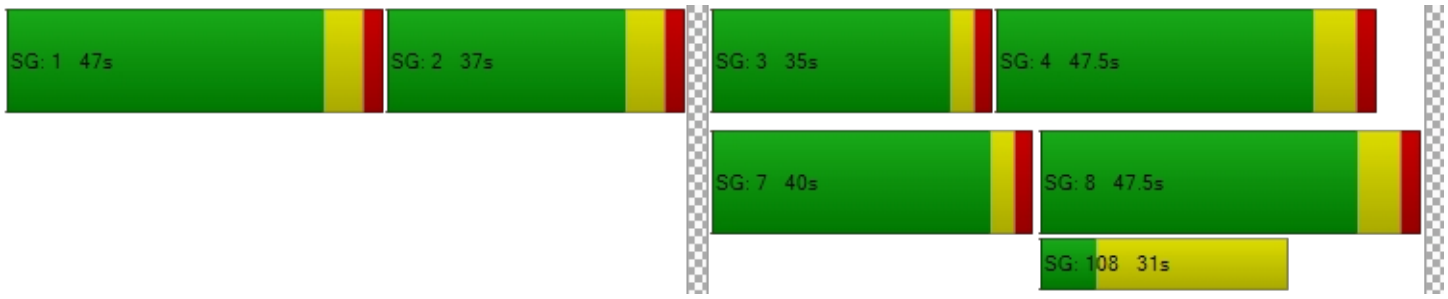
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 603.84 | 48.83 | 1.18 | 10.05 | 42.41 | 66.01 | 12.17 | 76.79 | 103.07 |
| Stops [stops/h] | 582.26 | 27.91 | 29.50 | 335.31 | 100.54 | 142.55 | 26.04 | 132.17 | 179.13 |
| Fuel consumption [US gal/h] | 34.19 | 2.40 | 0.50 | 5.95 | 4.20 | 6.02 | 1.10 | 6.19 | 8.28 |
| CO [g/h] | 2389.63 | 168.07 | 34.92 | 415.75 | 293.43 | 421.13 | 76.66 | 432.59 | 578.45 |
| NOx [g/h] | 464.94 | 32.70 | 6.79 | 80.89 | 57.09 | 81.94 | 14.92 | 84.17 | 112.54 |
| VOC [g/h] | 553.82 | 38.95 | 8.09 | 96.35 | 68.01 | 97.60 | 17.77 | 100.26 | 134.06 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.13 | 50.29 | 49.82 | 49.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.418 | 2.280 | 2.546 | 2.399 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 707 | 530 | 707 | 707 |
| d_b, Bicycle Delay [s] | 23.67 | 30.57 | 23.69 | 23.67 |
| l_b,int, Bicycle LOS Score for Intersection | 2.640 | 2.218 | 1.829 | 2.147 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.600 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 155 | 602 | 183 | 9 | 427 | 88 | 295 | 232 | 39 | 84 | 109 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 155 | 602 | 183 | 9 | 427 | 88 | 295 | 232 | 39 | 84 | 109 | 4 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 167 | 51 | 3 | 119 | 24 | 82 | 64 | 11 | 23 | 30 | 1 |
| Total Analysis Volume [veh/h] | 172 | 669 | 203 | 10 | 474 | 98 | 328 | 258 | 43 | 93 | 121 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 1 | 13 | 13 | 12 | 14 | 14 | 7 | 8 | 8 |
| g / C, Green / Cycle | 0.15 | 0.34 | 0.34 | 0.02 | 0.22 | 0.22 | 0.22 | 0.24 | 0.24 | 0.12 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.19 | 0.13 | 0.01 | 0.13 | 0.06 | 0.18 | 0.14 | 0.03 | 0.05 | 0.06 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1810 | 1867 | 1615 |
| c, Capacity [veh/h] | 262 | 1237 | 550 | 43 | 791 | 356 | 387 | 445 | 380 | 219 | 266 | 230 |
| d1, Uniform Delay [s] | 23.42 | 15.40 | 14.36 | 27.84 | 20.33 | 18.79 | 21.86 | 19.59 | 17.37 | 23.63 | 22.83 | 21.40 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.04 | 0.49 | 0.55 | 1.04 | 0.97 | 0.55 | 2.03 | 1.49 | 0.16 | 0.48 | 1.51 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.66 | 0.54 | 0.37 | 0.23 | 0.60 | 0.28 | 0.85 | 0.58 | 0.11 | 0.42 | 0.45 | 0.02 |
| d, Delay for Lane Group [s/veh] | 24.46 | 15.89 | 14.91 | 28.87 | 21.31 | 19.34 | 23.89 | 21.08 | 17.53 | 24.11 | 24.34 | 21.44 |
| Lane Group LOS | C | B | B | C | C | B | C | C | B | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.97 | 2.87 | 1.66 | 0.13 | 2.50 | 0.97 | 4.13 | 2.99 | 0.43 | 1.07 | 1.44 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 49.18 | 71.73 | 41.51 | 3.30 | 62.43 | 24.20 | 103.23 | 74.85 | 10.81 | 26.65 | 35.88 | 1.08 |
| 95th-Percentile Queue Length [veh/ln] | 3.54 | 5.16 | 2.99 | 0.24 | 4.50 | 1.74 | 7.43 | 5.39 | 0.78 | 1.92 | 2.58 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 88.53 | 129.11 | 74.72 | 5.95 | 112.38 | 43.56 | 185.81 | 134.73 | 19.46 | 47.96 | 64.58 | 1.95 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.46 | 15.89 | 14.91 | 28.87 | 21.31 | 19.34 | 23.89 | 21.08 | 17.53 | 24.11 | 24.34 | 21.44 |
| Movement LOS | C | B | B | C | C | B | C | C | B | C | C | C |
| d_A, Approach Delay [s/veh] | 17.11 | | | 21.11 | | | 22.30 | | | 24.19 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.00 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.600 | | | | | | | | | | | |

**Emissions**

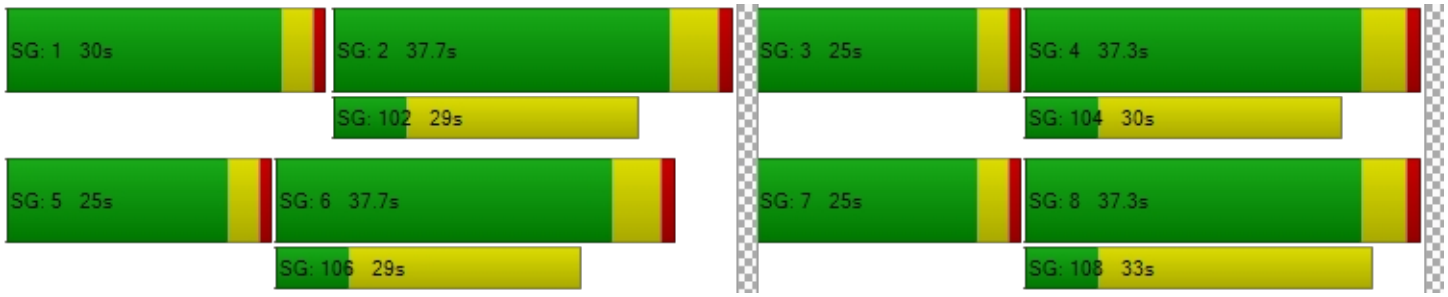
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 78.73 | 306.23 | 92.92 | 9.96 | 472.31 | 97.65 | 328.53 | 258.42 | 43.07 | 46.65 | 60.69 | 2.01 |
| Stops [stops/h] | 122.30 | 356.72 | 103.22 | 8.21 | 310.50 | 60.18 | 256.70 | 186.13 | 26.88 | 66.26 | 89.22 | 2.70 |
| Fuel consumption [US gal/h] | 5.37 | 17.89 | 5.31 | 0.52 | 22.64 | 4.58 | 16.54 | 12.77 | 2.07 | 2.88 | 3.79 | 0.12 |
| CO [g/h] | 375.38 | 1250.82 | 371.34 | 36.24 | 1582.44 | 320.12 | 1155.96 | 892.85 | 145.04 | 201.26 | 264.85 | 8.37 |
| NOx [g/h] | 73.04 | 243.36 | 72.25 | 7.05 | 307.89 | 62.28 | 224.91 | 173.72 | 28.22 | 39.16 | 51.53 | 1.63 |
| VOC [g/h] | 87.00 | 289.89 | 86.06 | 8.40 | 366.75 | 74.19 | 267.91 | 206.93 | 33.61 | 46.64 | 61.38 | 1.94 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.00 | 19.00 | 19.00 | 19.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.876 | 2.857 | 2.355 | 2.358 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1105 | 1105 | 1105 | 1105 |
| d_b, Bicycle Delay [s] | 5.80 | 5.80 | 5.80 | 5.80 |
| l_b,int, Bicycle LOS Score for Intersection | 2.421 | 2.040 | 2.597 | 1.919 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 203 | 825 | 197 | 65 | 505 | 41 | 80 | 54 | 253 | 161 | 48 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 203 | 825 | 197 | 65 | 505 | 41 | 80 | 54 | 253 | 161 | 48 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 222 | 53 | 17 | 136 | 11 | 22 | 15 | 68 | 43 | 13 | 23 |
| Total Analysis Volume [veh/h] | 218 | 887 | 212 | 70 | 543 | 44 | 86 | 58 | 272 | 173 | 52 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 220 | | | 453 | | | 805 | | | 1199 | | |
| Exiting Flow Rate [veh/h] | 1010 | | | 1074 | | | 316 | | | 350 | | |
| Demand Flow Rate [veh/h] | 203 | 825 | 197 | 65 | 505 | 41 | 80 | 54 | 253 | 161 | 48 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 218 | 887 | 212 | 70 | 543 | 44 | 86 | 58 | 272 | 173 | 52 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.97 |
| Entry Flow Rate [veh/h] | 623 | 706 | 315 | 354 | 148 | 278 | 176 | 154 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1163 | 1163 | 891 | 967 | 645 | 717 | 448 | 513 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1155 | 1150 | 875 | 953 | 627 | 703 | 430 | 496 |
| X, volume / capacity | 0.54 | 0.61 | 0.35 | 0.37 | 0.23 | 0.39 | 0.39 | 0.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | B | A | A | A | B | C | B |
| 95th-Percentile Queue Length [veh] | 3.30 | 4.31 | 1.60 | 1.69 | 0.88 | 1.83 | 1.83 | 1.25 |
| 95th-Percentile Queue Length [ft] | 82.61 | 107.83 | 40.04 | 42.28 | 22.04 | 45.83 | 45.65 | 31.32 |
| Approach Delay [s/veh] | 10.16 | | 7.93 | | 9.68 | | 13.85 | |
| Approach LOS | B | | A | | A | | B | |
| Intersection Delay [s/veh] | 9.98 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.452 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1150 | 870 | 0 | 510 | 373 | 0 | 0 | 0 | 51 | 0 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1150 | 870 | 0 | 510 | 373 | 0 | 0 | 0 | 51 | 0 | 24 |
| Peak Hour Factor | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 1.0000 | 1.0000 | 0.8900 | 1.0000 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 323 | 244 | 0 | 143 | 105 | 0 | 0 | 0 | 14 | 0 | 7 |
| Total Analysis Volume [veh/h] | 0 | 1292 | 978 | 0 | 573 | 419 | 0 | 0 | 0 | 57 | 0 | 27 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 45 | 45 | 45 | | 45 | 45 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 27 | 27 | 27 | | 5 | 5 |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.60 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.16 | 0.26 | | 0.03 | 0.02 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 2154 | 2147 | 961 | | 209 | 190 |
| d1, Uniform Delay [s] | 5.62 | 4.29 | 4.88 | | 18.03 | 17.75 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.50 | 0.12 | 0.58 | | 1.48 | 0.73 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.60 | 0.27 | 0.44 | | 0.27 | 0.14 |
| d, Delay for Lane Group [s/veh] | 6.13 | 4.41 | 5.46 | | 19.51 | 18.47 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.58 | 0.52 | 0.96 | | 0.50 | 0.23 |
| 50th-Percentile Queue Length [ft/ln] | 39.45 | 12.98 | 23.95 | | 12.38 | 5.73 |
| 95th-Percentile Queue Length [veh/ln] | 2.84 | 0.93 | 1.72 | | 0.89 | 0.41 |
| 95th-Percentile Queue Length [ft/ln] | 71.02 | 23.37 | 43.11 | | 22.29 | 10.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.13 | 0.00 | 0.00 | 4.41 | 5.46 | 0.00 | 0.00 | 0.00 | 19.51 | 0.00 | 18.47 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.66 | | | 4.85 | | | 0.00 | | | 19.18 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.71 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.452 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 147.79 | 56.53 | 41.34 | | 4.03 | 1.91 |
| Stops [stops/h] | 254.10 | 83.63 | 77.13 | | 39.88 | 18.44 |
| Fuel consumption [US gal/h] | 9.84 | 3.49 | 2.84 | | 1.10 | 0.51 |
| CO [g/h] | 687.58 | 244.09 | 198.60 | | 77.02 | 35.50 |
| NOx [g/h] | 133.78 | 47.49 | 38.64 | | 14.99 | 6.91 |
| VOC [g/h] | 159.35 | 56.57 | 46.03 | | 17.85 | 8.23 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.37 | 19.37 | 12.71 | 12.71 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.838 | 2.952 | 1.878 | 1.950 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1565 | 1565 | 0 | 895 |
| d_b, Bicycle Delay [s] | 1.06 | 1.06 | 22.36 | 6.83 |
| l_b,int, Bicycle LOS Score for Intersection | 2.626 | 2.378 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 98.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.094 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1446 | 81 | 27 | 557 | 0 | 546 | 0 | 764 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1446 | 81 | 27 | 557 | 0 | 546 | 0 | 764 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 402 | 23 | 8 | 155 | 0 | 152 | 0 | 212 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1607 | 90 | 30 | 619 | 0 | 607 | 0 | 849 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 4 | 54 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.51 | 0.37 | 0.37 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.45 | 0.46 | 0.02 | 0.17 | 0.34 | 0.53 | |
| s, saturation flow rate [veh/h] | 1892 | 1858 | 1810 | 3595 | 1801 | 1607 | |
| c, Capacity [veh/h] | 797 | 782 | 62 | 1828 | 674 | 602 | |
| d1, Uniform Delay [s] | 30.92 | 30.92 | 50.68 | 15.58 | 31.54 | 33.42 | |
| k, delay calibration | 0.48 | 0.49 | 0.04 | 0.19 | 0.41 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 49.74 | 57.17 | 2.20 | 0.19 | 14.71 | 194.62 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.06 | 1.08 | 0.49 | 0.34 | 0.90 | 1.41 | |
| d, Delay for Lane Group [s/veh] | 80.66 | 88.09 | 52.89 | 15.78 | 46.25 | 228.03 | |
| Lane Group LOS | F | F | D | B | D | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 29.74 | 30.81 | 0.80 | 4.17 | 16.06 | 46.51 | |
| 50th-Percentile Queue Length [ft/ln] | 743.50 | 770.17 | 20.09 | 104.22 | 401.50 | 1162.77 | |
| 95th-Percentile Queue Length [veh/ln] | 40.51 | 42.34 | 1.45 | 7.50 | 22.63 | 70.43 | |
| 95th-Percentile Queue Length [ft/ln] | 1012.78 | 1058.55 | 36.16 | 187.60 | 565.81 | 1760.71 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 84.17 | 88.09 | 52.89 | 15.78 | 0.00 | 46.25 | 0.00 | 228.03 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | F | F | D | B | | D | | F | | | |
| d_A, Approach Delay [s/veh] | 84.37 | | | 17.49 | | | 152.25 | | | 0.00 | | |
| Approach LOS | F | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 98.95 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.094 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 68.73 | 68.73 | 3.43 | 70.81 | 47.47 | 66.39 | |
| Stops [stops/h] | 1002.59 | 1038.55 | 27.09 | 281.08 | 541.41 | 1567.96 | |
| Fuel consumption [US gal/h] | 28.75 | 30.48 | 0.78 | 7.91 | 17.36 | 70.74 | |
| CO [g/h] | 2009.40 | 2130.35 | 54.33 | 552.87 | 1213.22 | 4944.39 | |
| NOx [g/h] | 390.96 | 414.49 | 10.57 | 107.57 | 236.05 | 962.00 | |
| VOC [g/h] | 465.70 | 493.73 | 12.59 | 128.13 | 281.18 | 1145.91 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 50.14 | 50.14 | 42.96 | 42.96 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.303 | 3.165 | 3.024 | 1.781 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 843 | 656 | 749 | 0 |
| d_b, Bicycle Delay [s] | 17.88 | 24.13 | 20.89 | 53.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.960 | 2.095 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 39.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.078 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 227 | 20 | 27 | 64 | 8 | 47 | 31 | 194 | 33 | 16 | 204 | 201 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 227 | 20 | 27 | 64 | 8 | 47 | 31 | 194 | 33 | 16 | 204 | 201 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 66 | 6 | 8 | 19 | 2 | 14 | 9 | 56 | 10 | 5 | 59 | 58 |
| Total Analysis Volume [veh/h] | 264 | 23 | 31 | 74 | 9 | 55 | 36 | 226 | 38 | 19 | 237 | 234 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.68 | 0.08 | 0.03 | 0.22 | 0.03 | 0.07 | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.28 | 39.30 | 31.06 | 18.64 | 16.36 | 10.26 | 8.38 | 0.00 | 0.00 | 7.79 | 0.00 | 0.00 |
| Movement LOS | E | E | D | C | C | B | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 6.24 | 6.24 | 6.24 | 0.82 | 0.32 | 0.32 | 0.10 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 156.11 | 156.11 | 156.11 | 20.56 | 8.12 | 8.12 | 2.53 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 35.99 | | | 15.15 | | | 1.01 | | | 0.30 | | |
| Approach LOS | E | | | C | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 11.22 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.581 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 1 | 5 | 0 | 0 | 6 | 155 | 393 | 9 | 2 | 1 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 5 | 0 | 0 | 6 | 155 | 393 | 9 | 2 | 1 | 2 | 0 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 1 | 0 | 0 | 2 | 44 | 112 | 3 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 1 | 6 | 0 | 0 | 7 | 176 | 447 | 10 | 2 | 1 | 2 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 3 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 679 | 805 | 789 | 726 |
| Degree of Utilization, x | 0.01 | 0.23 | 0.58 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.03 | 0.87 | 3.81 | 0.01 |
| 95th-Percentile Queue Length [ft] | 0.78 | 21.82 | 95.32 | 0.31 |
| Approach Delay [s/veh] | 8.36 | 8.78 | 13.69 | 7.98 |
| Approach LOS | A | A | B | A |
| Intersection Delay [s/veh] | 12.23 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.450 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 207 | 4 | 0 | 147 | 106 | 4 | 256 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 207 | 4 | 0 | 147 | 106 | 4 | 256 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 66 | 1 | 0 | 47 | 34 | 1 | 81 |
| Total Analysis Volume [veh/h] | 262 | 5 | 0 | 186 | 134 | 5 | 324 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.00 | 0.31 | 0.31 | 0.01 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.00 | 0.00 | 0.05 | 0.08 | 0.00 | 0.17 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 1880 |
| c, Capacity [veh/h] | 508 | 454 | 1 | 1136 | 502 | 23 | 613 |
| d1, Uniform Delay [s] | 9.24 | 7.93 | 0.00 | 7.58 | 7.85 | 14.95 | 8.39 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.00 | 0.00 | 0.09 | 0.39 | 1.82 | 0.98 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.52 | 0.01 | 0.00 | 0.16 | 0.27 | 0.22 | 0.53 |
| d, Delay for Lane Group [s/veh] | 9.54 | 7.93 | 0.00 | 7.67 | 8.24 | 16.77 | 9.37 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.02 | 0.02 | 0.00 | 0.21 | 0.35 | 0.04 | 1.27 |
| 50th-Percentile Queue Length [ft/ln] | 25.56 | 0.41 | 0.00 | 5.29 | 8.70 | 0.97 | 31.77 |
| 95th-Percentile Queue Length [veh/ln] | 1.84 | 0.03 | 0.00 | 0.38 | 0.63 | 0.07 | 2.29 |
| 95th-Percentile Queue Length [ft/ln] | 46.00 | 0.74 | 0.00 | 9.52 | 15.66 | 1.75 | 57.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.54 | 7.93 | 0.00 | 7.67 | 8.24 | 16.77 | 9.37 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.51 | | 7.91 | | | 9.48 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.94 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.450 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 196.08 | 3.74 | 0.00 | 93.06 | 67.04 | 6.49 | 420.61 |
| Stops [stops/h] | 120.95 | 1.95 | 0.00 | 50.06 | 41.18 | 4.59 | 150.34 |
| Fuel consumption [US gal/h] | 9.25 | 0.17 | 0.00 | 4.18 | 3.10 | 0.31 | 18.76 |
| CO [g/h] | 646.51 | 12.09 | 0.00 | 291.86 | 216.82 | 21.64 | 1311.56 |
| NOx [g/h] | 125.79 | 2.35 | 0.00 | 56.79 | 42.19 | 4.21 | 255.18 |
| VOC [g/h] | 149.84 | 2.80 | 0.00 | 67.64 | 50.25 | 5.02 | 303.97 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.20 | 11.74 | 11.74 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.003 | 2.550 | 2.214 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1446 | 2103 | 2103 |
| d_b, Bicycle Delay [s] | 1.17 | 0.04 | 0.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.824 | 2.102 |
| Bicycle LOS | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 46.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.021 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 263 | 8 | 11 | 30 | 34 | 672 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 263 | 8 | 11 | 30 | 34 | 672 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 70 | 2 | 3 | 8 | 9 | 179 |
| Total Analysis Volume [veh/h] | 280 | 9 | 12 | 32 | 36 | 715 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 517 | 625 | 520 | 551 | 751 |
| Degree of Utilization, x | 0.54 | 0.01 | 0.02 | 0.06 | 1.02 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.20 | 0.04 | 0.07 | 0.18 | 17.78 |
| 95th-Percentile Queue Length [ft] | 79.94 | 1.10 | 1.77 | 4.62 | 444.43 |
| Approach Delay [s/veh] | 17.30 | | 9.68 | | 60.29 |
| Approach LOS | C | | A | | F |
| Intersection Delay [s/veh] | 46.77 | | | | |
| Intersection LOS | E | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 38.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.541 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 50 | 74 | 27 | 3 | 28 | 241 | 597 | 517 | 81 | 13 | 317 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 50 | 74 | 27 | 3 | 28 | 241 | 597 | 517 | 81 | 13 | 317 | 4 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 20 | 7 | 1 | 7 | 64 | 159 | 138 | 22 | 3 | 84 | 1 |
| Total Analysis Volume [veh/h] | 53 | 79 | 29 | 3 | 30 | 256 | 635 | 550 | 86 | 14 | 337 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 7 | 24 | 24 | 1 | 18 | 18 | 15 | 26 | 26 | 3 | 14 | 14 |
| g / C, Green / Cycle | 0.08 | 0.29 | 0.29 | 0.01 | 0.21 | 0.21 | 0.18 | 0.31 | 0.31 | 0.03 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.02 | 0.02 | 0.00 | 0.02 | 0.16 | 0.18 | 0.15 | 0.05 | 0.01 | 0.09 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 155 | 995 | 468 | 16 | 389 | 342 | 625 | 1116 | 492 | 62 | 602 | 273 |
| d1, Uniform Delay [s] | 36.35 | 21.77 | 21.66 | 41.51 | 26.54 | 31.06 | 34.69 | 23.57 | 21.09 | 39.65 | 32.17 | 29.20 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.33 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.31 | 0.09 | 0.14 | 5.50 | 0.24 | 9.42 | 20.96 | 2.15 | 1.07 | 1.82 | 5.14 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.08 | 0.06 | 0.19 | 0.08 | 0.75 | 1.02 | 0.49 | 0.17 | 0.23 | 0.56 | 0.01 |
| d, Delay for Lane Group [s/veh] | 37.66 | 21.86 | 21.80 | 47.01 | 26.78 | 40.48 | 55.65 | 25.72 | 22.16 | 41.47 | 37.31 | 29.34 |
| Lane Group LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.07 | 0.57 | 0.42 | 0.09 | 0.50 | 5.62 | 8.03 | 4.62 | 1.35 | 0.31 | 3.51 | 0.08 |
| 50th-Percentile Queue Length [ft/ln] | 26.69 | 14.18 | 10.60 | 2.14 | 12.49 | 140.53 | 200.72 | 115.61 | 33.67 | 7.74 | 87.86 | 1.92 |
| 95th-Percentile Queue Length [veh/ln] | 1.92 | 1.02 | 0.76 | 0.15 | 0.90 | 9.51 | 12.77 | 8.15 | 2.42 | 0.56 | 6.33 | 0.14 |
| 95th-Percentile Queue Length [ft/ln] | 48.04 | 25.52 | 19.08 | 3.85 | 22.48 | 237.74 | 319.37 | 203.77 | 60.61 | 13.93 | 158.15 | 3.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.66 | 21.86 | 21.80 | 47.01 | 26.78 | 40.48 | 55.65 | 25.72 | 22.16 | 41.47 | 37.31 | 29.34 |
| Movement LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 27.05 | | | 39.12 | | | 40.43 | | | 37.39 | | |
| Approach LOS | C | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 38.69 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.541 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.55 | 6.78 | 2.49 | 0.82 | 8.23 | 70.19 | 87.76 | 76.01 | 11.89 | 17.46 | 420.31 | 4.99 |
| Stops [stops/h] | 45.63 | 48.48 | 18.12 | 3.66 | 21.35 | 240.27 | 686.34 | 395.31 | 57.57 | 13.23 | 300.44 | 3.28 |
| Fuel consumption [US gal/h] | 0.85 | 0.90 | 0.33 | 0.08 | 0.62 | 6.33 | 14.60 | 8.19 | 1.20 | 0.91 | 21.52 | 0.25 |
| CO [g/h] | 59.10 | 62.79 | 23.15 | 5.79 | 43.34 | 442.16 | 1020.20 | 572.61 | 83.54 | 63.61 | 1504.35 | 17.29 |
| NOx [g/h] | 11.50 | 12.22 | 4.50 | 1.13 | 8.43 | 86.03 | 198.49 | 111.41 | 16.25 | 12.38 | 292.69 | 3.36 |
| VOC [g/h] | 13.70 | 14.55 | 5.37 | 1.34 | 10.05 | 102.48 | 236.44 | 132.71 | 19.36 | 14.74 | 348.65 | 4.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.83 | 31.83 | 31.83 | 31.83 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.353 | 2.492 | 2.857 | 2.601 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 475 | 475 | 950 | 950 |
| d_b, Bicycle Delay [s] | 24.49 | 24.49 | 11.61 | 11.61 |
| l_b,int, Bicycle LOS Score for Intersection | 1.692 | 2.036 | 2.608 | 1.852 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.215 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 39 | 2 | 53 | 34 | 68 | 164 | 368 | 31 | 1 | 230 | 78 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 39 | 2 | 53 | 34 | 68 | 164 | 368 | 31 | 1 | 230 | 78 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 11 | 1 | 14 | 9 | 18 | 45 | 100 | 8 | 0 | 63 | 21 |
| Total Analysis Volume [veh/h] | 18 | 42 | 2 | 58 | 37 | 74 | 178 | 400 | 34 | 1 | 250 | 85 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 12 | 7 | 16 | 16 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.18 | 0.10 | 0.23 | 0.23 | 0.14 | 0.28 | 0.28 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.02 | 0.02 | 0.05 | 0.05 | 0.11 | 0.02 | 0.00 | 0.07 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1809 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 321 | 349 | 443 | 377 | 499 | 1007 | 455 | 7 | 519 | 422 |
| d1, Uniform Delay [s] | 31.53 | 23.67 | 28.17 | 20.48 | 21.05 | 26.48 | 19.85 | 18.01 | 33.92 | 26.72 | 25.58 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 0.66 | 0.08 | 0.46 | 1.44 | 0.16 | 0.54 | 0.15 | 3.82 | 1.48 | 0.50 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.14 | 0.17 | 0.08 | 0.20 | 0.36 | 0.40 | 0.07 | 0.15 | 0.48 | 0.20 |
| d, Delay for Lane Group [s/veh] | 32.06 | 24.33 | 28.25 | 20.94 | 22.49 | 26.64 | 20.40 | 18.16 | 37.74 | 28.20 | 26.08 |
| Lane Group LOS | C | C | C | C | C | C | C | B | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.29 | 0.63 | 0.40 | 0.46 | 0.98 | 1.26 | 2.49 | 0.39 | 0.02 | 1.68 | 0.54 |
| 50th-Percentile Queue Length [ft/ln] | 7.21 | 15.77 | 9.88 | 11.53 | 24.56 | 31.57 | 62.19 | 9.77 | 0.54 | 41.89 | 13.50 |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 1.14 | 0.71 | 0.83 | 1.77 | 2.27 | 4.48 | 0.70 | 0.04 | 3.02 | 0.97 |
| 95th-Percentile Queue Length [ft/ln] | 12.98 | 28.39 | 17.78 | 20.75 | 44.21 | 56.82 | 111.94 | 17.58 | 0.96 | 75.41 | 24.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.06 | 24.33 | 24.33 | 28.25 | 20.94 | 22.49 | 26.64 | 20.40 | 18.16 | 37.74 | 28.20 | 26.08 |
| Movement LOS | C | C | C | C | C | C | C | C | B | D | C | C |
| d_A, Approach Delay [s/veh] | 26.57 | | | 24.13 | | | 22.09 | | | 27.69 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.21 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.215 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.33 | 3.26 | 75.29 | 48.03 | 96.07 | 222.00 | 498.89 | 42.41 | 0.17 | 43.24 | 14.70 |
| Stops [stops/h] | 15.24 | 33.33 | 41.75 | 24.36 | 51.92 | 133.45 | 262.89 | 20.64 | 1.13 | 177.10 | 57.06 |
| Fuel consumption [US gal/h] | 0.26 | 0.54 | 3.50 | 2.14 | 4.35 | 10.84 | 23.65 | 1.99 | 0.04 | 7.57 | 2.46 |
| CO [g/h] | 17.93 | 37.48 | 244.35 | 149.60 | 304.26 | 757.82 | 1653.15 | 138.78 | 3.02 | 529.16 | 171.64 |
| NOx [g/h] | 3.49 | 7.29 | 47.54 | 29.11 | 59.20 | 147.44 | 321.64 | 27.00 | 0.59 | 102.96 | 33.40 |
| VOC [g/h] | 4.16 | 8.69 | 56.63 | 34.67 | 70.51 | 175.63 | 383.13 | 32.16 | 0.70 | 122.64 | 39.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.95 | 23.95 | 23.95 | 23.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.968 | 2.566 | 2.711 | 2.819 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 587 | 587 | 881 | 881 |
| d_b, Bicycle Delay [s] | 17.00 | 17.00 | 10.67 | 10.67 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.838 | 2.065 | 1.837 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.162 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 128 | 0 | 277 | 204 | 222 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 128 | 0 | 277 | 204 | 222 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 32 | 0 | 69 | 51 | 56 |
| Total Analysis Volume [veh/h] | 0 | 128 | 0 | 277 | 204 | 222 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.60 | 10.42 | 8.19 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 14.36 | 14.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.42 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.60 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.117 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 0 | 0 | 121 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 0 | 0 | 121 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 0 | 0 | 30 | 0 | 0 |
| Total Analysis Volume [veh/h] | 111 | 0 | 0 | 121 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.31 | 9.09 | 0.00 | 0.00 | 7.45 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.40 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 9.93 | 9.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.31 | | 0.00 | | 3.73 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.45 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Near Term AM Plus Proj.pdf

Scenario 13 Near Term AM Plus Proj
7/8/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.652 | 30.4 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Right | 0.629 | 33.6 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.538 | 25.9 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | EB Left | 0.075 | 75.5 | F |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | WB Thru | 1.937 | 235.4 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.970 | 78.8 | E |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.850 | 59.6 | E |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | EB Thru | 0.871 | 60.1 | E |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.807 | 48.2 | D |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.812 | 43.6 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.514 | 18.1 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Right | 1.005 | 36.2 | D |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.754 | 19.0 | C |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Thru | 1.924 | 238.4 | F |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 1.150 | 138.9 | F |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Left | 0.663 | 37.7 | D |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 1.350 | 103.4 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 1.787 | 431.4 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.767 | 34.9 | C |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | WB Left | 0.101 | 27.0 | D |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.709 | 20.8 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 1.110 | 132.8 | F |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.901 | 42.2 | D |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.711 | 26.2 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.093 | 22.6 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.018 | 14.7 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.311 | 20.4 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.979 | 98.7 | F |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.732 | 29.0 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | EB Right | | 16.6 | C |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.694 | 9.0 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.006 | 88.9 | F |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 13.974 | 6,176.6 | F |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Right | 0.747 | 15.8 | C |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.488 | 9.0 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | SB Left | 1.587 | 226.0 | F |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Right | 0.696 | 54.7 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.386 | 28.8 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.149 | 10.0 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.228 | 9.6 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.652 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 434 | 397 | 19 | 56 | 453 | 95 | 12 | 77 | 342 | 5 | 247 | 158 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 434 | 397 | 19 | 56 | 453 | 95 | 12 | 77 | 342 | 5 | 247 | 158 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 141 | 129 | 6 | 18 | 147 | 31 | 4 | 25 | 111 | 2 | 80 | 51 |
| Total Analysis Volume [veh/h] | 564 | 516 | 25 | 73 | 588 | 123 | 16 | 100 | 444 | 6 | 321 | 205 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 16 | 29 | 29 | 7 | 19 | 19 | 3 | 26 | 26 | 1 | 24 | 24 |
| g / C, Green / Cycle | 0.19 | 0.35 | 0.35 | 0.08 | 0.23 | 0.23 | 0.03 | 0.31 | 0.31 | 0.01 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.14 | 0.02 | 0.04 | 0.12 | 0.08 | 0.01 | 0.05 | 0.28 | 0.00 | 0.17 | 0.13 |
| s, saturation flow rate [veh/h] | 3475 | 3560 | 1615 | 1759 | 5065 | 1573 | 1810 | 1877 | 1603 | 1810 | 1894 | 1565 |
| c, Capacity [veh/h] | 653 | 1239 | 562 | 137 | 1146 | 356 | 54 | 591 | 504 | 23 | 549 | 454 |
| d1, Uniform Delay [s] | 33.18 | 20.95 | 18.20 | 37.37 | 28.54 | 27.37 | 40.00 | 20.91 | 27.37 | 41.22 | 25.57 | 24.43 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.35 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.37 | 0.73 | 0.10 | 1.19 | 1.16 | 1.87 | 1.11 | 0.32 | 14.44 | 2.24 | 1.69 | 1.20 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.86 | 0.42 | 0.04 | 0.53 | 0.51 | 0.35 | 0.29 | 0.17 | 0.88 | 0.26 | 0.58 | 0.45 |
| d, Delay for Lane Group [s/veh] | 34.55 | 21.68 | 18.30 | 38.55 | 29.70 | 29.23 | 41.12 | 21.23 | 41.81 | 43.46 | 27.26 | 25.64 |
| Lane Group LOS | C | C | B | D | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.24 | 3.58 | 0.31 | 1.40 | 3.29 | 2.09 | 0.32 | 1.37 | 9.66 | 0.14 | 5.55 | 3.38 |
| 50th-Percentile Queue Length [ft/ln] | 130.89 | 89.46 | 7.67 | 34.91 | 82.24 | 52.25 | 8.12 | 34.18 | 241.62 | 3.39 | 138.86 | 84.60 |
| 95th-Percentile Queue Length [veh/ln] | 8.99 | 6.44 | 0.55 | 2.51 | 5.92 | 3.76 | 0.58 | 2.46 | 14.76 | 0.24 | 9.42 | 6.09 |
| 95th-Percentile Queue Length [ft/ln] | 224.70 | 161.03 | 13.81 | 62.84 | 148.02 | 94.05 | 14.62 | 61.52 | 369.08 | 6.11 | 235.48 | 152.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.55 | 21.68 | 18.30 | 38.55 | 29.70 | 29.23 | 41.12 | 21.23 | 41.81 | 43.46 | 27.26 | 25.64 |
| Movement LOS | C | C | B | D | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 28.17 | | | 30.45 | | | 38.11 | | | 26.82 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.40 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.652 | | | | | | | | | | | |

**Emissions**

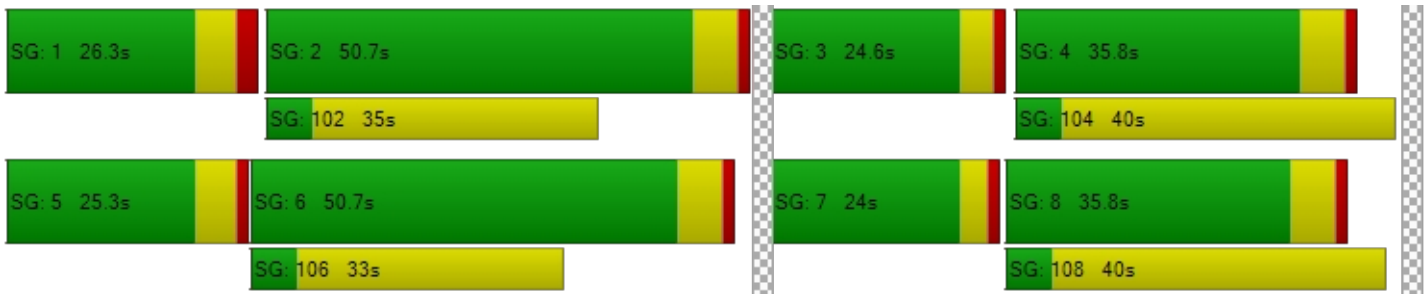
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 284.71 | 260.48 | 12.62 | 7.19 | 57.92 | 12.12 | 1.59 | 9.96 | 44.23 | 6.23 | 333.05 | 212.70 |
| Stops [stops/h] | 448.28 | 306.39 | 13.14 | 59.78 | 422.48 | 89.48 | 13.91 | 58.53 | 413.77 | 5.81 | 237.79 | 144.87 |
| Fuel consumption [US gal/h] | 20.38 | 15.70 | 0.72 | 1.73 | 11.98 | 2.51 | 0.36 | 1.50 | 10.44 | 0.34 | 16.81 | 10.63 |
| CO [g/h] | 1424.61 | 1097.64 | 50.15 | 121.01 | 837.29 | 175.52 | 25.27 | 104.93 | 729.61 | 23.87 | 1174.69 | 742.76 |
| NOx [g/h] | 277.18 | 213.56 | 9.76 | 23.54 | 162.91 | 34.15 | 4.92 | 20.42 | 141.96 | 4.64 | 228.55 | 144.51 |
| VOC [g/h] | 330.17 | 254.39 | 11.62 | 28.04 | 194.05 | 40.68 | 5.86 | 24.32 | 169.09 | 5.53 | 272.25 | 172.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.53 | 33.53 | 33.53 | 33.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.159 | 2.945 | 2.757 | 2.307 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1070 | 1070 | 714 | 714 |
| d_b, Bicycle Delay [s] | 9.08 | 9.08 | 17.40 | 17.40 |
| l_b,int, Bicycle LOS Score for Intersection | 2.471 | 1.991 | 2.484 | 2.437 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.629 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 136 | 608 | 30 | 73 | 676 | 63 | 76 | 134 | 263 | 187 | 184 | 196 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 136 | 608 | 30 | 73 | 676 | 63 | 76 | 134 | 263 | 187 | 184 | 196 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 171 | 8 | 21 | 190 | 18 | 21 | 38 | 74 | 53 | 52 | 55 |
| Total Analysis Volume [veh/h] | 153 | 683 | 34 | 82 | 760 | 71 | 85 | 151 | 296 | 210 | 207 | 220 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 10 | 27 | 27 | 7 | 24 | 24 | 7 | 21 | 21 | 13 | 25 |
| g / C, Green / Cycle | 0.11 | 0.30 | 0.30 | 0.08 | 0.27 | 0.27 | 0.08 | 0.24 | 0.24 | 0.14 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.13 | 0.02 | 0.05 | 0.15 | 0.04 | 0.05 | 0.08 | 0.19 | 0.12 | 0.25 |
| s, saturation flow rate [veh/h] | 1747 | 5127 | 1567 | 1711 | 5090 | 1615 | 1772 | 1888 | 1577 | 1758 | 1724 |
| c, Capacity [veh/h] | 188 | 1528 | 467 | 134 | 1365 | 433 | 140 | 445 | 372 | 248 | 482 |
| d1, Uniform Delay [s] | 38.95 | 25.39 | 22.50 | 39.86 | 28.11 | 25.02 | 39.79 | 28.36 | 32.12 | 37.44 | 30.81 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.32 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.18 | 0.67 | 0.21 | 1.70 | 1.16 | 0.57 | 1.58 | 0.54 | 4.71 | 3.12 | 14.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.45 | 0.07 | 0.61 | 0.56 | 0.16 | 0.61 | 0.34 | 0.80 | 0.85 | 0.89 |
| d, Delay for Lane Group [s/veh] | 42.13 | 26.06 | 22.71 | 41.56 | 29.27 | 25.59 | 41.37 | 28.90 | 36.83 | 40.56 | 45.14 |
| Lane Group LOS | D | C | C | D | C | C | D | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.24 | 3.67 | 0.50 | 1.70 | 4.41 | 1.13 | 1.80 | 2.62 | 6.16 | 4.60 | 10.41 |
| 50th-Percentile Queue Length [ft/ln] | 80.88 | 91.63 | 12.50 | 42.55 | 110.31 | 28.32 | 44.98 | 65.62 | 154.12 | 115.04 | 260.23 |
| 95th-Percentile Queue Length [veh/ln] | 5.82 | 6.60 | 0.90 | 3.06 | 7.86 | 2.04 | 3.24 | 4.72 | 10.24 | 8.12 | 15.70 |
| 95th-Percentile Queue Length [ft/ln] | 145.58 | 164.94 | 22.50 | 76.59 | 196.43 | 50.97 | 80.96 | 118.11 | 255.92 | 202.99 | 392.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.13 | 26.06 | 22.71 | 41.56 | 29.27 | 25.59 | 41.37 | 28.90 | 36.83 | 40.56 | 45.14 | 45.14 |
| Movement LOS | D | C | C | D | C | C | D | C | D | D | D | D |
| d_A, Approach Delay [s/veh] | 28.76 | | | 30.09 | | | 35.30 | | | 43.63 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.56 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.629 | | | | | | | | | | | |

**Emissions**

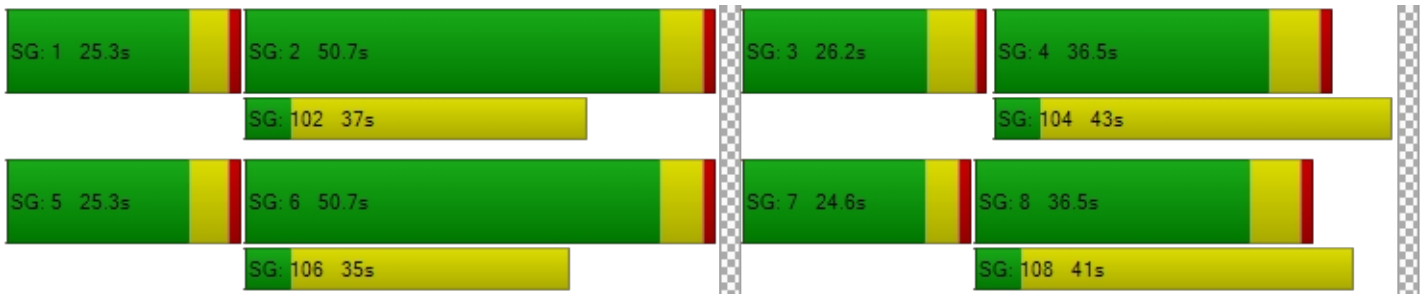
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 155.00 | 691.93 | 34.44 | 41.39 | 383.65 | 35.84 | 9.25 | 16.43 | 32.20 | 217.86 | 442.98 |
| Stops [stops/h] | 130.67 | 444.16 | 20.20 | 68.75 | 534.70 | 45.75 | 72.67 | 106.02 | 249.02 | 185.87 | 420.46 |
| Fuel consumption [US gal/h] | 8.51 | 33.61 | 1.62 | 3.13 | 25.58 | 2.27 | 1.76 | 2.52 | 5.82 | 11.73 | 24.48 |
| CO [g/h] | 594.73 | 2349.44 | 113.29 | 219.13 | 1788.22 | 158.83 | 123.08 | 176.00 | 406.68 | 819.85 | 1711.25 |
| NOx [g/h] | 115.71 | 457.12 | 22.04 | 42.63 | 347.92 | 30.90 | 23.95 | 34.24 | 79.13 | 159.51 | 332.95 |
| VOC [g/h] | 137.83 | 544.50 | 26.26 | 50.79 | 414.44 | 36.81 | 28.52 | 40.79 | 94.25 | 190.01 | 396.60 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.02 | 36.02 | 36.02 | 36.02 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.160 | 3.113 | 2.445 | 2.235 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1010 | 1010 | 673 | 673 |
| d_b, Bicycle Delay [s] | 10.92 | 10.92 | 19.61 | 19.61 |
| l_b,int, Bicycle LOS Score for Intersection | 2.038 | 2.062 | 2.437 | 2.611 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.538 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 130 | 727 | 173 | 98 | 1336 | 305 | 116 | 183 | 99 | 185 | 226 | 37 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 130 | 727 | 173 | 98 | 1336 | 305 | 116 | 183 | 99 | 185 | 226 | 37 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 202 | 48 | 27 | 371 | 85 | 32 | 51 | 28 | 51 | 63 | 10 |
| Total Analysis Volume [veh/h] | 144 | 808 | 192 | 109 | 1484 | 339 | 129 | 203 | 110 | 206 | 251 | 41 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 35 | 35 | 7 | 34 | 34 | 8 | 10 | 10 | 8 | 12 | 12 |
| g / C, Green / Cycle | 0.09 | 0.41 | 0.41 | 0.09 | 0.40 | 0.40 | 0.09 | 0.12 | 0.12 | 0.09 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.16 | 0.12 | 0.03 | 0.29 | 0.22 | 0.04 | 0.06 | 0.07 | 0.06 | 0.07 | 0.03 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1544 | 3467 | 3526 | 1558 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 316 | 2088 | 658 | 300 | 2056 | 623 | 313 | 417 | 184 | 330 | 485 | 216 |
| d1, Uniform Delay [s] | 36.78 | 17.81 | 17.02 | 36.71 | 21.44 | 19.40 | 36.71 | 35.23 | 35.67 | 37.25 | 34.30 | 32.73 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 0.38 | 0.79 | 0.27 | 1.58 | 2.39 | 0.32 | 2.07 | 7.10 | 0.72 | 1.18 | 0.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.39 | 0.29 | 0.36 | 0.72 | 0.54 | 0.41 | 0.49 | 0.60 | 0.62 | 0.52 | 0.19 |
| d, Delay for Lane Group [s/veh] | 37.16 | 18.19 | 17.81 | 36.99 | 23.02 | 21.79 | 37.03 | 37.30 | 42.77 | 37.97 | 35.47 | 33.31 |
| Lane Group LOS | D | B | B | D | C | C | D | D | D | D | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.35 | 3.34 | 2.37 | 1.01 | 7.50 | 4.88 | 1.20 | 1.96 | 2.38 | 1.97 | 2.33 | 0.74 |
| 50th-Percentile Queue Length [ft/ln] | 33.71 | 83.56 | 59.30 | 25.36 | 187.52 | 121.98 | 30.09 | 49.03 | 59.60 | 49.16 | 58.27 | 18.42 |
| 95th-Percentile Queue Length [veh/ln] | 2.43 | 6.02 | 4.27 | 1.83 | 11.99 | 8.50 | 2.17 | 3.53 | 4.29 | 3.54 | 4.20 | 1.33 |
| 95th-Percentile Queue Length [ft/ln] | 60.67 | 150.41 | 106.75 | 45.65 | 299.81 | 212.55 | 54.15 | 88.26 | 107.29 | 88.48 | 104.88 | 33.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.16 | 18.19 | 17.81 | 36.99 | 23.02 | 21.79 | 37.03 | 37.30 | 42.77 | 37.97 | 35.47 | 33.31 |
| Movement LOS | D | B | B | D | C | C | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 20.51 | | | 23.59 | | | 38.58 | | | 36.33 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 25.94 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.538 | | | | | | | | | | | |

**Emissions**

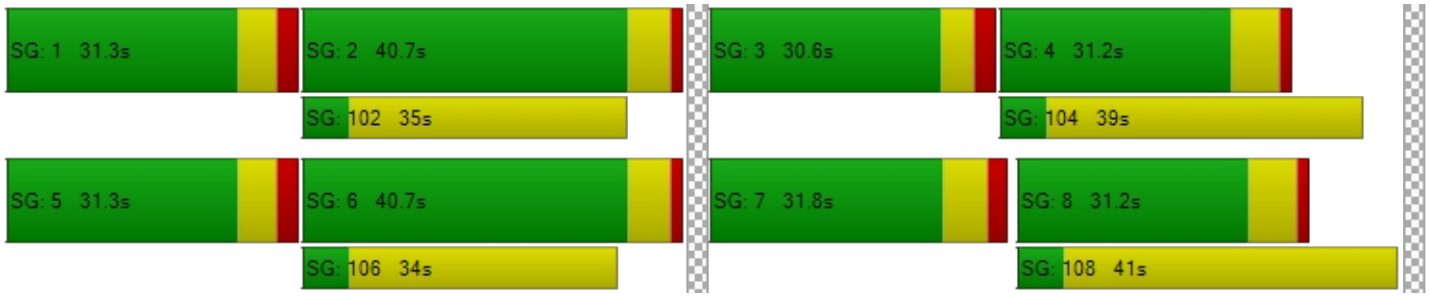
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 23.50 | 131.84 | 31.33 | 110.42 | 1503.39 | 343.43 | 16.86 | 26.53 | 14.37 | 213.43 | 260.05 | 42.48 |
| Stops [stops/h] | 113.89 | 423.51 | 100.19 | 85.69 | 950.41 | 206.08 | 101.65 | 165.67 | 100.70 | 166.09 | 196.88 | 31.11 |
| Fuel consumption [US gal/h] | 3.62 | 13.91 | 3.28 | 5.83 | 71.89 | 16.17 | 3.10 | 4.97 | 2.98 | 11.29 | 13.54 | 2.18 |
| CO [g/h] | 253.32 | 972.07 | 229.49 | 407.77 | 5024.84 | 1130.11 | 216.48 | 347.55 | 208.62 | 789.08 | 946.64 | 152.24 |
| NOx [g/h] | 49.29 | 189.13 | 44.65 | 79.34 | 977.65 | 219.88 | 42.12 | 67.62 | 40.59 | 153.53 | 184.18 | 29.62 |
| VOC [g/h] | 58.71 | 225.29 | 53.19 | 94.51 | 1164.56 | 261.91 | 50.17 | 80.55 | 48.35 | 182.88 | 219.39 | 35.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 8765.74 | 0.00 | 346.56 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.09 | 34.09 | 34.09 | 34.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.380 | 3.373 | 2.866 | 2.928 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 821 | 821 | 587 | 587 |
| d_b, Bicycle Delay [s] | 14.80 | 14.80 | 21.32 | 21.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.189 | 2.622 | 1.924 | 1.970 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 75.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.075 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 415 | 109 | 0 | 0 | 295 | 13 | 3 | 0 | 111 | 0 | 1 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 415 | 109 | 0 | 0 | 295 | 13 | 3 | 0 | 111 | 0 | 1 | 0 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 127 | 33 | 0 | 0 | 90 | 4 | 1 | 0 | 34 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 506 | 133 | 0 | 0 | 360 | 16 | 4 | 0 | 135 | 0 | 1 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.20 | 0.00 | 0.02 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.52 | 0.00 | 0.00 | 7.46 | 0.00 | 0.00 | 75.51 | 62.86 | 13.05 | 99.53 | 61.66 | 9.78 |
| Movement LOS | A | A | A | A | A | A | F | F | B | F | F | A |
| 95th-Percentile Queue Length [veh/ln] | 1.70 | 1.70 | 1.70 | 0.00 | 0.00 | 0.00 | 1.12 | 1.12 | 1.12 | 0.05 | 0.05 | 0.05 |
| 95th-Percentile Queue Length [ft/ln] | 42.43 | 42.43 | 42.43 | 0.00 | 0.00 | 0.00 | 27.90 | 27.90 | 27.90 | 1.17 | 1.17 | 1.17 |
| d_A, Approach Delay [s/veh] | 7.54 | | | 0.00 | | | 14.85 | | | 61.66 | | |
| Approach LOS | A | | | A | | | B | | | F | | |
| d_I, Intersection Delay [s/veh] | 6.01 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 235.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.937 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 183 | 203 | 22 | 166 | 216 | 6 | 3 | 149 | 59 | 59 | 404 | 328 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 183 | 203 | 22 | 166 | 216 | 6 | 3 | 149 | 59 | 59 | 404 | 328 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 54 | 6 | 44 | 57 | 2 | 1 | 40 | 16 | 16 | 107 | 87 |
| Total Analysis Volume [veh/h] | 195 | 216 | 23 | 177 | 230 | 6 | 3 | 159 | 63 | 63 | 430 | 349 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 434 | 416 | 383 | 842 |
| Degree of Utilization, x | 1.04 | 0.99 | 0.59 | 1.94 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 13.82 | 12.25 | 3.62 | 56.51 |
| 95th-Percentile Queue Length [ft] | 345.40 | 306.16 | 90.54 | 1412.73 |
| Approach Delay [s/veh] | 84.48 | 72.09 | 25.01 | 449.54 |
| Approach LOS | F | F | D | F |
| Intersection Delay [s/veh] | 235.41 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 78.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.970 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 130 | 260 | 78 | 170 | 290 | 95 | 50 | 449 | 669 | 54 | 137 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 130 | 260 | 78 | 170 | 290 | 95 | 50 | 449 | 669 | 54 | 137 | 27 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 76 | 23 | 50 | 85 | 28 | 15 | 132 | 197 | 16 | 40 | 8 |
| Total Analysis Volume [veh/h] | 153 | 306 | 92 | 200 | 341 | 112 | 59 | 528 | 787 | 64 | 161 | 32 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 29 | 29 | 15 | 32 | 9 | 42 | 42 | 9 | 42 | 42 |
| g / C, Green / Cycle | 0.10 | 0.26 | 0.26 | 0.13 | 0.29 | 0.08 | 0.38 | 0.38 | 0.09 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.16 | 0.06 | 0.11 | 0.25 | 0.03 | 0.15 | 0.49 | 0.04 | 0.09 | 0.02 |
| s, saturation flow rate [veh/h] | 1774 | 1855 | 1517 | 1794 | 1797 | 1711 | 3512 | 1601 | 1810 | 1879 | 1568 |
| c, Capacity [veh/h] | 186 | 485 | 397 | 235 | 517 | 143 | 1327 | 605 | 155 | 714 | 596 |
| d1, Uniform Delay [s] | 48.73 | 36.29 | 32.26 | 47.24 | 37.71 | 48.37 | 25.33 | 34.53 | 48.18 | 23.36 | 21.81 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.24 | 0.11 | 0.11 | 0.50 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.69 | 1.36 | 0.30 | 8.40 | 9.99 | 1.91 | 0.19 | 147.49 | 1.76 | 0.16 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.63 | 0.23 | 0.85 | 0.88 | 0.41 | 0.40 | 1.30 | 0.41 | 0.23 | 0.05 |
| d, Delay for Lane Group [s/veh] | 57.42 | 37.64 | 32.55 | 55.64 | 47.70 | 50.29 | 25.52 | 182.02 | 49.94 | 23.52 | 21.84 |
| Lane Group LOS | E | D | C | E | D | D | C | F | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.48 | 7.22 | 1.91 | 5.78 | 12.59 | 1.57 | 4.81 | 39.70 | 1.70 | 2.73 | 0.51 |
| 50th-Percentile Queue Length [ft/ln] | 111.89 | 180.61 | 47.87 | 144.51 | 314.70 | 39.29 | 120.37 | 992.45 | 42.38 | 68.19 | 12.66 |
| 95th-Percentile Queue Length [veh/ln] | 7.95 | 11.63 | 3.45 | 9.72 | 18.41 | 2.83 | 8.41 | 58.84 | 3.05 | 4.91 | 0.91 |
| 95th-Percentile Queue Length [ft/ln] | 198.63 | 290.82 | 86.16 | 243.08 | 460.17 | 70.72 | 210.33 | 1471.09 | 76.28 | 122.73 | 22.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 57.42 | 37.64 | 32.55 | 55.64 | 47.70 | 47.70 | 50.29 | 25.52 | 182.02 | 49.94 | 23.52 | 21.84 |
| Movement LOS | E | D | C | E | D | D | D | C | F | D | C | C |
| d_A, Approach Delay [s/veh] | 42.29 | | | 50.13 | | | 116.22 | | | 29.89 | | |
| Approach LOS | D | | | D | | | F | | | C | | |
| d_I, Intersection Delay [s/veh] | 78.80 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.970 | | | | | | | | | | | |

**Emissions**

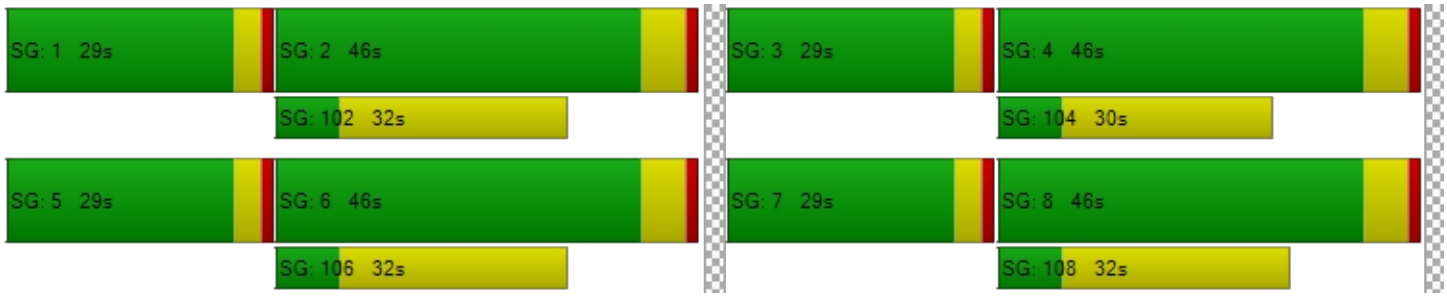
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 18.32 | 36.63 | 11.01 | 200.94 | 455.14 | 61.13 | 547.04 | 815.39 | 32.05 | 80.62 | 16.02 |
| Stops [stops/h] | 145.12 | 234.26 | 62.08 | 187.43 | 408.17 | 50.96 | 312.24 | 1287.22 | 54.96 | 88.44 | 16.42 |
| Fuel consumption [US gal/h] | 4.22 | 6.51 | 1.76 | 11.48 | 25.07 | 3.43 | 25.85 | 76.21 | 2.57 | 4.83 | 0.93 |
| CO [g/h] | 294.96 | 455.22 | 122.95 | 802.64 | 1752.59 | 239.97 | 1807.22 | 5327.14 | 179.45 | 337.49 | 65.07 |
| NOx [g/h] | 57.39 | 88.57 | 23.92 | 156.16 | 340.99 | 46.69 | 351.62 | 1036.47 | 34.91 | 65.66 | 12.66 |
| VOC [g/h] | 68.36 | 105.50 | 28.49 | 186.02 | 406.18 | 55.61 | 418.84 | 1234.62 | 41.59 | 78.22 | 15.08 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 7438.75 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.06 | 45.06 | 45.06 | 45.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.778 | 2.462 | 2.950 | 2.660 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 721 | 721 | 721 | 721 |
| d_b, Bicycle Delay [s] | 22.72 | 22.72 | 22.72 | 22.72 |
| l_b,int, Bicycle LOS Score for Intersection | 2.469 | 2.637 | 2.693 | 1.984 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 304 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 304 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 76 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 304 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 59.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.850 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 164 | 59 | 97 | 19 | 71 | 67 | 32 | 344 | 644 | 277 | 19 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 59 | 97 | 19 | 71 | 67 | 32 | 344 | 644 | 277 | 19 | 48 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 18 | 29 | 6 | 21 | 20 | 10 | 104 | 194 | 83 | 6 | 14 |
| Total Analysis Volume [veh/h] | 198 | 71 | 117 | 23 | 86 | 81 | 39 | 414 | 776 | 334 | 23 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 98 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 21 | 21 | 6 | 13 | 13 | 8 | 42 | 42 | 13 | 47 | 47 |
| g / C, Green / Cycle | 0.15 | 0.21 | 0.21 | 0.06 | 0.13 | 0.13 | 0.08 | 0.43 | 0.43 | 0.13 | 0.48 | 0.48 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.04 | 0.08 | 0.01 | 0.02 | 0.05 | 0.01 | 0.11 | 0.49 | 0.10 | 0.01 | 0.04 |
| s, saturation flow rate [veh/h] | 1788 | 1705 | 1449 | 3514 | 3618 | 1577 | 3428 | 3618 | 1587 | 3514 | 3509 | 1613 |
| c, Capacity [veh/h] | 262 | 358 | 304 | 228 | 465 | 203 | 288 | 1546 | 678 | 475 | 1678 | 772 |
| d1, Uniform Delay [s] | 40.27 | 32.00 | 33.37 | 43.26 | 38.24 | 39.34 | 41.71 | 18.20 | 28.15 | 40.63 | 13.46 | 13.87 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.50 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.69 | 0.60 | 1.78 | 0.07 | 0.97 | 6.40 | 0.08 | 0.14 | 81.71 | 0.72 | 0.00 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.20 | 0.38 | 0.10 | 0.19 | 0.40 | 0.14 | 0.27 | 1.14 | 0.70 | 0.01 | 0.08 |
| d, Delay for Lane Group [s/veh] | 41.95 | 32.61 | 35.15 | 43.34 | 39.22 | 45.75 | 41.79 | 18.34 | 109.86 | 41.34 | 13.47 | 13.93 |
| Lane Group LOS | D | C | D | D | D | D | D | B | F | D | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.51 | 1.39 | 2.44 | 0.26 | 0.98 | 2.14 | 0.42 | 2.78 | 29.35 | 3.87 | 0.13 | 0.69 |
| 50th-Percentile Queue Length [ft/ln] | 112.76 | 34.78 | 60.94 | 6.60 | 24.54 | 53.53 | 10.52 | 69.60 | 733.64 | 96.66 | 3.30 | 17.33 |
| 95th-Percentile Queue Length [veh/ln] | 7.99 | 2.50 | 4.39 | 0.48 | 1.77 | 3.85 | 0.76 | 5.01 | 41.99 | 6.96 | 0.24 | 1.25 |
| 95th-Percentile Queue Length [ft/ln] | 199.84 | 62.60 | 109.69 | 11.88 | 44.18 | 96.36 | 18.93 | 125.29 | 1049.73 | 173.99 | 5.94 | 31.20 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.95 | 32.61 | 35.15 | 43.34 | 39.22 | 45.75 | 41.79 | 18.34 | 109.86 | 41.34 | 13.47 | 13.93 |
| Movement LOS | D | C | D | D | D | D | D | B | F | D | B | B |
| d_A, Approach Delay [s/veh] | 38.17 | | | 42.50 | | | 76.87 | | | 35.97 | | |
| Approach LOS | D | | | D | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 59.55 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.850 | | | | | | | | | | | |

**Emissions**

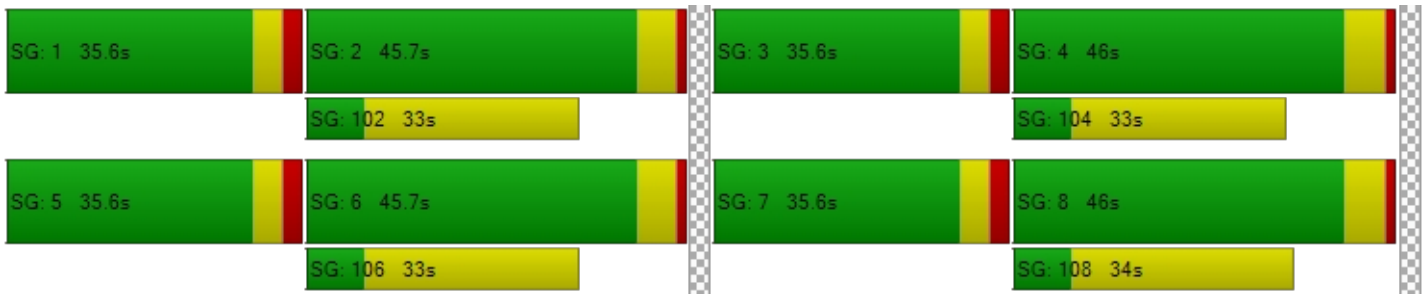
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 201.59 | 72.29 | 119.12 | 23.77 | 88.90 | 83.73 | 19.53 | 207.32 | 388.60 | 167.44 | 11.53 | 29.08 |
| Stops [stops/h] | 165.55 | 51.06 | 89.46 | 19.37 | 72.07 | 78.59 | 30.89 | 204.37 | 1077.09 | 283.82 | 9.69 | 25.44 |
| Fuel consumption [US gal/h] | 10.66 | 3.58 | 6.03 | 1.29 | 4.74 | 4.63 | 1.46 | 11.63 | 46.89 | 11.27 | 0.59 | 1.50 |
| CO [g/h] | 745.04 | 250.51 | 421.66 | 90.07 | 331.60 | 323.98 | 102.04 | 812.59 | 3277.86 | 787.82 | 41.33 | 104.99 |
| NOx [g/h] | 144.96 | 48.74 | 82.04 | 17.52 | 64.52 | 63.04 | 19.85 | 158.10 | 637.75 | 153.28 | 8.04 | 20.43 |
| VOC [g/h] | 172.67 | 58.06 | 97.72 | 20.87 | 76.85 | 75.09 | 23.65 | 188.33 | 759.68 | 182.59 | 9.58 | 24.33 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 4740.78 | 3078.47 | 0.00 |
| d_p, Pedestrian Delay [s] | 38.66 | 38.66 | 38.66 | 38.66 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.766 | 2.648 | 2.953 | 2.733 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 816 | 816 | 816 | 816 |
| d_b, Bicycle Delay [s] | 17.20 | 17.20 | 17.20 | 17.20 |
| l_b,int, Bicycle LOS Score for Intersection | 1.878 | 1.716 | 2.574 | 1.902 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 60.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.871 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 365 | 20 | 139 | 867 | 42 | 34 | 730 | 139 | 20 | 633 | 150 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 365 | 20 | 139 | 867 | 42 | 34 | 730 | 139 | 20 | 633 | 150 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 105 | 6 | 40 | 249 | 12 | 10 | 210 | 40 | 6 | 182 | 43 |
| Total Analysis Volume [veh/h] | 54 | 420 | 23 | 160 | 997 | 48 | 39 | 839 | 160 | 23 | 728 | 172 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 32 | 32 | 12 | 36 | 36 | 7 | 44 | 44 | 5 | 42 | 42 |
| g / C, Green / Cycle | 0.07 | 0.30 | 0.30 | 0.11 | 0.33 | 0.33 | 0.06 | 0.40 | 0.40 | 0.05 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.12 | 0.02 | 0.09 | 0.28 | 0.28 | 0.02 | 0.45 | 0.10 | 0.01 | 0.39 | 0.11 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1478 | 1724 | 1874 | 1844 | 1810 | 1858 | 1592 | 1810 | 1886 | 1598 |
| c, Capacity [veh/h] | 132 | 1032 | 438 | 191 | 624 | 614 | 116 | 744 | 638 | 84 | 722 | 612 |
| d1, Uniform Delay [s] | 48.48 | 30.88 | 27.59 | 47.78 | 33.92 | 33.93 | 49.10 | 32.87 | 21.91 | 50.49 | 33.83 | 23.39 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.32 | 0.32 | 0.04 | 0.50 | 0.17 | 0.04 | 0.50 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.76 | 0.39 | 0.08 | 3.70 | 8.87 | 9.05 | 0.63 | 74.00 | 0.31 | 0.64 | 35.37 | 0.37 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.41 | 0.05 | 0.84 | 0.84 | 0.84 | 0.34 | 1.13 | 0.25 | 0.27 | 1.01 | 0.28 |
| d, Delay for Lane Group [s/veh] | 49.24 | 31.28 | 27.66 | 51.48 | 42.79 | 42.99 | 49.73 | 106.87 | 22.22 | 51.14 | 69.20 | 23.75 |
| Lane Group LOS | D | C | C | D | D | D | D | F | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.40 | 4.32 | 0.43 | 4.34 | 13.79 | 13.62 | 1.01 | 33.49 | 2.66 | 0.61 | 24.88 | 2.99 |
| 50th-Percentile Queue Length [ft/ln] | 34.96 | 107.98 | 10.65 | 108.49 | 344.77 | 340.40 | 25.34 | 837.15 | 66.56 | 15.20 | 622.12 | 74.73 |
| 95th-Percentile Queue Length [veh/ln] | 2.52 | 7.73 | 0.77 | 7.76 | 19.88 | 19.67 | 1.82 | 46.74 | 4.79 | 1.09 | 33.25 | 5.38 |
| 95th-Percentile Queue Length [ft/ln] | 62.92 | 193.18 | 19.18 | 193.90 | 497.03 | 491.69 | 45.61 | 1168.62 | 119.80 | 27.36 | 831.28 | 134.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.24 | 31.28 | 27.66 | 51.48 | 42.88 | 42.99 | 49.73 | 106.87 | 22.22 | 51.14 | 69.20 | 23.75 |
| Movement LOS | D | C | C | D | D | D | D | F | C | D | F | C |
| d_A, Approach Delay [s/veh] | 33.06 | | | 44.03 | | | 91.67 | | | 60.28 | | |
| Approach LOS | C | | | D | | | F | | | E | | |
| d_I, Intersection Delay [s/veh] | 60.14 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.871 | | | | | | | | | | | |

**Emissions**

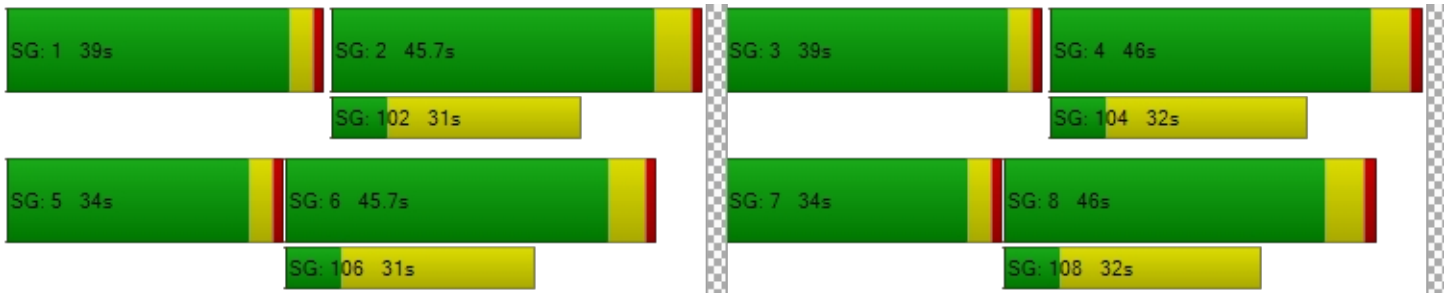
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 28.35 | 220.51 | 12.08 | 162.90 | 536.04 | 527.91 | 3.37 | 72.57 | 13.84 | 13.84 | 438.12 | 103.51 |
| Stops [stops/h] | 45.96 | 283.94 | 14.01 | 142.65 | 453.32 | 447.57 | 33.31 | 1100.72 | 87.51 | 19.98 | 818.00 | 98.25 |
| Fuel consumption [US gal/h] | 2.08 | 13.76 | 0.72 | 9.03 | 28.59 | 28.20 | 0.92 | 34.42 | 2.29 | 0.96 | 35.44 | 5.60 |
| CO [g/h] | 145.70 | 961.96 | 50.16 | 631.44 | 1998.78 | 1970.88 | 64.62 | 2405.75 | 159.79 | 67.26 | 2477.20 | 391.52 |
| NOx [g/h] | 28.35 | 187.16 | 9.76 | 122.85 | 388.89 | 383.46 | 12.57 | 468.07 | 31.09 | 13.09 | 481.97 | 76.18 |
| VOC [g/h] | 33.77 | 222.94 | 11.62 | 146.34 | 463.24 | 456.77 | 14.98 | 557.56 | 37.03 | 15.59 | 574.11 | 90.74 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.31 | 44.31 | 44.31 | 44.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.871 | 2.846 | 2.856 | 2.878 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 730 | 730 | 730 | 730 |
| d_b, Bicycle Delay [s] | 22.06 | 22.06 | 22.06 | 22.06 |
| l_b,int, Bicycle LOS Score for Intersection | 1.970 | 2.554 | 3.272 | 3.083 |
| Bicycle LOS | A | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 63 | 314 | 16 | 265 | 690 | 25 | 12 | 329 | 432 | 18 | 693 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 63 | 314 | 16 | 265 | 690 | 25 | 12 | 329 | 432 | 18 | 693 | 64 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 88 | 4 | 74 | 194 | 7 | 3 | 92 | 121 | 5 | 195 | 18 |
| Total Analysis Volume [veh/h] | 71 | 353 | 18 | 298 | 775 | 28 | 13 | 370 | 485 | 20 | 779 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 19 | 19 | 13 | 23 | 23 | 3 | 32 | 32 | 4 | 33 | 33 |
| g / C, Green / Cycle | 0.12 | 0.23 | 0.23 | 0.16 | 0.27 | 0.27 | 0.03 | 0.38 | 0.38 | 0.05 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.10 | 0.10 | 0.17 | 0.21 | 0.21 | 0.01 | 0.20 | 0.31 | 0.01 | 0.42 | 0.04 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1797 | 1791 | 1891 | 1868 | 1810 | 1835 | 1548 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 209 | 423 | 415 | 277 | 510 | 503 | 61 | 691 | 583 | 86 | 731 | 624 |
| d1, Uniform Delay [s] | 34.13 | 27.65 | 27.67 | 35.47 | 28.49 | 28.49 | 39.45 | 20.44 | 23.68 | 38.52 | 25.61 | 16.36 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.45 | 0.14 | 0.14 | 0.11 | 0.12 | 0.34 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.96 | 0.72 | 0.75 | 72.25 | 3.69 | 3.75 | 1.69 | 0.71 | 9.32 | 1.38 | 52.41 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.44 | 0.44 | 1.07 | 0.79 | 0.79 | 0.21 | 0.54 | 0.83 | 0.23 | 1.07 | 0.12 |
| d, Delay for Lane Group [s/veh] | 35.09 | 28.37 | 28.42 | 107.72 | 32.18 | 32.23 | 41.14 | 21.15 | 33.00 | 39.90 | 78.02 | 16.45 |
| Lane Group LOS | D | C | C | F | C | C | D | C | C | D | F | B |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.31 | 3.07 | 3.04 | 10.85 | 7.43 | 7.35 | 0.28 | 5.21 | 9.21 | 0.41 | 23.37 | 0.82 |
| 50th-Percentile Queue Length [ft/ln] | 32.84 | 76.73 | 75.93 | 271.32 | 185.85 | 183.82 | 6.92 | 130.19 | 230.21 | 10.24 | 584.16 | 20.39 |
| 95th-Percentile Queue Length [veh/ln] | 2.36 | 5.52 | 5.47 | 16.80 | 11.91 | 11.80 | 0.50 | 8.95 | 14.18 | 0.74 | 32.73 | 1.47 |
| 95th-Percentile Queue Length [ft/ln] | 59.11 | 138.12 | 136.67 | 420.10 | 297.64 | 294.99 | 12.45 | 223.76 | 354.62 | 18.43 | 818.30 | 36.71 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.09 | 28.39 | 28.42 | 107.72 | 32.20 | 32.23 | 41.14 | 21.15 | 33.00 | 39.90 | 78.02 | 16.45 |
| Movement LOS | D | C | C | F | C | C | D | C | C | D | F | B |
| d_A, Approach Delay [s/veh] | 29.47 | | | 52.64 | | | 28.07 | | | 72.06 | | |
| Approach LOS | C | | | D | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 48.18 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.807 | | | | | | | | | | | |

**Emissions**

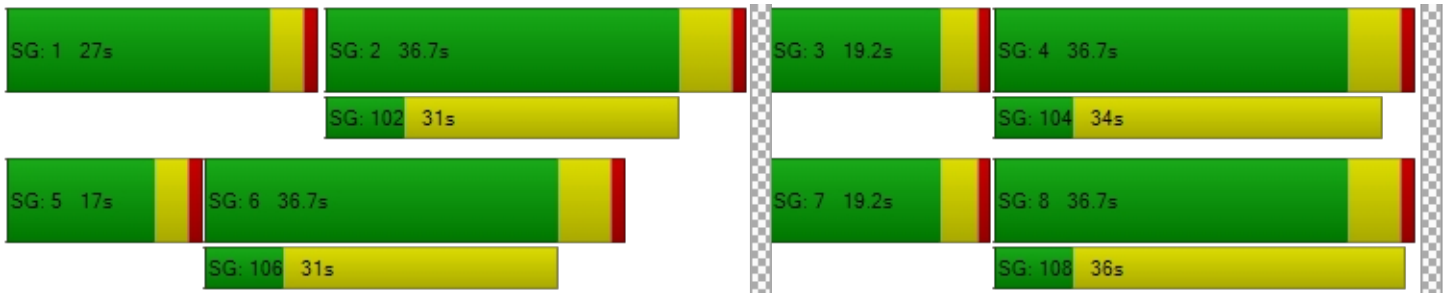
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.72 | 99.15 | 97.96 | 156.46 | 212.07 | 209.52 | 1.30 | 37.09 | 48.62 | 9.52 | 370.76 | 34.27 |
| Stops [stops/h] | 56.41 | 131.81 | 130.43 | 466.07 | 319.25 | 315.76 | 11.89 | 223.65 | 395.45 | 17.58 | 1003.47 | 35.03 |
| Fuel consumption [US gal/h] | 2.50 | 6.11 | 6.05 | 17.69 | 13.88 | 13.73 | 0.30 | 5.64 | 9.84 | 0.71 | 37.55 | 1.85 |
| CO [g/h] | 174.84 | 427.43 | 422.61 | 1236.49 | 970.47 | 959.43 | 21.06 | 394.56 | 687.81 | 49.44 | 2624.95 | 129.40 |
| NOx [g/h] | 34.02 | 83.16 | 82.22 | 240.58 | 188.82 | 186.67 | 4.10 | 76.77 | 133.82 | 9.62 | 510.72 | 25.18 |
| VOC [g/h] | 40.52 | 99.06 | 97.94 | 286.57 | 224.92 | 222.36 | 4.88 | 91.44 | 159.41 | 11.46 | 608.36 | 29.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.64 | 31.64 | 31.64 | 31.64 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.868 | 2.746 | 2.765 | 2.696 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 740 | 740 | 740 | 740 |
| d_b, Bicycle Delay [s] | 16.65 | 16.65 | 16.65 | 16.65 |
| l_b,int, Bicycle LOS Score for Intersection | 1.924 | 2.468 | 2.992 | 2.997 |
| Bicycle LOS | A | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 43.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.812 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 219 | 265 | 134 | 209 | 487 | 662 | 204 | 1123 | 235 | 153 | 1651 | 131 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 219 | 265 | 134 | 209 | 487 | 662 | 204 | 1123 | 235 | 153 | 1651 | 131 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 59 | 71 | 36 | 56 | 131 | 178 | 55 | 302 | 63 | 41 | 444 | 35 |
| Total Analysis Volume [veh/h] | 235 | 285 | 144 | 225 | 524 | 712 | 219 | 1208 | 253 | 165 | 1775 | 141 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 38 | 38 | 14 | 38 | 38 | 13 | 49 | 49 | 13 | 49 | 49 |
| g / C, Green / Cycle | 0.11 | 0.29 | 0.29 | 0.11 | 0.29 | 0.29 | 0.10 | 0.38 | 0.38 | 0.10 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.08 | 0.09 | 0.07 | 0.10 | 0.25 | 0.07 | 0.24 | 0.16 | 0.05 | 0.35 | 0.09 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1546 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 370 | 1022 | 449 | 369 | 1489 | 823 | 338 | 1902 | 597 | 344 | 1905 | 594 |
| d1, Uniform Delay [s] | 55.59 | 35.66 | 36.14 | 55.42 | 36.51 | 43.78 | 56.35 | 33.22 | 30.07 | 55.37 | 38.97 | 27.76 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.68 | 0.05 | 0.15 | 0.61 | 0.16 | 3.24 | 0.79 | 1.63 | 2.20 | 0.39 | 9.78 | 0.94 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.28 | 0.32 | 0.61 | 0.35 | 0.87 | 0.65 | 0.64 | 0.42 | 0.48 | 0.93 | 0.24 |
| d, Delay for Lane Group [s/veh] | 56.26 | 35.72 | 36.29 | 56.03 | 36.67 | 47.03 | 57.14 | 34.86 | 32.27 | 55.75 | 48.74 | 28.70 |
| Lane Group LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.68 | 3.46 | 3.56 | 3.49 | 4.31 | 10.86 | 3.43 | 10.32 | 6.07 | 2.53 | 19.01 | 3.09 |
| 50th-Percentile Queue Length [ft/ln] | 92.07 | 86.55 | 88.91 | 87.15 | 107.81 | 271.43 | 85.73 | 258.00 | 151.74 | 63.23 | 475.25 | 77.24 |
| 95th-Percentile Queue Length [veh/ln] | 6.63 | 6.23 | 6.40 | 6.27 | 7.72 | 16.26 | 6.17 | 15.59 | 10.11 | 4.55 | 26.16 | 5.56 |
| 95th-Percentile Queue Length [ft/ln] | 165.72 | 155.79 | 160.03 | 156.87 | 192.95 | 406.53 | 154.31 | 389.72 | 252.75 | 113.81 | 654.01 | 139.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 56.26 | 35.72 | 36.29 | 56.03 | 36.67 | 47.03 | 57.14 | 34.86 | 32.27 | 55.75 | 48.74 | 28.70 |
| Movement LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 43.11 | | | 44.70 | | | 37.37 | | | 47.94 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 43.57 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.812 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 17.18 | 20.83 | 10.53 | 119.54 | 278.40 | 378.29 | 24.92 | 137.45 | 28.79 | 82.35 | 885.86 | 70.37 |
| Stops [stops/h] | 203.76 | 191.55 | 98.38 | 192.87 | 357.88 | 600.70 | 189.73 | 856.48 | 167.91 | 139.93 | 1577.65 | 85.47 |
| Fuel consumption [US gal/h] | 5.31 | 4.70 | 2.41 | 9.06 | 17.90 | 27.25 | 5.76 | 23.93 | 4.74 | 6.43 | 67.59 | 4.30 |
| CO [g/h] | 370.98 | 328.48 | 168.24 | 633.34 | 1251.38 | 1904.70 | 402.57 | 1672.60 | 331.02 | 449.76 | 4724.21 | 300.45 |
| NOx [g/h] | 72.18 | 63.91 | 32.73 | 123.23 | 243.47 | 370.58 | 78.33 | 325.43 | 64.40 | 87.51 | 919.16 | 58.46 |
| VOC [g/h] | 85.98 | 76.13 | 38.99 | 146.78 | 290.02 | 441.43 | 93.30 | 387.64 | 76.72 | 104.24 | 1094.88 | 69.63 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.53 | 54.53 | 32.40 | 54.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.004 | 3.376 | 3.718 | 3.461 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 645 | 630 |
| d_b, Bicycle Delay [s] | 31.72 | 32.40 | 29.85 | 30.53 |
| l_b,int, Bicycle LOS Score for Intersection | 1.925 | 2.363 | 2.484 | 2.704 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.514 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 491 | 0 | 0 | 0 | 0 | 1064 | 264 | 0 | 2419 | 68 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 491 | 0 | 0 | 0 | 0 | 1064 | 264 | 0 | 2419 | 68 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 131 | 0 | 0 | 0 | 0 | 283 | 70 | 0 | 643 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 522 | 0 | 0 | 0 | 0 | 1132 | 281 | 0 | 2573 | 72 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 31 | 31 | | 85 | 85 | 85 |
| g / C, Green / Cycle | 0.24 | 0.24 | | 0.65 | 0.65 | 0.65 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.19 | | 0.22 | 0.30 | 0.05 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1225 | 657 | | 3313 | 5567 | 1046 |
| d1, Uniform Delay [s] | 41.76 | 46.59 | | 9.94 | 11.06 | 8.08 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 5.38 | | 0.28 | 0.28 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.40 | 0.79 | | 0.34 | 0.46 | 0.07 |
| d, Delay for Lane Group [s/veh] | 42.28 | 51.97 | | 10.22 | 11.34 | 8.20 |
| Lane Group LOS | D | D | | B | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.26 | 8.05 | | 4.41 | 6.64 | 0.71 |
| 50th-Percentile Queue Length [ft/ln] | 106.56 | 201.17 | | 110.16 | 166.12 | 17.68 |
| 95th-Percentile Queue Length [veh/ln] | 7.65 | 12.70 | | 7.85 | 10.87 | 1.27 |
| 95th-Percentile Queue Length [ft/ln] | 191.20 | 317.48 | | 196.23 | 271.81 | 31.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.28 | 0.00 | 51.97 | 0.00 | 0.00 | 0.00 | 0.00 | 10.22 | 0.00 | 0.00 | 11.34 | 8.20 |
| Movement LOS | D | | D | | | | | B | | | B | A |
| d_A, Approach Delay [s/veh] | 47.30 | | | 0.00 | | | 8.29 | | | 11.25 | | |
| Approach LOS | D | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.14 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.514 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 68.43 | | 178.13 | 292.77 | 8.19 |
| Stops [stops/h] | 354.48 | 446.15 | | 366.47 | 921.06 | 19.60 |
| Fuel consumption [US gal/h] | 12.90 | 16.10 | | 13.02 | 27.43 | 0.64 |
| CO [g/h] | 901.45 | 1125.14 | | 909.84 | 1917.02 | 45.07 |
| NOx [g/h] | 175.39 | 218.91 | | 177.02 | 372.98 | 8.77 |
| VOC [g/h] | 208.92 | 260.76 | | 210.86 | 444.29 | 10.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.771 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.182 | 2.432 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.005 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 78 | 0 | 836 | 0 | 1266 | 972 | 0 | 2227 | 688 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 78 | 0 | 836 | 0 | 1266 | 972 | 0 | 2227 | 688 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 20 | 0 | 218 | 0 | 330 | 253 | 0 | 580 | 179 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 81 | 0 | 871 | 0 | 1319 | 1013 | 0 | 2320 | 717 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 40 | 40 | 76 | 76 | 76 |
| g / C, Green / Cycle | | 0.31 | 0.31 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.31 | 0.20 | 0.65 | 0.34 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1073 | 880 | 3945 | 910 | 3967 |
| d1, Uniform Delay [s] | | 31.74 | 44.63 | 13.80 | 26.82 | 16.88 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.07 | 19.86 | 0.23 | 66.08 | 0.64 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.08 | 0.99 | 0.33 | 1.11 | 0.58 |
| d, Delay for Lane Group [s/veh] | | 31.81 | 64.49 | 14.03 | 92.90 | 17.52 |
| Lane Group LOS | | C | E | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.93 | 16.25 | 4.72 | 41.69 | 10.20 |
| 50th-Percentile Queue Length [ft/ln] | | 23.13 | 406.23 | 118.04 | 1042.13 | 255.04 |
| 95th-Percentile Queue Length [veh/ln] | | 1.67 | 22.86 | 8.29 | 57.07 | 15.44 |
| 95th-Percentile Queue Length [ft/ln] | | 41.63 | 571.51 | 207.13 | 1426.74 | 385.99 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 31.81 | 0.00 | 64.49 | 0.00 | 14.03 | 92.90 | 0.00 | 17.52 | 0.00 |
| Movement LOS | | | | C | | E | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 61.71 | | | 48.29 | | | 13.51 | | |
| Approach LOS | A | | | E | | | D | | | B | | |
| d_I, Intersection Delay [s/veh] | 36.17 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 1.005 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 12.48 | 134.22 | 127.72 | 98.09 | 365.07 |
| Stops [stops/h] | | 51.29 | 900.93 | 523.55 | 1155.60 | 1131.22 |
| Fuel consumption [US gal/h] | | 1.32 | 21.93 | 14.65 | 36.88 | 34.85 |
| CO [g/h] | | 92.37 | 1533.04 | 1024.21 | 2577.85 | 2435.99 |
| NOx [g/h] | | 17.97 | 298.27 | 199.27 | 501.56 | 473.96 |
| VOC [g/h] | | 21.41 | 355.30 | 237.37 | 597.44 | 564.56 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.226 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1174 | 1174 |
| d_b, Bicycle Delay [s] | 64.93 | 30.95 | 11.09 | 11.09 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.522 | 2.517 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 19.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.754 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 78 | 54 | 26 | 6 | 209 | 73 | 18 | 310 | 122 | 127 | 131 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 54 | 26 | 6 | 209 | 73 | 18 | 310 | 122 | 127 | 131 | 1 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 14 | 7 | 2 | 53 | 19 | 5 | 79 | 31 | 32 | 33 | 0 |
| Total Analysis Volume [veh/h] | 80 | 55 | 27 | 6 | 213 | 74 | 18 | 316 | 124 | 130 | 134 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 517 | 558 | 607 | 550 |
| Degree of Utilization, x | 0.31 | 0.53 | 0.75 | 0.48 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 1.33 | 3.04 | 6.76 | 2.60 |
| 95th-Percentile Queue Length [ft] | 33.28 | 76.10 | 169.01 | 65.11 |
| Approach Delay [s/veh] | 13.13 | 16.39 | 24.84 | 15.50 |
| Approach LOS | B | C | C | C |
| Intersection Delay [s/veh] | 19.03 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 238.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.924 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 98 | 18 | 28 | 437 | 176 | 21 | 359 | 485 | 58 | 454 | 46 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 128 | 98 | 18 | 28 | 437 | 176 | 21 | 359 | 485 | 58 | 454 | 46 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 34 | 26 | 5 | 7 | 115 | 46 | 6 | 94 | 128 | 15 | 119 | 12 |
| Total Analysis Volume [veh/h] | 135 | 103 | 19 | 29 | 460 | 185 | 22 | 378 | 511 | 61 | 478 | 48 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 311 | 347 | 674 | 352 | 378 | 511 | 326 | 526 |
| Degree of Utilization, x | 0.77 | 0.05 | 1.92 | 0.06 | 1.02 | 1.29 | 0.19 | 1.52 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 5.94 | 0.17 | 45.96 | 0.20 | 12.27 | 22.72 | 0.68 | 29.24 |
| 95th-Percentile Queue Length [ft] | 148.55 | 4.33 | 1148.89 | 4.98 | 306.72 | 567.89 | 16.93 | 731.00 |
| Approach Delay [s/veh] | 41.69 | | 449.37 | 132.00 | | | 247.53 | |
| Approach LOS | E | | F | F | | | F | |
| Intersection Delay [s/veh] | 238.43 | | | | | | | |
| Intersection LOS | F | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 138.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.150 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 8 | 199 | 36 | 206 | 708 | 138 | 103 | 364 | 228 | 51 | 932 | 78 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 199 | 36 | 206 | 708 | 138 | 103 | 364 | 228 | 51 | 932 | 78 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 63 | 11 | 65 | 224 | 44 | 33 | 115 | 72 | 16 | 295 | 25 |
| Total Analysis Volume [veh/h] | 10 | 252 | 46 | 261 | 896 | 175 | 130 | 461 | 289 | 65 | 1180 | 99 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 18 | 18 | 16 | 32 | 32 | 10 | 35 | 35 | 8 | 34 | 34 |
| g / C, Green / Cycle | 0.03 | 0.19 | 0.19 | 0.17 | 0.34 | 0.34 | 0.11 | 0.37 | 0.37 | 0.09 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.08 | 0.08 | 0.15 | 0.30 | 0.30 | 0.07 | 0.24 | 0.19 | 0.04 | 0.62 | 0.06 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1747 | 1737 | 1849 | 1741 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 47 | 360 | 338 | 300 | 626 | 590 | 188 | 708 | 568 | 159 | 677 | 567 |
| d1, Uniform Delay [s] | 44.75 | 33.30 | 33.40 | 37.87 | 29.24 | 29.37 | 40.60 | 24.37 | 22.76 | 40.45 | 30.18 | 20.65 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.27 | 0.36 | 0.37 | 0.11 | 0.24 | 0.13 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.26 | 0.78 | 0.88 | 16.82 | 12.04 | 13.66 | 4.48 | 2.28 | 0.84 | 1.67 | 339.91 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.42 | 0.43 | 0.87 | 0.88 | 0.89 | 0.69 | 0.65 | 0.51 | 0.41 | 1.74 | 0.17 |
| d, Delay for Lane Group [s/veh] | 47.01 | 34.08 | 34.28 | 54.69 | 41.28 | 43.04 | 45.08 | 26.65 | 23.60 | 42.12 | 370.09 | 20.79 |
| Lane Group LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.25 | 2.99 | 2.92 | 6.94 | 12.78 | 12.45 | 3.01 | 8.22 | 4.68 | 1.44 | 77.86 | 1.41 |
| 50th-Percentile Queue Length [ft/ln] | 6.28 | 74.80 | 73.05 | 173.45 | 319.56 | 311.30 | 75.16 | 205.39 | 116.99 | 35.89 | 1946.47 | 35.29 |
| 95th-Percentile Queue Length [veh/ln] | 0.45 | 5.39 | 5.26 | 11.26 | 18.65 | 18.24 | 5.41 | 12.92 | 8.23 | 2.58 | 121.33 | 2.54 |
| 95th-Percentile Queue Length [ft/ln] | 11.30 | 134.64 | 131.49 | 281.45 | 466.15 | 455.97 | 135.29 | 322.90 | 205.68 | 64.61 | 3033.29 | 63.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 47.01 | 34.16 | 34.28 | 54.69 | 41.96 | 43.04 | 45.08 | 26.65 | 23.60 | 42.12 | 370.09 | 20.79 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 34.60 | | | 44.60 | | | 28.37 | | | 328.50 | | |
| Approach LOS | C | | | D | | | C | | | F | | |
| d_I, Intersection Delay [s/veh] | 138.85 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.150 | | | | | | | | | | | |

**Emissions**

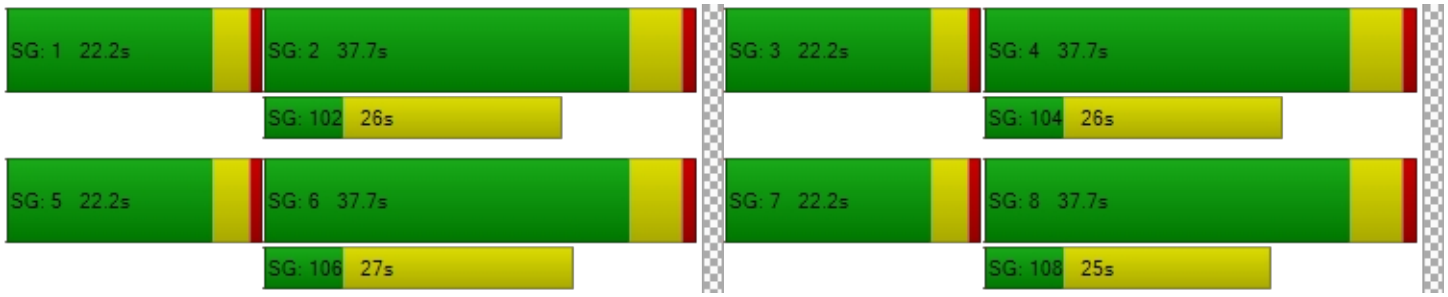
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.40 | 81.68 | 79.35 | 129.78 | 272.91 | 259.64 | 61.87 | 219.41 | 137.55 | 32.03 | 581.47 | 48.78 |
| Stops [stops/h] | 9.62 | 114.71 | 112.02 | 265.99 | 490.04 | 477.37 | 115.26 | 314.96 | 179.40 | 55.04 | 2984.89 | 54.11 |
| Fuel consumption [US gal/h] | 0.38 | 5.10 | 4.97 | 10.66 | 20.06 | 19.41 | 4.75 | 13.94 | 8.33 | 2.34 | 145.90 | 2.76 |
| CO [g/h] | 26.82 | 356.57 | 347.20 | 745.17 | 1402.05 | 1356.62 | 331.77 | 974.21 | 582.49 | 163.52 | 10198.1 | 193.19 |
| NOx [g/h] | 5.22 | 69.38 | 67.55 | 144.98 | 272.79 | 263.95 | 64.55 | 189.55 | 113.33 | 31.81 | 1984.19 | 37.59 |
| VOC [g/h] | 6.22 | 82.64 | 80.47 | 172.70 | 324.94 | 314.41 | 76.89 | 225.78 | 135.00 | 37.90 | 2363.52 | 44.77 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.60 | 36.60 | 36.60 | 36.60 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.707 | 2.832 | 2.954 | 2.905 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 682 | 682 | 682 | 682 |
| d_b, Bicycle Delay [s] | 20.41 | 20.40 | 20.40 | 20.40 |
| l_b,int, Bicycle LOS Score for Intersection | 1.814 | 2.659 | 3.012 | 3.777 |
| Bicycle LOS | A | B | C | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.663 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 154 | 83 | 78 | 311 | 331 | 331 | 103 | 867 | 403 | 155 | 1302 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 154 | 83 | 78 | 311 | 331 | 331 | 103 | 867 | 403 | 155 | 1302 | 23 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 22 | 21 | 84 | 89 | 89 | 28 | 233 | 108 | 42 | 350 | 6 |
| Total Analysis Volume [veh/h] | 166 | 89 | 84 | 334 | 356 | 356 | 111 | 932 | 433 | 167 | 1400 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 31 | 31 | 13 | 31 | 31 | 13 | 47 | 47 | 13 | 48 | 48 |
| g / C, Green / Cycle | 0.11 | 0.26 | 0.26 | 0.11 | 0.26 | 0.26 | 0.11 | 0.39 | 0.39 | 0.11 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.03 | 0.06 | 0.10 | 0.11 | 0.22 | 0.03 | 0.18 | 0.27 | 0.05 | 0.27 | 0.02 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1527 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 364 | 869 | 391 | 360 | 800 | 407 | 375 | 2005 | 621 | 375 | 2023 | 621 |
| d1, Uniform Delay [s] | 50.25 | 34.20 | 35.24 | 53.15 | 37.61 | 42.94 | 49.59 | 27.07 | 30.48 | 50.24 | 30.26 | 22.33 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.20 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.33 | 0.04 | 0.22 | 4.57 | 0.31 | 10.62 | 0.16 | 0.78 | 6.39 | 0.31 | 1.97 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.10 | 0.21 | 0.93 | 0.45 | 0.88 | 0.30 | 0.46 | 0.70 | 0.45 | 0.69 | 0.04 |
| d, Delay for Lane Group [s/veh] | 50.58 | 34.24 | 35.46 | 57.72 | 37.92 | 53.56 | 49.75 | 27.85 | 36.87 | 50.55 | 32.23 | 22.45 |
| Lane Group LOS | D | C | D | E | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.32 | 0.99 | 1.94 | 5.22 | 4.45 | 11.27 | 1.55 | 6.73 | 11.44 | 2.31 | 11.02 | 0.44 |
| 50th-Percentile Queue Length [ft/ln] | 58.11 | 24.69 | 48.38 | 130.51 | 111.13 | 281.78 | 38.82 | 168.36 | 286.11 | 57.87 | 275.62 | 11.06 |
| 95th-Percentile Queue Length [veh/ln] | 4.18 | 1.78 | 3.48 | 8.97 | 7.90 | 16.78 | 2.80 | 10.99 | 16.99 | 4.17 | 16.47 | 0.80 |
| 95th-Percentile Queue Length [ft/ln] | 104.60 | 44.45 | 87.08 | 224.19 | 197.57 | 419.43 | 69.88 | 274.76 | 424.81 | 104.17 | 411.76 | 19.90 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.58 | 34.24 | 35.46 | 57.72 | 37.92 | 53.56 | 49.75 | 27.85 | 36.87 | 50.55 | 32.23 | 22.45 |
| Movement LOS | D | C | D | E | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 42.54 | | | 49.57 | | | 32.14 | | | 34.00 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 37.69 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.663 | | | | | | | | | | | |

**Emissions**

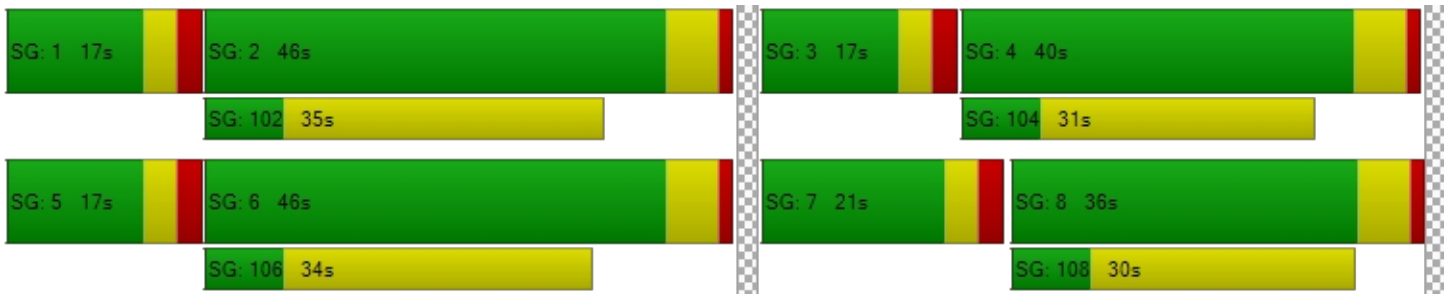
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 17.37 | 9.32 | 8.79 | 180.48 | 192.37 | 192.37 | 55.40 | 465.14 | 216.10 | 19.25 | 161.36 | 2.88 |
| Stops [stops/h] | 139.28 | 59.19 | 57.98 | 312.80 | 266.36 | 337.68 | 93.05 | 605.28 | 342.86 | 138.71 | 990.91 | 13.25 |
| Fuel consumption [US gal/h] | 3.70 | 1.54 | 1.49 | 13.08 | 12.14 | 13.66 | 3.92 | 27.77 | 14.04 | 4.10 | 27.03 | 0.38 |
| CO [g/h] | 258.56 | 107.31 | 104.18 | 914.36 | 848.45 | 955.17 | 273.88 | 1941.40 | 981.35 | 286.73 | 1889.66 | 26.40 |
| NOx [g/h] | 50.31 | 20.88 | 20.27 | 177.90 | 165.08 | 185.84 | 53.29 | 377.73 | 190.93 | 55.79 | 367.66 | 5.14 |
| VOC [g/h] | 59.92 | 24.87 | 24.15 | 211.91 | 196.64 | 221.37 | 63.48 | 449.94 | 227.44 | 66.45 | 437.95 | 6.12 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.58 | 49.58 | 49.58 | 49.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.848 | 2.785 | 3.231 | 3.341 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 504 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.68 | 33.60 | 26.54 | 26.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.839 | 2.423 | 2.371 | 2.435 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 103.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.350 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 540 | 137 | 2 | 10 | 69 | 30 | 14 | 17 | 301 | 2 | 229 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 540 | 137 | 2 | 10 | 69 | 30 | 14 | 17 | 301 | 2 | 229 | 7 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 148 | 38 | 1 | 3 | 19 | 8 | 4 | 5 | 83 | 1 | 63 | 2 |
| Total Analysis Volume [veh/h] | 593 | 151 | 2 | 11 | 76 | 33 | 15 | 19 | 331 | 2 | 252 | 8 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 746 | 490 | 567 | 512 |
| Degree of Utilization, x | 1.35 | 0.25 | 0.64 | 0.51 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 32.72 | 0.95 | 4.58 | 2.88 |
| 95th-Percentile Queue Length [ft] | 818.03 | 23.86 | 114.60 | 72.02 |
| Approach Delay [s/veh] | 189.02 | 12.73 | 20.09 | 17.18 |
| Approach LOS | F | B | C | C |
| Intersection Delay [s/veh] | 103.39 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 431.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.787 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 513 | 171 | 38 | 362 | 434 | 32 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 513 | 171 | 38 | 362 | 434 | 32 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 128 | 43 | 10 | 91 | 109 | 8 |
| Total Analysis Volume [veh/h] | 513 | 171 | 38 | 362 | 434 | 32 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.04 | 0.00 | 1.79 | 0.06 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 9.00 | 0.00 | 431.43 | 423.78 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.06 | 0.06 | 32.20 | 32.20 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 1.62 | 1.62 | 804.95 | 804.95 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.86 | | 430.90 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 129.77 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.767 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 100 | 244 | 78 | 191 | 413 | 157 | 63 | 334 | 51 | 89 | 92 | 367 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 244 | 78 | 191 | 413 | 157 | 63 | 334 | 51 | 89 | 92 | 367 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 64 | 20 | 50 | 108 | 41 | 16 | 87 | 13 | 23 | 24 | 96 |
| Total Analysis Volume [veh/h] | 104 | 254 | 81 | 199 | 430 | 164 | 66 | 348 | 53 | 93 | 96 | 382 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 31 | 31 | 12 | 35 | 7 | 27 | 27 | 7 | 28 | 28 |
| g / C, Green / Cycle | 0.09 | 0.33 | 0.33 | 0.13 | 0.37 | 0.07 | 0.29 | 0.29 | 0.08 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.14 | 0.05 | 0.11 | 0.33 | 0.04 | 0.11 | 0.11 | 0.05 | 0.05 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1777 | 1810 | 1870 | 1785 | 1782 | 1900 | 1586 |
| c, Capacity [veh/h] | 162 | 616 | 511 | 237 | 660 | 127 | 544 | 519 | 139 | 567 | 473 |
| d1, Uniform Delay [s] | 41.26 | 24.49 | 22.34 | 39.74 | 27.87 | 42.11 | 26.49 | 26.53 | 42.10 | 24.32 | 30.43 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.30 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.22 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.57 | 0.44 | 0.14 | 3.07 | 11.76 | 1.22 | 0.80 | 0.85 | 2.09 | 0.26 | 6.64 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.41 | 0.16 | 0.84 | 0.90 | 0.52 | 0.37 | 0.38 | 0.67 | 0.17 | 0.81 |
| d, Delay for Lane Group [s/veh] | 42.84 | 24.93 | 22.48 | 42.81 | 39.63 | 43.33 | 27.29 | 27.38 | 44.19 | 24.59 | 37.07 |
| Lane Group LOS | D | C | C | D | D | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.29 | 4.16 | 1.21 | 4.46 | 13.58 | 1.47 | 3.58 | 3.47 | 2.06 | 1.50 | 8.16 |
| 50th-Percentile Queue Length [ft/ln] | 57.29 | 104.10 | 30.24 | 111.52 | 339.53 | 36.81 | 89.56 | 86.85 | 51.58 | 37.60 | 203.88 |
| 95th-Percentile Queue Length [veh/ln] | 4.13 | 7.50 | 2.18 | 7.92 | 19.62 | 2.65 | 6.45 | 6.25 | 3.71 | 2.71 | 12.84 |
| 95th-Percentile Queue Length [ft/ln] | 103.13 | 187.39 | 54.43 | 198.11 | 490.62 | 66.25 | 161.21 | 156.33 | 92.84 | 67.69 | 320.96 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.84 | 24.93 | 22.48 | 42.81 | 39.63 | 39.63 | 43.33 | 27.33 | 27.38 | 44.19 | 24.59 | 37.07 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 28.72 | | | 40.43 | | | 29.60 | | | 36.13 | | |
| Approach LOS | C | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.85 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.767 | | | | | | | | | | | |

**Emissions**

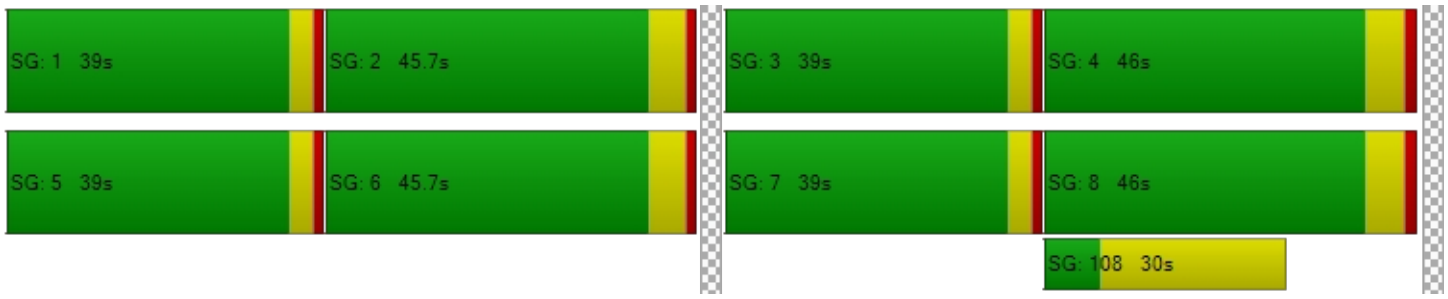
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 52.30 | 127.73 | 40.73 | 99.18 | 296.05 | 32.53 | 100.49 | 97.13 | 24.37 | 25.16 | 100.12 |
| Stops [stops/h] | 88.05 | 159.99 | 46.47 | 171.38 | 521.80 | 56.56 | 137.64 | 133.48 | 79.27 | 57.79 | 313.33 |
| Fuel consumption [US gal/h] | 3.79 | 7.66 | 2.34 | 7.26 | 21.43 | 2.30 | 6.08 | 5.89 | 2.87 | 2.21 | 11.04 |
| CO [g/h] | 265.20 | 535.16 | 163.89 | 507.76 | 1497.68 | 160.96 | 425.29 | 411.62 | 200.57 | 154.48 | 771.96 |
| NOx [g/h] | 51.60 | 104.12 | 31.89 | 98.79 | 291.39 | 31.32 | 82.75 | 80.09 | 39.02 | 30.06 | 150.20 |
| VOC [g/h] | 61.46 | 124.03 | 37.98 | 117.68 | 347.10 | 37.30 | 98.56 | 95.40 | 46.48 | 35.80 | 178.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.50 | 39.19 | 38.92 | 38.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.598 | 2.673 | 2.405 | 2.694 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 854 | 854 | 854 | 854 |
| d_b, Bicycle Delay [s] | 15.39 | 15.39 | 15.39 | 15.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.284 | 2.868 | 1.945 | 2.502 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 27.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.101 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 319 | 10 | 25 | 341 | 49 | 7 | 62 | 53 | 17 | 17 | 32 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 319 | 10 | 25 | 341 | 49 | 7 | 62 | 53 | 17 | 17 | 32 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 88 | 3 | 7 | 94 | 13 | 2 | 17 | 15 | 5 | 5 | 9 |
| Total Analysis Volume [veh/h] | 3 | 351 | 11 | 27 | 375 | 54 | 8 | 68 | 58 | 19 | 19 | 35 |
| Pedestrian Volume [ped/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | 0.22 | 0.09 | 0.10 | 0.06 | 0.05 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.40 | 0.00 | 0.00 | 8.05 | 0.00 | 0.00 | 23.16 | 21.05 | 14.80 | 27.04 | 20.18 | 13.24 |
| Movement LOS | A | A | A | A | A | A | C | C | B | D | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 1.45 | 1.45 | 1.45 | 0.81 | 0.81 | 0.81 |
| 95th-Percentile Queue Length [ft/ln] | 0.21 | 0.00 | 0.00 | 1.71 | 0.00 | 0.00 | 36.21 | 36.21 | 36.21 | 20.28 | 20.28 | 20.28 |
| d_A, Approach Delay [s/veh] | 0.07 | | | 0.48 | | | 18.47 | | | 18.64 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 3.97 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.709 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 118 | 236 | 36 | 4 | 228 | 7 | 76 | 208 | 158 | 287 | 455 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 118 | 236 | 36 | 4 | 228 | 7 | 76 | 208 | 158 | 287 | 455 | 29 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 32 | 64 | 10 | 1 | 62 | 2 | 21 | 57 | 43 | 78 | 124 | 8 |
| Total Analysis Volume [veh/h] | 128 | 257 | 39 | 4 | 248 | 8 | 83 | 226 | 172 | 312 | 495 | 32 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 15 | 15 | 0 | 10 | 3 | 9 | 9 | 11 | 17 |
| g / C, Green / Cycle | 0.09 | 0.29 | 0.29 | 0.00 | 0.20 | 0.06 | 0.18 | 0.18 | 0.21 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.14 | 0.02 | 0.00 | 0.14 | 0.05 | 0.11 | 0.12 | 0.17 | 0.28 |
| s, saturation flow rate [veh/h] | 1765 | 1859 | 1578 | 1772 | 1876 | 1691 | 1868 | 1608 | 1794 | 1855 |
| c, Capacity [veh/h] | 168 | 548 | 465 | 8 | 382 | 106 | 332 | 286 | 378 | 605 |
| d1, Uniform Delay [s] | 22.60 | 14.79 | 13.07 | 25.43 | 18.80 | 23.67 | 19.51 | 19.60 | 19.29 | 16.24 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.68 | 0.89 | 0.11 | 18.12 | 2.89 | 4.79 | 1.49 | 1.91 | 1.75 | 4.23 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.47 | 0.08 | 0.51 | 0.67 | 0.79 | 0.63 | 0.66 | 0.82 | 0.87 |
| d, Delay for Lane Group [s/veh] | 25.28 | 15.68 | 13.18 | 43.55 | 21.69 | 28.45 | 21.00 | 21.51 | 21.05 | 20.47 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.40 | 2.06 | 0.27 | 0.08 | 2.80 | 0.99 | 2.06 | 1.87 | 3.06 | 5.12 |
| 50th-Percentile Queue Length [ft/ln] | 35.09 | 51.41 | 6.79 | 2.10 | 69.96 | 24.74 | 51.38 | 46.79 | 76.58 | 128.02 |
| 95th-Percentile Queue Length [veh/ln] | 2.53 | 3.70 | 0.49 | 0.15 | 5.04 | 1.78 | 3.70 | 3.37 | 5.51 | 8.83 |
| 95th-Percentile Queue Length [ft/ln] | 63.15 | 92.54 | 12.22 | 3.79 | 125.92 | 44.52 | 92.49 | 84.22 | 137.84 | 220.80 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.28 | 15.68 | 13.18 | 43.55 | 21.69 | 21.69 | 28.45 | 21.03 | 21.51 | 21.05 | 20.47 | 20.47 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 18.35 | | | 22.02 | | | 22.49 | | | 20.68 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.79 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.709 | | | | | | | | | | | |

**Emissions**

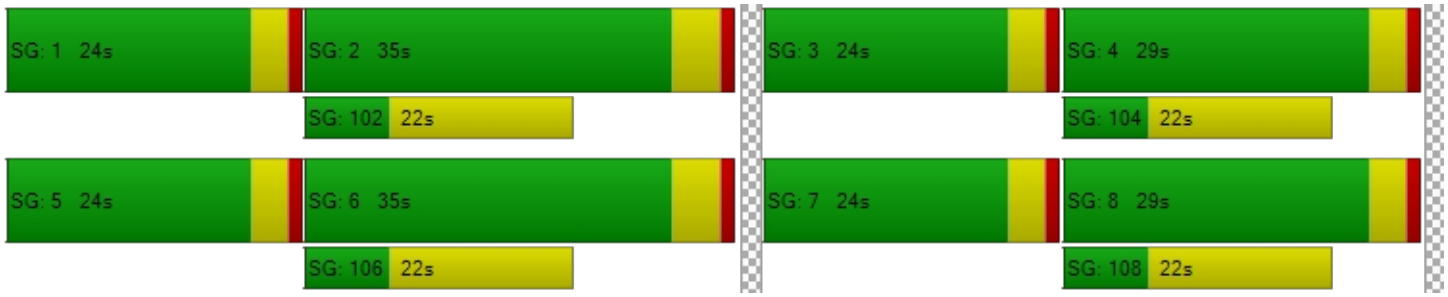
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.85 | 128.19 | 19.45 | 2.00 | 128.21 | 41.40 | 104.89 | 93.62 | 312.51 | 527.86 |
| Stops [stops/h] | 99.02 | 145.09 | 19.17 | 5.94 | 197.43 | 69.81 | 145.02 | 132.06 | 216.13 | 361.30 |
| Fuel consumption [US gal/h] | 4.08 | 7.02 | 1.01 | 0.15 | 7.50 | 2.77 | 6.30 | 5.67 | 14.74 | 24.78 |
| CO [g/h] | 285.06 | 490.58 | 70.58 | 10.54 | 524.16 | 193.46 | 440.18 | 396.53 | 1030.02 | 1732.19 |
| NOx [g/h] | 55.46 | 95.45 | 13.73 | 2.05 | 101.98 | 37.64 | 85.64 | 77.15 | 200.40 | 337.02 |
| VOC [g/h] | 66.07 | 113.70 | 16.36 | 2.44 | 121.48 | 44.84 | 102.02 | 91.90 | 238.72 | 401.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.70 | 15.70 | 15.70 | 15.70 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.606 | 2.113 | 2.505 | 2.504 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1176 | 1176 | 980 | 980 |
| d_b, Bicycle Delay [s] | 4.33 | 4.33 | 6.64 | 6.64 |
| l_b,int, Bicycle LOS Score for Intersection | 2.259 | 1.989 | 1.956 | 2.944 |
| Bicycle LOS | B | A | A | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 132.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.110 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 591 | 403 | 50 | 54 | 692 | 68 | 32 | 470 | 296 | 97 | 353 | 35 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 591 | 403 | 50 | 54 | 692 | 68 | 32 | 470 | 296 | 97 | 353 | 35 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 174 | 119 | 15 | 16 | 204 | 20 | 9 | 138 | 87 | 29 | 104 | 10 |
| Total Analysis Volume [veh/h] | 695 | 474 | 59 | 64 | 814 | 80 | 38 | 553 | 348 | 114 | 415 | 41 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 43 | 43 | 8 | 30 | 30 | 6 | 33 | 33 | 9 | 36 | 36 |
| g / C, Green / Cycle | 0.19 | 0.40 | 0.40 | 0.07 | 0.28 | 0.28 | 0.06 | 0.30 | 0.30 | 0.08 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.39 | 0.14 | 0.04 | 0.04 | 0.24 | 0.24 | 0.02 | 0.29 | 0.22 | 0.06 | 0.12 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1562 | 1751 | 1867 | 1809 | 1810 | 1883 | 1596 | 1785 | 3589 | 1612 |
| c, Capacity [veh/h] | 344 | 1392 | 620 | 125 | 517 | 501 | 104 | 572 | 485 | 145 | 1176 | 528 |
| d1, Uniform Delay [s] | 44.28 | 23.02 | 20.69 | 49.01 | 37.83 | 37.84 | 49.69 | 37.57 | 33.93 | 49.39 | 28.01 | 25.41 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.33 | 0.33 | 0.11 | 0.46 | 0.27 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 470.46 | 0.14 | 0.07 | 3.19 | 13.31 | 13.69 | 2.12 | 28.53 | 4.85 | 8.98 | 0.18 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 2.02 | 0.34 | 0.10 | 0.51 | 0.88 | 0.88 | 0.36 | 0.97 | 0.72 | 0.79 | 0.35 | 0.08 |
| d, Delay for Lane Group [s/veh] | 514.74 | 23.17 | 20.75 | 52.19 | 51.14 | 51.53 | 51.81 | 66.11 | 38.78 | 58.36 | 28.19 | 25.47 |
| Lane Group LOS | F | C | C | D | D | D | D | E | D | E | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 53.82 | 4.07 | 0.92 | 1.79 | 13.37 | 13.01 | 1.06 | 18.83 | 8.78 | 3.33 | 3.98 | 0.72 |
| 50th-Percentile Queue Length [ft/ln] | 1345.48 | 101.72 | 22.88 | 44.86 | 334.28 | 325.22 | 26.54 | 470.71 | 219.40 | 83.23 | 99.59 | 17.95 |
| 95th-Percentile Queue Length [veh/ln] | 84.22 | 7.32 | 1.65 | 3.23 | 19.37 | 18.92 | 1.91 | 25.94 | 13.63 | 5.99 | 7.17 | 1.29 |
| 95th-Percentile Queue Length [ft/ln] | 2105.39 | 183.10 | 41.19 | 80.76 | 484.20 | 473.10 | 47.78 | 648.61 | 340.86 | 149.82 | 179.26 | 32.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 514.74 | 23.17 | 20.75 | 52.19 | 51.31 | 51.53 | 51.81 | 66.11 | 38.78 | 58.36 | 28.19 | 25.47 |
| Movement LOS | F | C | C | D | D | D | D | E | D | E | C | C |
| d_A, Approach Delay [s/veh] | 301.26 | | | 51.39 | | | 55.40 | | | 34.03 | | |
| Approach LOS | F | | | D | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 132.77 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.110 | | | | | | | | | | | |

**Emissions**

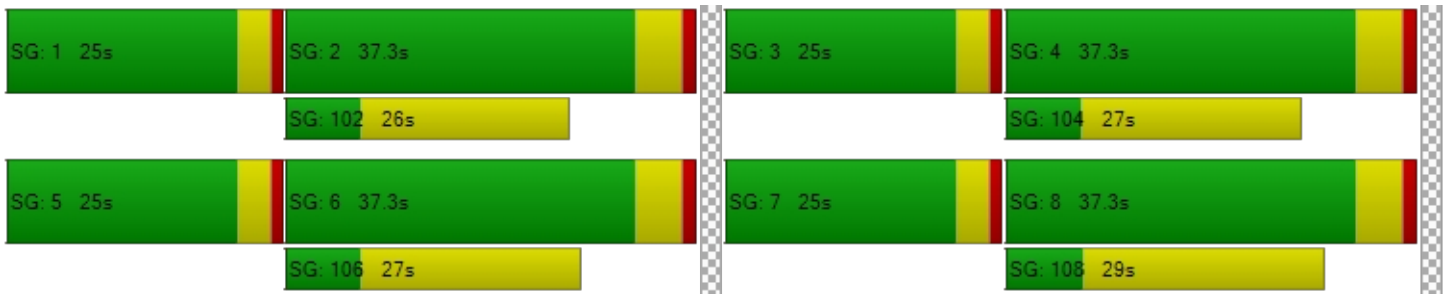
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 138.92 | 94.75 | 11.79 | 31.92 | 226.49 | 219.45 | 18.73 | 272.50 | 171.48 | 11.77 | 42.85 | 4.23 |
| Stops [stops/h] | 1771.01 | 267.79 | 30.12 | 59.05 | 440.00 | 428.08 | 34.94 | 619.58 | 288.79 | 109.56 | 262.18 | 23.63 |
| Fuel consumption [US gal/h] | 99.57 | 8.81 | 1.03 | 2.32 | 16.48 | 16.01 | 1.36 | 22.08 | 11.40 | 3.12 | 7.11 | 0.65 |
| CO [g/h] | 6959.66 | 615.96 | 71.85 | 162.18 | 1151.94 | 1119.22 | 95.38 | 1543.35 | 796.96 | 218.05 | 496.90 | 45.54 |
| NOx [g/h] | 1354.10 | 119.84 | 13.98 | 31.55 | 224.13 | 217.76 | 18.56 | 300.28 | 155.06 | 42.43 | 96.68 | 8.86 |
| VOC [g/h] | 1612.97 | 142.75 | 16.65 | 37.59 | 266.97 | 259.39 | 22.10 | 357.69 | 184.70 | 50.54 | 115.16 | 10.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.25 | 44.25 | 44.25 | 44.25 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.073 | 2.604 | 2.724 | 2.674 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 585 | 585 | 585 | 585 |
| d_b, Bicycle Delay [s] | 27.38 | 27.38 | 27.38 | 27.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.573 | 2.350 | 3.109 | 2.030 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 42.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.901 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 434 | 991 | 0 | 0 | 421 | 714 | 0 | 0 | 0 | 165 | 0 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 434 | 991 | 0 | 0 | 421 | 714 | 0 | 0 | 0 | 165 | 0 | 36 |
| Peak Hour Factor | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 1.0000 | 0.8600 | 1.0000 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 126 | 288 | 0 | 0 | 122 | 208 | 0 | 0 | 0 | 48 | 0 | 10 |
| Total Analysis Volume [veh/h] | 505 | 1152 | 0 | 0 | 490 | 830 | 0 | 0 | 0 | 192 | 0 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 97 | 97 | 97 | 97 | | 97 | 97 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 20 | 71 | 45 | 45 | | 13 | 13 |
| g / C, Green / Cycle | 0.21 | 0.73 | 0.46 | 0.46 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.32 | 0.26 | 0.53 | | 0.11 | 0.03 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 568 | 2593 | 866 | 727 | | 249 | 218 |
| d1, Uniform Delay [s] | 37.57 | 5.37 | 19.05 | 26.16 | | 40.41 | 37.08 |
| k, delay calibration | 0.04 | 0.20 | 0.21 | 0.50 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.95 | 0.22 | 1.12 | 79.76 | | 10.26 | 0.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.89 | 0.44 | 0.57 | 1.14 | | 0.77 | 0.19 |
| d, Delay for Lane Group [s/veh] | 39.52 | 5.60 | 20.17 | 105.92 | | 50.68 | 37.98 |
| Lane Group LOS | D | A | C | F | | D | D |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.68 | 3.32 | 7.53 | 30.89 | | 4.85 | 0.89 |
| 50th-Percentile Queue Length [ft/ln] | 142.06 | 83.06 | 188.15 | 772.24 | | 121.18 | 22.13 |
| 95th-Percentile Queue Length [veh/ln] | 9.59 | 5.98 | 12.03 | 44.00 | | 8.46 | 1.59 |
| 95th-Percentile Queue Length [ft/ln] | 239.79 | 149.51 | 300.63 | 1100.02 | | 211.44 | 39.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.52 | 5.60 | 0.00 | 0.00 | 20.17 | 105.92 | 0.00 | 0.00 | 0.00 | 50.68 | 0.00 | 37.98 |
| Movement LOS | D | A | | | C | F | | | | D | | D |
| d_A, Approach Delay [s/veh] | 15.94 | | | 74.09 | | | 0.00 | | | 48.40 | | |
| Approach LOS | B | | | E | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.21 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.901 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 54.59 | 124.53 | 97.95 | 165.91 | | 16.50 | 3.61 |
| Stops [stops/h] | 420.92 | 246.12 | 278.75 | 1144.07 | | 179.52 | 32.79 |
| Fuel consumption [US gal/h] | 11.17 | 8.64 | 8.83 | 37.80 | | 5.87 | 1.05 |
| CO [g/h] | 780.51 | 604.01 | 617.54 | 2642.17 | | 410.06 | 73.70 |
| NOx [g/h] | 151.86 | 117.52 | 120.15 | 514.07 | | 79.78 | 14.34 |
| VOC [g/h] | 180.89 | 139.98 | 143.12 | 612.35 | | 95.04 | 17.08 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.94 | 45.94 | 38.22 | 38.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.034 | 3.061 | 2.369 | 1.927 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 926 | 926 | 0 | 617 |
| d_b, Bicycle Delay [s] | 14.02 | 14.02 | 48.60 | 23.23 |
| l_b,int, Bicycle LOS Score for Intersection | 2.927 | 2.649 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.711 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1168 | 94 | 13 | 605 | 0 | 235 | 0 | 377 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1168 | 94 | 13 | 605 | 0 | 235 | 0 | 377 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 321 | 26 | 4 | 166 | 0 | 65 | 0 | 104 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1284 | 103 | 14 | 665 | 0 | 258 | 0 | 414 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 51 | 51 | 2 | 59 | 28 | 28 | |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.02 | 0.59 | 0.28 | 0.28 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.19 | 0.07 | 0.26 | |
| s, saturation flow rate [veh/h] | 1877 | 1828 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 958 | 933 | 35 | 2102 | 976 | 452 | |
| d1, Uniform Delay [s] | 19.00 | 19.30 | 48.34 | 10.44 | 27.74 | 34.65 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.37 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.75 | 5.34 | 2.75 | 0.40 | 0.31 | 20.79 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.74 | 0.40 | 0.32 | 0.26 | 0.92 | |
| d, Delay for Lane Group [s/veh] | 23.75 | 24.65 | 51.09 | 10.83 | 28.04 | 55.44 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.54 | 12.84 | 0.36 | 3.34 | 2.25 | 11.48 | |
| 50th-Percentile Queue Length [ft/ln] | 313.46 | 320.99 | 9.01 | 83.48 | 56.36 | 287.08 | |
| 95th-Percentile Queue Length [veh/ln] | 18.35 | 18.72 | 0.65 | 6.01 | 4.06 | 17.04 | |
| 95th-Percentile Queue Length [ft/ln] | 458.64 | 467.90 | 16.22 | 150.26 | 101.45 | 426.02 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 24.16 | 24.65 | 51.09 | 10.83 | 0.00 | 28.04 | 0.00 | 55.44 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 24.20 | | | 11.66 | | | 44.92 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 26.18 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.711 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 46.02 | 46.02 | 1.51 | 71.89 | 30.66 | 49.20 | |
| Stops [stops/h] | 451.58 | 462.43 | 12.98 | 240.52 | 162.40 | 413.58 | |
| Fuel consumption [US gal/h] | 9.44 | 9.67 | 0.36 | 6.92 | 5.51 | 14.00 | |
| CO [g/h] | 659.58 | 675.90 | 25.08 | 483.75 | 385.46 | 978.50 | |
| NOx [g/h] | 128.33 | 131.50 | 4.88 | 94.12 | 75.00 | 190.38 | |
| VOC [g/h] | 152.86 | 156.65 | 5.81 | 112.11 | 89.33 | 226.78 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.918 | 2.935 | 2.345 | 1.777 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.704 | 2.120 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 22.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.093 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 12 | 0 | 189 | 9 | 5 | 445 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 0 | 189 | 9 | 5 | 445 |
| Peak Hour Factor | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 81 | 4 | 2 | 192 |
| Total Analysis Volume [veh/h] | 21 | 0 | 326 | 16 | 9 | 767 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 22.57 | 11.71 | 0.00 | 0.00 | 7.97 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.30 | 0.30 | 0.00 | 0.00 | 0.02 | 0.02 |
| 95th-Percentile Queue Length [ft/ln] | 7.60 | 7.60 | 0.00 | 0.00 | 0.38 | 0.38 |
| d_A, Approach Delay [s/veh] | 22.57 | | 0.00 | | 0.09 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.018 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 21 | 13 | 338 | 397 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 21 | 13 | 338 | 397 | 14 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 6 | 4 | 95 | 112 | 4 |
| Total Analysis Volume [veh/h] | 7 | 24 | 15 | 380 | 446 | 16 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.03 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.71 | 9.98 | 8.33 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 0.16 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.90 | 3.90 | 1.04 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.05 | | 0.32 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.53 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.311 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 81 | 20 | 378 | 37 | 5 | 362 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 81 | 20 | 378 | 37 | 5 | 362 |
| Peak Hour Factor | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 7 | 124 | 12 | 2 | 119 |
| Total Analysis Volume [veh/h] | 107 | 26 | 497 | 49 | 7 | 476 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.31 | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.36 | 14.68 | 0.00 | 0.00 | 8.58 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.51 | 1.51 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 37.87 | 37.87 | 0.00 | 0.00 | 0.52 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.25 | | 0.00 | | 0.12 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.25 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 98.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.979 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 33 | 252 | 198 | 12 | 331 | 62 | 104 | 328 | 47 | 410 | 280 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 33 | 252 | 198 | 12 | 331 | 62 | 104 | 328 | 47 | 410 | 280 | 3 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 82 | 64 | 4 | 107 | 20 | 34 | 106 | 15 | 133 | 91 | 1 |
| Total Analysis Volume [veh/h] | 43 | 327 | 257 | 16 | 430 | 81 | 135 | 426 | 61 | 532 | 364 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 143 | 143 | 143 | 143 | 143 | 143 | 143 | 143 | 143 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 33 | 33 | 33 | 33 | 14 | 25 | 25 | 36 | 47 |
| g / C, Green / Cycle | 0.23 | 0.23 | 0.23 | 0.23 | 0.10 | 0.18 | 0.18 | 0.25 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.17 | 0.01 | 0.28 | 0.08 | 0.12 | 0.04 | 0.30 | 0.20 |
| s, saturation flow rate [veh/h] | 1889 | 1519 | 1810 | 1848 | 1738 | 3520 | 1602 | 1752 | 1869 |
| c, Capacity [veh/h] | 434 | 349 | 416 | 425 | 171 | 626 | 285 | 440 | 618 |
| d1, Uniform Delay [s] | 52.92 | 51.22 | 42.91 | 55.23 | 63.24 | 55.18 | 50.42 | 53.73 | 40.05 |
| k, delay calibration | 0.20 | 0.11 | 0.23 | 0.50 | 0.04 | 0.23 | 0.23 | 0.50 | 0.32 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.32 | 3.13 | 0.08 | 111.44 | 3.09 | 2.78 | 0.80 | 114.00 | 2.74 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.85 | 0.74 | 0.04 | 1.20 | 0.79 | 0.68 | 0.21 | 1.21 | 0.60 |
| d, Delay for Lane Group [s/veh] | 61.24 | 54.35 | 42.99 | 166.67 | 66.32 | 57.96 | 51.21 | 167.74 | 42.79 |
| Lane Group LOS | E | D | D | F | E | E | D | F | D |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 13.79 | 8.90 | 0.46 | 28.48 | 4.85 | 7.26 | 1.90 | 29.19 | 10.94 |
| 50th-Percentile Queue Length [ft/ln] | 344.73 | 222.47 | 11.43 | 712.07 | 121.16 | 181.43 | 47.46 | 729.81 | 273.49 |
| 95th-Percentile Queue Length [veh/ln] | 19.88 | 13.79 | 0.82 | 41.17 | 8.46 | 11.68 | 3.42 | 42.34 | 16.36 |
| 95th-Percentile Queue Length [ft/ln] | 496.98 | 344.78 | 20.58 | 1029.37 | 211.42 | 291.88 | 85.44 | 1058.50 | 409.09 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 61.24 | 61.24 | 54.35 | 42.99 | 166.67 | 166.67 | 66.32 | 57.96 | 51.21 | 167.74 | 42.79 | 42.79 |
| Movement LOS | E | E | D | D | F | F | E | E | D | F | D | D |
| d_A, Approach Delay [s/veh] | 58.41 | | | 162.92 | | | 59.12 | | | 116.65 | | |
| Approach LOS | E | | | F | | | E | | | F | | |
| d_I, Intersection Delay [s/veh] | 98.74 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 0.979 | | | | | | | | | | | |

**Emissions**

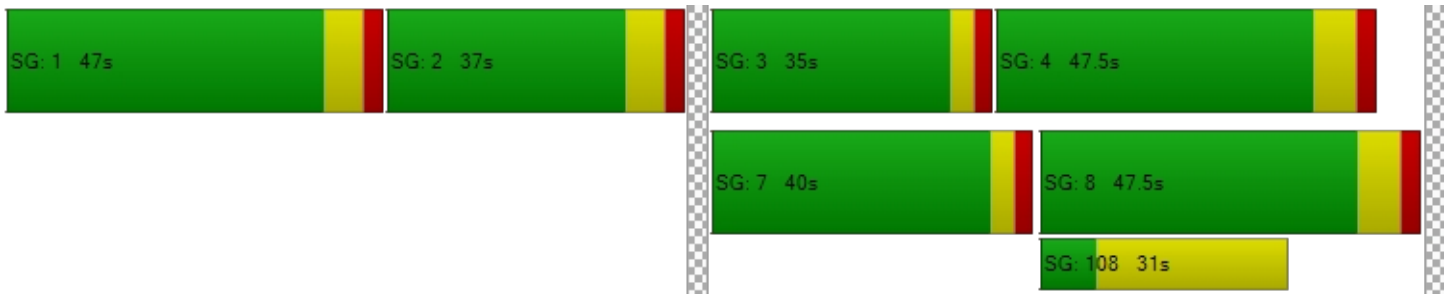
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 368.68 | 256.08 | 0.45 | 14.38 | 49.78 | 157.09 | 22.49 | 268.78 | 185.92 |
| Stops [stops/h] | 346.43 | 223.57 | 11.49 | 715.60 | 121.76 | 364.65 | 47.70 | 733.43 | 274.84 |
| Fuel consumption [US gal/h] | 21.70 | 14.62 | 0.22 | 21.87 | 5.36 | 15.88 | 2.12 | 38.42 | 13.65 |
| CO [g/h] | 1516.94 | 1021.88 | 15.51 | 1529.00 | 374.53 | 1110.19 | 148.27 | 2685.25 | 954.10 |
| NOx [g/h] | 295.14 | 198.82 | 3.02 | 297.49 | 72.87 | 216.00 | 28.85 | 522.45 | 185.63 |
| VOC [g/h] | 351.56 | 236.83 | 3.60 | 354.36 | 86.80 | 257.30 | 34.36 | 622.33 | 221.12 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 61.07 | 65.29 | 64.82 | 64.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.555 | 2.288 | 2.685 | 2.805 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 558 | 419 | 558 | 558 |
| d_b, Bicycle Delay [s] | 37.23 | 44.79 | 37.23 | 37.23 |
| l_b,int, Bicycle LOS Score for Intersection | 2.594 | 2.429 | 2.073 | 3.045 |
| Bicycle LOS | B | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.732 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 92 | 441 | 58 | 2 | 585 | 332 | 88 | 83 | 85 | 236 | 387 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 92 | 441 | 58 | 2 | 585 | 332 | 88 | 83 | 85 | 236 | 387 | 14 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 134 | 18 | 1 | 178 | 101 | 27 | 25 | 26 | 72 | 118 | 4 |
| Total Analysis Volume [veh/h] | 112 | 538 | 71 | 2 | 713 | 405 | 107 | 101 | 104 | 288 | 472 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 35 | 35 | 0 | 27 | 27 | 8 | 18 | 18 | 15 | 25 | 25 |
| g / C, Green / Cycle | 0.10 | 0.41 | 0.41 | 0.00 | 0.32 | 0.32 | 0.10 | 0.21 | 0.21 | 0.18 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.15 | 0.04 | 0.00 | 0.20 | 0.25 | 0.06 | 0.06 | 0.07 | 0.16 | 0.25 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1609 | 1810 | 3592 | 1593 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 175 | 1463 | 667 | 9 | 1152 | 511 | 176 | 380 | 332 | 328 | 552 | 411 |
| d1, Uniform Delay [s] | 36.68 | 17.10 | 15.16 | 41.94 | 24.35 | 26.15 | 36.61 | 28.08 | 28.38 | 33.65 | 28.21 | 21.40 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.24 | 0.04 | 0.13 | 0.13 | 0.12 | 0.23 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.46 | 0.21 | 0.09 | 4.49 | 0.73 | 6.01 | 1.28 | 0.46 | 0.67 | 8.42 | 7.74 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.37 | 0.11 | 0.22 | 0.62 | 0.79 | 0.61 | 0.27 | 0.31 | 0.88 | 0.85 | 0.04 |
| d, Delay for Lane Group [s/veh] | 38.14 | 17.30 | 15.25 | 46.42 | 25.08 | 32.17 | 37.89 | 28.55 | 29.05 | 42.07 | 35.95 | 21.45 |
| Lane Group LOS | D | B | B | D | C | C | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.15 | 3.20 | 0.76 | 0.05 | 5.52 | 7.44 | 2.14 | 1.73 | 1.81 | 6.12 | 9.39 | 0.23 |
| 50th-Percentile Queue Length [ft/ln] | 53.63 | 79.90 | 18.88 | 1.26 | 137.95 | 186.12 | 53.54 | 43.16 | 45.18 | 153.08 | 234.76 | 5.75 |
| 95th-Percentile Queue Length [veh/ln] | 3.86 | 5.75 | 1.36 | 0.09 | 9.37 | 11.92 | 3.86 | 3.11 | 3.25 | 10.18 | 14.42 | 0.41 |
| 95th-Percentile Queue Length [ft/ln] | 96.53 | 143.83 | 33.98 | 2.27 | 234.26 | 298.00 | 96.38 | 77.68 | 81.32 | 254.53 | 360.40 | 10.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.14 | 17.30 | 15.25 | 46.42 | 25.08 | 32.17 | 37.89 | 28.55 | 29.05 | 42.07 | 35.95 | 21.45 |
| Movement LOS | D | B | B | D | C | C | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 20.34 | | | 27.68 | | | 31.92 | | | 37.90 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.03 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.732 | | | | | | | | | | | |

**Emissions**

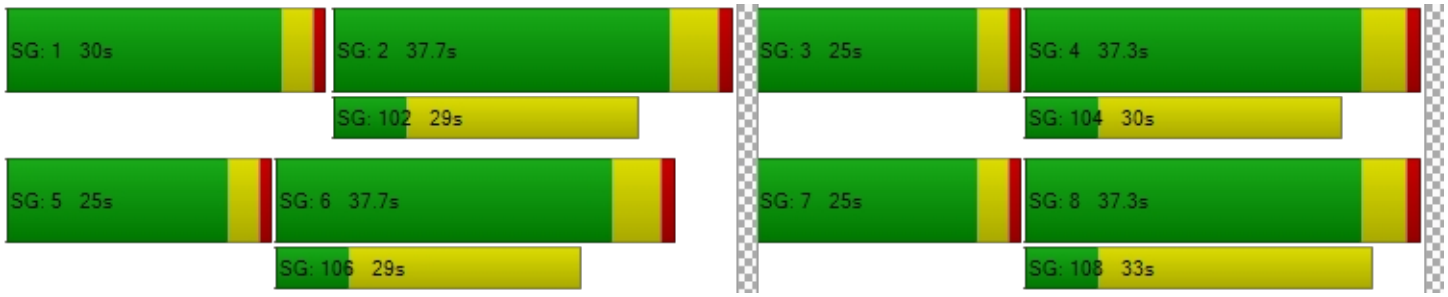
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 51.27 | 246.27 | 32.50 | 1.99 | 710.46 | 403.56 | 107.17 | 101.16 | 104.17 | 144.46 | 236.76 | 8.53 |
| Stops [stops/h] | 91.44 | 272.49 | 32.19 | 2.15 | 470.43 | 317.37 | 91.30 | 73.59 | 77.04 | 261.02 | 400.29 | 9.80 |
| Fuel consumption [US gal/h] | 3.99 | 14.32 | 1.80 | 0.12 | 34.65 | 21.04 | 5.74 | 5.16 | 5.33 | 10.66 | 16.55 | 0.49 |
| CO [g/h] | 278.89 | 1001.28 | 126.02 | 8.29 | 2422.16 | 1470.50 | 401.32 | 360.53 | 372.47 | 745.32 | 1156.53 | 34.14 |
| NOx [g/h] | 54.26 | 194.81 | 24.52 | 1.61 | 471.26 | 286.11 | 78.08 | 70.15 | 72.47 | 145.01 | 225.02 | 6.64 |
| VOC [g/h] | 64.63 | 232.06 | 29.21 | 1.92 | 561.36 | 340.80 | 93.01 | 83.56 | 86.32 | 172.74 | 268.04 | 7.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.94 | 31.94 | 31.94 | 31.94 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.944 | 2.932 | 2.444 | 2.475 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 758 | 758 | 758 | 758 |
| d_b, Bicycle Delay [s] | 16.29 | 16.29 | 16.29 | 16.29 |
| l_b,int, Bicycle LOS Score for Intersection | 2.154 | 2.484 | 2.074 | 2.842 |
| Bicycle LOS | B | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 16.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 208 | 495 | 269 | 78 | 843 | 25 | 42 | 46 | 389 | 231 | 37 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 208 | 495 | 269 | 78 | 843 | 25 | 42 | 46 | 389 | 231 | 37 | 79 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 57 | 136 | 74 | 21 | 232 | 7 | 12 | 13 | 107 | 63 | 10 | 22 |
| Total Analysis Volume [veh/h] | 229 | 544 | 296 | 86 | 926 | 27 | 46 | 51 | 427 | 254 | 41 | 87 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 190 | | | 537 | | | 1291 | | | 857 | | |
| Exiting Flow Rate [veh/h] | 1633 | | | 710 | | | 302 | | | 443 | | |
| Demand Flow Rate [veh/h] | 208 | 495 | 269 | 78 | 843 | 25 | 42 | 46 | 389 | 231 | 37 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 229 | 544 | 296 | 86 | 926 | 27 | 46 | 51 | 427 | 254 | 41 | 87 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.96 | 0.98 | 0.99 | 0.96 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 526 | 592 | 496 | 559 | 101 | 431 | 210 | 184 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1195 | 1195 | 824 | 900 | 412 | 475 | 614 | 686 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1142 | 1145 | 811 | 888 | 397 | 470 | 593 | 671 |
| X, volume / capacity | 0.44 | 0.50 | 0.60 | 0.62 | 0.24 | 0.91 | 0.34 | 0.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | B | B | B | F | B | A |
| 95th-Percentile Queue Length [veh] | 2.29 | 2.83 | 4.12 | 4.44 | 0.95 | 10.26 | 1.51 | 1.08 |
| 95th-Percentile Queue Length [ft] | 57.32 | 70.79 | 103.08 | 111.01 | 23.71 | 256.48 | 37.72 | 26.98 |
| Approach Delay [s/veh] | 8.27 | | 13.74 | | 44.28 | | 9.85 | |
| Approach LOS | A | | B | | E | | A | |
| Intersection Delay [s/veh] | 16.61 | | | | | | | |
| Intersection LOS | C | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.694 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 803 | 542 | 0 | 699 | 752 | 0 | 0 | 0 | 51 | 0 | 139 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 803 | 542 | 0 | 699 | 752 | 0 | 0 | 0 | 51 | 0 | 139 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 223 | 151 | 0 | 194 | 209 | 0 | 0 | 0 | 14 | 0 | 39 |
| Total Analysis Volume [veh/h] | 0 | 892 | 602 | 0 | 777 | 836 | 0 | 0 | 0 | 57 | 0 | 154 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 53 | 53 | 53 | | 53 | 53 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 32 | 32 | 32 | | 8 | 8 |
| g / C, Green / Cycle | 0.61 | 0.61 | 0.61 | | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.22 | 0.52 | | 0.03 | 0.10 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2175 | 2172 | 988 | | 259 | 233 |
| d1, Uniform Delay [s] | 5.28 | 5.06 | 8.21 | | 19.86 | 21.28 |
| k, delay calibration | 0.20 | 0.20 | 0.31 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.23 | 0.19 | 5.78 | | 0.91 | 6.67 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.36 | 0.85 | | 0.22 | 0.66 |
| d, Delay for Lane Group [s/veh] | 5.51 | 5.25 | 13.99 | | 20.77 | 27.95 |
| Lane Group LOS | A | A | B | | C | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 1.10 | 5.23 | | 0.56 | 1.87 |
| 50th-Percentile Queue Length [ft/ln] | 32.96 | 27.47 | 130.65 | | 14.09 | 46.86 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 1.98 | 8.97 | | 1.01 | 3.37 |
| 95th-Percentile Queue Length [ft/ln] | 59.32 | 49.45 | 224.37 | | 25.36 | 84.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.51 | 0.00 | 0.00 | 5.25 | 13.99 | 0.00 | 0.00 | 0.00 | 20.77 | 0.00 | 27.95 |
| Movement LOS | | A | | | A | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 3.43 | | | 9.78 | | | 0.00 | | | 26.01 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 8.96 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.694 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.04 | 76.66 | 82.48 | | 4.03 | 10.89 |
| Stops [stops/h] | 180.41 | 150.38 | 357.57 | | 38.56 | 128.26 |
| Fuel consumption [US gal/h] | 6.74 | 5.33 | 9.65 | | 1.09 | 3.62 |
| CO [g/h] | 471.21 | 372.38 | 674.78 | | 76.33 | 253.23 |
| NOx [g/h] | 91.68 | 72.45 | 131.29 | | 14.85 | 49.27 |
| VOC [g/h] | 109.21 | 86.30 | 156.39 | | 17.69 | 58.69 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.30 | 23.30 | 16.46 | 16.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.788 | 3.061 | 2.092 | 2.036 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1330 | 1330 | 0 | 760 |
| d_b, Bicycle Delay [s] | 2.95 | 2.95 | 26.31 | 10.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.296 | 2.890 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 88.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.006 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 980 | 23 | 27 | 721 | 0 | 342 | 0 | 884 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 980 | 23 | 27 | 721 | 0 | 342 | 0 | 884 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 266 | 6 | 7 | 196 | 0 | 93 | 0 | 240 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1065 | 25 | 29 | 784 | 0 | 372 | 0 | 961 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 96 | 96 | 96 | 96 | 96 | 96 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 34 | 34 | 3 | 43 | 40 | 40 | |
| g / C, Green / Cycle | 0.36 | 0.36 | 0.03 | 0.45 | 0.42 | 0.42 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.29 | 0.29 | 0.02 | 0.22 | 0.21 | 0.60 | |
| s, saturation flow rate [veh/h] | 1873 | 1858 | 1758 | 3580 | 1749 | 1597 | |
| c, Capacity [veh/h] | 674 | 668 | 60 | 1624 | 729 | 665 | |
| d1, Uniform Delay [s] | 27.77 | 27.86 | 45.54 | 18.37 | 20.77 | 28.03 | |
| k, delay calibration | 0.23 | 0.23 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.93 | 5.23 | 2.19 | 0.40 | 1.19 | 208.66 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.82 | 0.48 | 0.48 | 0.51 | 1.44 | |
| d, Delay for Lane Group [s/veh] | 32.70 | 33.09 | 47.72 | 18.77 | 21.96 | 236.69 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 11.31 | 11.39 | 0.69 | 5.62 | 5.68 | 51.68 | |
| 50th-Percentile Queue Length [ft/ln] | 282.68 | 284.72 | 17.27 | 140.50 | 142.05 | 1291.89 | |
| 95th-Percentile Queue Length [veh/ln] | 16.82 | 16.92 | 1.24 | 9.51 | 9.59 | 78.88 | |
| 95th-Percentile Queue Length [ft/ln] | 420.54 | 423.08 | 31.08 | 237.70 | 239.78 | 1972.01 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 32.89 | 33.09 | 47.72 | 18.77 | 0.00 | 21.96 | 0.00 | 236.69 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 32.89 | | | 19.80 | | | 176.77 | | | 0.00 | | |
| Approach LOS | C | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 88.87 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.006 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 44.15 | 44.15 | 3.32 | 89.68 | 29.09 | 75.15 | |
| Stops [stops/h] | 424.27 | 427.34 | 25.92 | 421.76 | 213.21 | 1939.02 | |
| Fuel consumption [US gal/h] | 10.41 | 10.50 | 0.72 | 11.31 | 6.60 | 84.81 | |
| CO [g/h] | 728.01 | 733.66 | 50.16 | 790.75 | 461.05 | 5928.18 | |
| NOx [g/h] | 141.64 | 142.74 | 9.76 | 153.85 | 89.70 | 1153.41 | |
| VOC [g/h] | 168.72 | 170.03 | 11.62 | 183.26 | 106.85 | 1373.91 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.73 | 44.73 | 37.60 | 37.60 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.177 | 3.011 | 2.909 | 1.744 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 938 | 730 | 834 | 0 |
| d_b, Bicycle Delay [s] | 13.52 | 19.35 | 16.31 | 47.97 |
| l_b,int, Bicycle LOS Score for Intersection | 2.459 | 2.230 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 6,176.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 13.974 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 282 | 41 | 38 | 232 | 65 | 154 | 237 | 271 | 31 | 27 | 275 | 113 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 282 | 41 | 38 | 232 | 65 | 154 | 237 | 271 | 31 | 27 | 275 | 113 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 94 | 14 | 13 | 77 | 22 | 51 | 79 | 90 | 10 | 9 | 92 | 38 |
| Total Analysis Volume [veh/h] | 376 | 55 | 51 | 309 | 87 | 205 | 316 | 361 | 41 | 36 | 367 | 151 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 2.58 | 0.76 | 0.07 | 13.97 | 1.11 | 0.27 | 0.30 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 1115.36 | 1140.50 | 1095.32 | 6176.60 | 274.07 | 232.80 | 9.84 | 0.00 | 0.00 | 8.19 | 0.00 | 0.00 |
| Movement LOS | F | F | F | F | F | F | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 46.11 | 46.11 | 46.11 | 38.84 | 16.75 | 16.75 | 1.26 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1152.75 | 1152.75 | 1152.75 | 971.10 | 418.86 | 418.86 | 31.50 | 0.00 | 0.00 | 2.39 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 1116.11 | | | 3294.74 | | | 4.33 | | | 0.53 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 1070.70 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 15.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.747 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 9 | 1 | 1 | 4 | 563 | 120 | 2 | 3 | 0 | 4 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 9 | 1 | 1 | 4 | 563 | 120 | 2 | 3 | 0 | 4 | 1 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 3 | 0 | 0 | 1 | 174 | 37 | 1 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 11 | 1 | 1 | 5 | 695 | 148 | 2 | 4 | 0 | 5 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 699 | 938 | 643 | 643 |
| Degree of Utilization, x | 0.03 | 0.75 | 0.24 | 0.01 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.08 | 7.14 | 0.93 | 0.03 |
| 95th-Percentile Queue Length [ft] | 2.09 | 178.57 | 23.29 | 0.71 |
| Approach Delay [s/veh] | 8.29 | 17.22 | 10.36 | 8.65 |
| Approach LOS | A | C | B | A |
| Intersection Delay [s/veh] | 15.77 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.488 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 181 | 19 | 0 | 293 | 247 | 4 | 229 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 181 | 19 | 0 | 293 | 247 | 4 | 229 |
| Peak Hour Factor | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 62 | 7 | 0 | 100 | 85 | 1 | 78 |
| Total Analysis Volume [veh/h] | 248 | 26 | 0 | 401 | 338 | 5 | 314 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 0 | 13 | 13 | 0 | 13 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.00 | 0.38 | 0.38 | 0.01 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.02 | 0.00 | 0.12 | 0.22 | 0.00 | 0.17 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 1900 |
| c, Capacity [veh/h] | 452 | 413 | 1 | 1329 | 597 | 21 | 748 |
| d1, Uniform Delay [s] | 11.04 | 9.65 | 0.00 | 7.39 | 8.35 | 16.79 | 7.55 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 0.02 | 0.00 | 0.17 | 1.16 | 2.15 | 0.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.06 | 0.00 | 0.30 | 0.57 | 0.24 | 0.42 |
| d, Delay for Lane Group [s/veh] | 11.43 | 9.67 | 0.00 | 7.57 | 9.51 | 18.95 | 8.07 |
| Lane Group LOS | B | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.25 | 0.11 | 0.00 | 0.50 | 1.09 | 0.05 | 1.19 |
| 50th-Percentile Queue Length [ft/ln] | 31.34 | 2.83 | 0.00 | 12.57 | 27.22 | 1.13 | 29.76 |
| 95th-Percentile Queue Length [veh/ln] | 2.26 | 0.20 | 0.00 | 0.91 | 1.96 | 0.08 | 2.14 |
| 95th-Percentile Queue Length [ft/ln] | 56.42 | 5.09 | 0.00 | 22.63 | 49.00 | 2.03 | 53.57 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 11.43 | 9.67 | 0.00 | 7.57 | 9.51 | 18.95 | 8.07 |
| Movement LOS | B | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 11.26 | | 8.46 | | | 8.24 | |
| Approach LOS | B | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.98 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.488 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 185.60 | 19.46 | 0.00 | 200.63 | 169.11 | 6.49 | 407.63 |
| Stops [stops/h] | 132.11 | 11.91 | 0.00 | 105.97 | 114.73 | 4.75 | 125.45 |
| Fuel consumption [US gal/h] | 8.95 | 0.92 | 0.00 | 8.96 | 8.08 | 0.31 | 17.99 |
| CO [g/h] | 625.41 | 64.17 | 0.00 | 626.50 | 564.69 | 21.86 | 1257.44 |
| NOx [g/h] | 121.68 | 12.49 | 0.00 | 121.89 | 109.87 | 4.25 | 244.65 |
| VOC [g/h] | 144.95 | 14.87 | 0.00 | 145.20 | 130.87 | 5.07 | 291.42 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.85 | 13.58 | 13.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.081 | 2.685 | 2.275 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1288 | 1873 | 1873 |
| d_b, Bicycle Delay [s] | 2.17 | 0.07 | 0.07 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 2.169 | 2.086 |
| Bicycle LOS | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 226.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.587 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 791 | 8 | 12 | 51 | 11 | 145 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 791 | 8 | 12 | 51 | 11 | 145 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 244 | 2 | 4 | 16 | 3 | 45 |
| Total Analysis Volume [veh/h] | 977 | 10 | 15 | 63 | 14 | 179 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 977 | 778 | 489 | 532 | 618 |
| Degree of Utilization, x | 1.59 | 0.01 | 0.03 | 0.12 | 0.31 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 52.21 | 0.04 | 0.09 | 0.40 | 1.33 |
| 95th-Percentile Queue Length [ft] | 1305.24 | 0.98 | 2.37 | 10.00 | 33.28 |
| Approach Delay [s/veh] | 285.01 | | 10.36 | | 11.46 |
| Approach LOS | F | | B | | B |
| Intersection Delay [s/veh] | 226.01 | | | | |
| Intersection LOS | F | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 54.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.696 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 114 | 38 | 12 | 2 | 112 | 708 | 136 | 212 | 54 | 44 | 562 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 354 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 114 | 38 | 12 | 2 | 112 | 354 | 136 | 212 | 54 | 44 | 562 | 12 |
| Peak Hour Factor | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 12 | 4 | 1 | 36 | 113 | 44 | 68 | 17 | 14 | 180 | 4 |
| Total Analysis Volume [veh/h] | 146 | 49 | 15 | 3 | 144 | 454 | 174 | 272 | 69 | 56 | 721 | 15 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 11 | 40 | 40 | 1 | 30 | 30 | 10 | 34 | 34 | 8 | 32 | 32 |
| g / C, Green / Cycle | 0.10 | 0.36 | 0.36 | 0.01 | 0.27 | 0.27 | 0.09 | 0.30 | 0.30 | 0.07 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.02 | 0.01 | 0.00 | 0.08 | 0.28 | 0.05 | 0.08 | 0.04 | 0.03 | 0.20 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 176 | 1111 | 566 | 15 | 485 | 425 | 287 | 971 | 466 | 125 | 1005 | 450 |
| d1, Uniform Delay [s] | 49.99 | 23.82 | 23.67 | 55.68 | 33.13 | 41.54 | 49.66 | 30.45 | 29.20 | 50.18 | 36.48 | 29.36 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.47 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.52 | 0.04 | 0.05 | 6.01 | 0.98 | 61.52 | 2.07 | 1.00 | 0.93 | 2.52 | 6.01 | 0.19 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.04 | 0.03 | 0.19 | 0.30 | 1.07 | 0.61 | 0.28 | 0.15 | 0.45 | 0.72 | 0.03 |
| d, Delay for Lane Group [s/veh] | 59.50 | 23.87 | 23.72 | 61.68 | 34.11 | 103.06 | 51.73 | 31.44 | 30.13 | 52.70 | 42.50 | 29.55 |
| Lane Group LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.50 | 0.44 | 0.27 | 0.11 | 3.28 | 18.93 | 2.45 | 2.98 | 1.50 | 1.60 | 9.72 | 0.32 |
| 50th-Percentile Queue Length [ft/ln] | 112.62 | 10.94 | 6.75 | 2.76 | 82.09 | 473.22 | 61.18 | 74.45 | 37.60 | 40.10 | 242.90 | 8.03 |
| 95th-Percentile Queue Length [veh/ln] | 7.99 | 0.79 | 0.49 | 0.20 | 5.91 | 27.11 | 4.41 | 5.36 | 2.71 | 2.89 | 14.83 | 0.58 |
| 95th-Percentile Queue Length [ft/ln] | 199.64 | 19.69 | 12.15 | 4.97 | 147.77 | 677.87 | 110.13 | 134.00 | 67.67 | 72.19 | 370.70 | 14.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 59.50 | 23.87 | 23.72 | 61.68 | 34.11 | 103.06 | 51.73 | 31.44 | 30.13 | 52.70 | 42.50 | 29.55 |
| Movement LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 48.63 | | | 86.34 | | | 38.12 | | | 42.97 | | |
| Approach LOS | D | | | F | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 54.66 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.696 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.53 | 4.20 | 1.29 | 0.82 | 39.48 | 124.49 | 24.05 | 37.59 | 9.54 | 69.84 | 899.24 | 18.71 |
| Stops [stops/h] | 143.56 | 27.89 | 8.60 | 3.52 | 104.65 | 603.22 | 155.98 | 189.80 | 47.92 | 51.12 | 619.27 | 10.23 |
| Fuel consumption [US gal/h] | 3.08 | 0.57 | 0.17 | 0.09 | 3.20 | 17.98 | 3.68 | 4.34 | 1.08 | 3.76 | 46.67 | 0.92 |
| CO [g/h] | 215.05 | 39.50 | 12.09 | 6.36 | 223.90 | 1256.65 | 257.46 | 303.12 | 75.52 | 262.70 | 3262.55 | 64.09 |
| NOx [g/h] | 41.84 | 7.69 | 2.35 | 1.24 | 43.56 | 244.50 | 50.09 | 58.98 | 14.69 | 51.11 | 634.77 | 12.47 |
| VOC [g/h] | 49.84 | 9.16 | 2.80 | 1.47 | 51.89 | 291.24 | 59.67 | 70.25 | 17.50 | 60.88 | 756.13 | 14.85 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.02 | 46.02 | 46.02 | 46.02 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.404 | 3.047 | 2.910 | 2.640 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 354 | 531 | 708 | 708 |
| d_b, Bicycle Delay [s] | 38.25 | 30.47 | 23.56 | 23.56 |
| l_b,int, Bicycle LOS Score for Intersection | 1.733 | 3.135 | 1.984 | 2.213 |
| Bicycle LOS | A | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.386 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 58 | 2 | 123 | 136 | 240 | 45 | 171 | 13 | 2 | 322 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 58 | 2 | 123 | 136 | 240 | 45 | 171 | 13 | 2 | 322 | 96 |
| Peak Hour Factor | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 17 | 1 | 37 | 40 | 71 | 13 | 51 | 4 | 1 | 96 | 29 |
| Total Analysis Volume [veh/h] | 36 | 69 | 2 | 146 | 162 | 286 | 54 | 204 | 15 | 2 | 383 | 114 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 14 | 9 | 18 | 18 | 7 | 18 | 18 | 0 | 12 | 12 |
| g / C, Green / Cycle | 0.07 | 0.19 | 0.13 | 0.25 | 0.25 | 0.09 | 0.26 | 0.26 | 0.01 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.04 | 0.04 | 0.09 | 0.18 | 0.02 | 0.06 | 0.01 | 0.00 | 0.11 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1762 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 128 | 337 | 455 | 467 | 403 | 314 | 893 | 415 | 11 | 623 | 489 |
| d1, Uniform Delay [s] | 31.68 | 24.59 | 28.40 | 22.20 | 24.65 | 30.17 | 21.16 | 20.11 | 35.68 | 27.55 | 25.64 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.44 | 1.06 | 0.15 | 2.51 | 12.39 | 0.10 | 0.28 | 0.08 | 3.04 | 2.11 | 0.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.28 | 0.21 | 0.32 | 0.35 | 0.71 | 0.17 | 0.23 | 0.04 | 0.19 | 0.62 | 0.23 |
| d, Delay for Lane Group [s/veh] | 32.13 | 25.65 | 28.54 | 24.71 | 37.05 | 30.27 | 21.44 | 20.18 | 38.72 | 29.66 | 26.16 |
| Lane Group LOS | C | C | C | C | D | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.59 | 1.08 | 1.04 | 2.31 | 5.28 | 0.42 | 1.33 | 0.19 | 0.04 | 2.76 | 0.75 |
| 50th-Percentile Queue Length [ft/ln] | 14.79 | 27.06 | 26.08 | 57.76 | 131.95 | 10.57 | 33.32 | 4.75 | 1.00 | 69.12 | 18.76 |
| 95th-Percentile Queue Length [veh/ln] | 1.06 | 1.95 | 1.88 | 4.16 | 9.05 | 0.76 | 2.40 | 0.34 | 0.07 | 4.98 | 1.35 |
| 95th-Percentile Queue Length [ft/ln] | 26.62 | 48.71 | 46.94 | 103.98 | 226.15 | 19.03 | 59.97 | 8.55 | 1.80 | 124.42 | 33.77 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.13 | 25.65 | 25.65 | 28.54 | 24.71 | 37.05 | 30.27 | 21.44 | 20.18 | 38.72 | 29.66 | 26.16 |
| Movement LOS | C | C | C | C | C | D | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.83 | | | 31.59 | | | 23.12 | | | 28.90 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.84 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.386 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.67 | 5.26 | 189.53 | 210.31 | 371.28 | 67.35 | 254.43 | 18.71 | 0.35 | 66.25 | 19.72 |
| Stops [stops/h] | 29.59 | 54.15 | 104.37 | 115.59 | 264.05 | 42.30 | 133.33 | 9.51 | 2.00 | 276.64 | 75.08 |
| Fuel consumption [US gal/h] | 0.51 | 0.89 | 8.80 | 9.63 | 18.64 | 3.34 | 12.10 | 0.88 | 0.08 | 11.85 | 3.26 |
| CO [g/h] | 35.55 | 61.95 | 614.94 | 673.25 | 1303.13 | 233.38 | 845.84 | 61.81 | 5.58 | 828.32 | 227.69 |
| NOx [g/h] | 6.92 | 12.05 | 119.64 | 130.99 | 253.54 | 45.41 | 164.57 | 12.03 | 1.09 | 161.16 | 44.30 |
| VOC [g/h] | 8.24 | 14.36 | 142.52 | 156.03 | 302.01 | 54.09 | 196.03 | 14.33 | 1.29 | 191.97 | 52.77 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.82 | 25.82 | 25.82 | 25.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.021 | 2.666 | 2.718 | 2.838 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 556 | 556 | 834 | 834 |
| d_b, Bicycle Delay [s] | 18.76 | 18.76 | 12.23 | 12.23 |
| l_b,int, Bicycle LOS Score for Intersection | 1.736 | 2.540 | 1.785 | 1.971 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.149 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 125 | 0 | 274 | 346 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 125 | 0 | 274 | 346 | 1 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 31 | 0 | 69 | 87 | 0 |
| Total Analysis Volume [veh/h] | 0 | 125 | 0 | 274 | 346 | 1 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.78 | 10.03 | 7.98 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 0.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 13.04 | 13.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.03 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.68 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.228 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 229 | 0 | 0 | 26 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 229 | 0 | 0 | 26 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 57 | 0 | 0 | 7 | 0 | 0 |
| Total Analysis Volume [veh/h] | 229 | 0 | 0 | 26 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.63 | 9.42 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.88 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 21.90 | 21.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.63 | | 0.00 | | 3.63 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 8.65 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240628.vistro
Report File: \...\Near Term PM Plus Proj.pdf

Scenario 14 Near Term PM Plus Proj
7/8/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Left | 0.587 | 25.4 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.502 | 24.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Right | 0.678 | 33.3 | C |
| 4 | Minnewawa Ave & International Ave | Two-way stop | HCM 7th Edition | WB Left | 0.023 | 47.8 | E |
| 5 | Minnewawa Ave & Behymer Ave | All-way stop | HCM 7th Edition | SB Thru | 1.625 | 220.2 | F |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.703 | 30.5 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.720 | 41.4 | D |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.749 | 37.6 | D |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Left | 0.715 | 31.8 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.935 | 71.8 | E |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.830 | 54.6 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.577 | 13.6 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.734 | 18.7 | C |
| 17 | Sunnyside Ave & Nees Ave | All-way stop | HCM 7th Edition | NB Thru | 2.549 | 344.9 | F |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.695 | 27.1 | C |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.820 | 49.4 | D |
| 20 | Fowler Ave & Behymer Ave | All-way stop | HCM 7th Edition | NB Left | 1.224 | 109.5 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 1.196 | 202.2 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.625 | 21.6 | C |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | EB Left | 0.503 | 63.1 | F |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.758 | 23.2 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.673 | 21.5 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.572 | 14.3 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.757 | 30.1 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.031 | 21.3 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.002 | 12.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.086 | 12.0 | B |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.829 | 63.6 | E |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.669 | 23.0 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 9.8 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.423 | 4.9 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.010 | 75.1 | E |
| 36 | Locan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Thru | 0.507 | 652.2 | F |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | EB Left | 0.771 | 18.3 | C |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.547 | 10.4 | B |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | All-way stop | HCM 7th Edition | WB Right | 1.199 | 91.9 | F |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | EB Left | 0.565 | 55.9 | E |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.212 | 24.1 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.188 | 10.3 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.112 | 9.5 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.587 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 280 | 616 | 30 | 184 | 296 | 90 | 9 | 117 | 245 | 11 | 111 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 280 | 616 | 30 | 184 | 296 | 90 | 9 | 117 | 245 | 11 | 111 | 65 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 80 | 175 | 9 | 52 | 84 | 26 | 3 | 33 | 70 | 3 | 32 | 18 |
| Total Analysis Volume [veh/h] | 318 | 700 | 34 | 209 | 336 | 102 | 10 | 133 | 278 | 13 | 126 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 9 | 23 | 23 | 10 | 23 | 23 | 1 | 17 | 17 | 2 | 16 | 16 |
| g / C, Green / Cycle | 0.12 | 0.32 | 0.32 | 0.14 | 0.32 | 0.32 | 0.02 | 0.23 | 0.23 | 0.03 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.19 | 0.02 | 0.12 | 0.07 | 0.06 | 0.01 | 0.07 | 0.17 | 0.01 | 0.07 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 3618 | 1615 | 1810 | 5159 | 1615 | 1810 | 1900 | 1604 | 1810 | 1864 | 1615 |
| c, Capacity [veh/h] | 424 | 1146 | 512 | 255 | 1668 | 522 | 37 | 436 | 368 | 47 | 423 | 366 |
| d1, Uniform Delay [s] | 30.82 | 20.98 | 17.29 | 30.25 | 17.76 | 17.72 | 34.98 | 23.13 | 26.02 | 34.66 | 23.25 | 22.72 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.01 | 1.72 | 0.18 | 2.49 | 0.19 | 0.59 | 1.45 | 0.92 | 7.21 | 1.20 | 0.67 | 0.46 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.61 | 0.07 | 0.82 | 0.20 | 0.20 | 0.27 | 0.30 | 0.75 | 0.28 | 0.30 | 0.20 |
| d, Delay for Lane Group [s/veh] | 31.83 | 22.70 | 17.46 | 32.74 | 17.95 | 18.31 | 36.43 | 24.05 | 33.23 | 35.85 | 23.92 | 23.18 |
| Lane Group LOS | C | C | B | C | B | B | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.48 | 4.58 | 0.37 | 3.36 | 1.20 | 1.15 | 0.18 | 1.82 | 4.74 | 0.23 | 1.79 | 1.03 |
| 50th-Percentile Queue Length [ft/ln] | 62.12 | 114.59 | 9.25 | 83.98 | 30.11 | 28.82 | 4.42 | 45.38 | 118.58 | 5.85 | 44.71 | 25.70 |
| 95th-Percentile Queue Length [veh/ln] | 4.47 | 8.09 | 0.67 | 6.05 | 2.17 | 2.08 | 0.32 | 3.27 | 8.32 | 0.42 | 3.22 | 1.85 |
| 95th-Percentile Queue Length [ft/ln] | 111.82 | 202.37 | 16.65 | 151.16 | 54.19 | 51.88 | 7.96 | 81.68 | 207.88 | 10.53 | 80.48 | 46.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.83 | 22.70 | 17.46 | 32.74 | 17.95 | 18.31 | 36.43 | 24.05 | 33.23 | 35.85 | 23.92 | 23.18 |
| Movement LOS | C | C | B | C | B | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.29 | | | 22.79 | | | 30.41 | | | 24.39 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.44 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.587 | | | | | | | | | | | |

**Emissions**

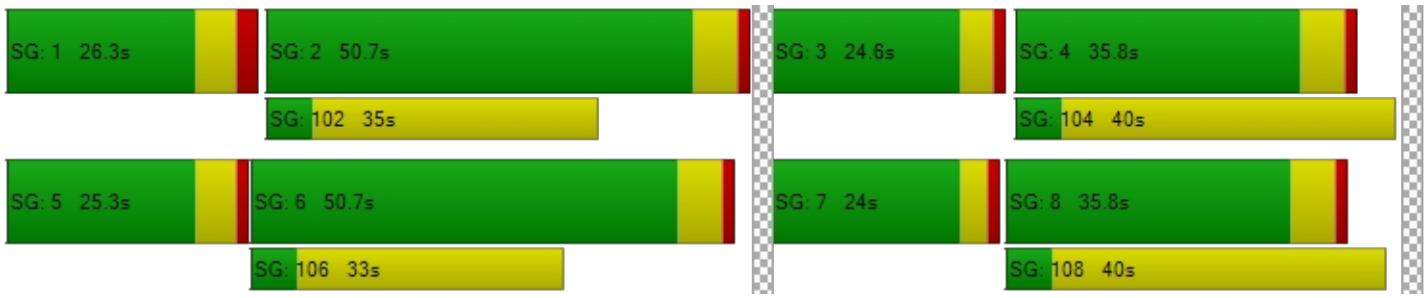
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 160.53 | 353.36 | 17.16 | 20.59 | 33.10 | 10.05 | 1.00 | 13.25 | 27.69 | 13.49 | 130.73 | 76.78 |
| Stops [stops/h] | 247.43 | 456.43 | 18.42 | 167.24 | 179.87 | 57.40 | 8.81 | 90.37 | 236.16 | 11.65 | 89.04 | 51.19 |
| Fuel consumption [US gal/h] | 11.23 | 22.07 | 0.98 | 4.65 | 5.10 | 1.60 | 0.22 | 2.23 | 5.77 | 0.71 | 6.49 | 3.79 |
| CO [g/h] | 785.24 | 1542.95 | 68.39 | 324.97 | 356.28 | 111.67 | 15.22 | 155.78 | 403.00 | 49.94 | 453.43 | 265.10 |
| NOx [g/h] | 152.78 | 300.20 | 13.31 | 63.23 | 69.32 | 21.73 | 2.96 | 30.31 | 78.41 | 9.72 | 88.22 | 51.58 |
| VOC [g/h] | 181.99 | 357.59 | 15.85 | 75.31 | 82.57 | 25.88 | 3.53 | 36.10 | 93.40 | 11.57 | 105.09 | 61.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.71 | 27.71 | 27.71 | 27.71 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.057 | 2.917 | 2.573 | 2.265 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1245 | 1245 | 830 | 830 |
| d_b, Bicycle Delay [s] | 5.16 | 5.16 | 12.38 | 12.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.428 | 1.915 | 2.254 | 1.911 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.502 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 75.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 879 | 154 | 109 | 464 | 47 | 19 | 99 | 150 | 67 | 156 | 111 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 879 | 154 | 109 | 464 | 47 | 19 | 99 | 150 | 67 | 156 | 111 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 239 | 42 | 30 | 126 | 13 | 5 | 27 | 41 | 18 | 42 | 30 |
| Total Analysis Volume [veh/h] | 97 | 955 | 167 | 118 | 504 | 51 | 21 | 108 | 163 | 73 | 170 | 121 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 29 | 29 | 7 | 29 | 29 | 3 | 14 | 14 | 6 | 16 |
| g / C, Green / Cycle | 0.09 | 0.36 | 0.36 | 0.09 | 0.37 | 0.37 | 0.04 | 0.18 | 0.18 | 0.08 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.18 | 0.10 | 0.07 | 0.10 | 0.03 | 0.01 | 0.06 | 0.10 | 0.04 | 0.16 |
| s, saturation flow rate [veh/h] | 1781 | 5176 | 1615 | 1810 | 5135 | 1615 | 1810 | 1882 | 1605 | 1810 | 1770 |
| c, Capacity [veh/h] | 159 | 1884 | 588 | 169 | 1892 | 595 | 69 | 345 | 294 | 147 | 365 |
| d1, Uniform Delay [s] | 34.85 | 19.70 | 17.92 | 34.91 | 17.57 | 16.36 | 37.21 | 28.13 | 29.51 | 34.95 | 29.96 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.41 | 0.69 | 0.85 | 1.93 | 0.24 | 0.20 | 0.93 | 0.62 | 1.97 | 0.97 | 8.61 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.61 | 0.51 | 0.28 | 0.70 | 0.27 | 0.09 | 0.31 | 0.31 | 0.55 | 0.50 | 0.80 |
| d, Delay for Lane Group [s/veh] | 36.26 | 20.39 | 18.77 | 36.84 | 17.82 | 16.56 | 38.14 | 28.75 | 31.48 | 35.92 | 38.57 |
| Lane Group LOS | D | C | B | D | B | B | D | C | C | D | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.73 | 4.11 | 2.04 | 2.13 | 1.93 | 0.57 | 0.40 | 1.74 | 2.82 | 1.36 | 5.96 |
| 50th-Percentile Queue Length [ft/ln] | 43.27 | 102.68 | 51.04 | 53.29 | 48.18 | 14.14 | 9.93 | 43.49 | 70.53 | 33.99 | 148.99 |
| 95th-Percentile Queue Length [veh/ln] | 3.12 | 7.39 | 3.67 | 3.84 | 3.47 | 1.02 | 0.71 | 3.13 | 5.08 | 2.45 | 9.96 |
| 95th-Percentile Queue Length [ft/ln] | 77.88 | 184.82 | 91.87 | 95.92 | 86.72 | 25.46 | 17.87 | 78.28 | 126.96 | 61.18 | 249.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.26 | 20.39 | 18.77 | 36.84 | 17.82 | 16.56 | 38.14 | 28.75 | 31.48 | 35.92 | 38.57 | 38.57 |
| Movement LOS | D | C | B | D | B | B | D | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 21.43 | | | 21.06 | | | 30.95 | | | 38.04 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 24.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.502 | | | | | | | | | | | |

**Emissions**

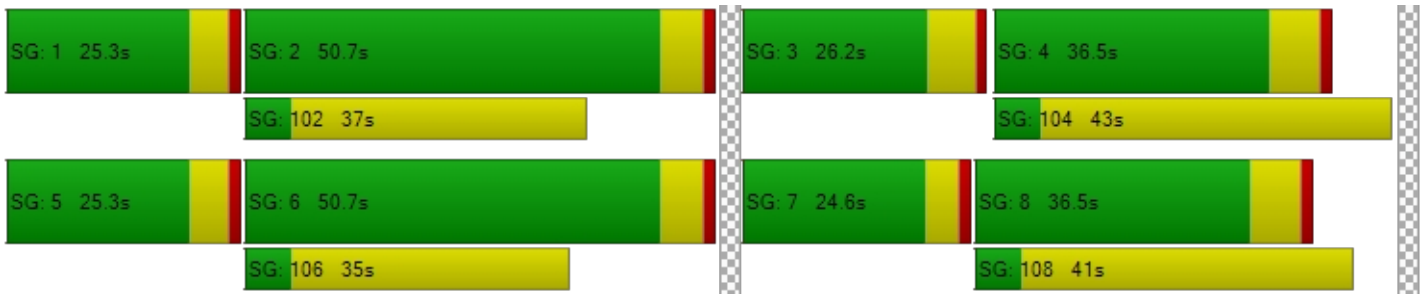
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 98.27 | 967.48 | 169.18 | 59.57 | 254.42 | 25.75 | 2.28 | 11.75 | 17.73 | 75.73 | 301.89 |
| Stops [stops/h] | 78.59 | 559.48 | 92.70 | 96.79 | 262.53 | 25.69 | 18.03 | 78.99 | 128.11 | 61.74 | 270.62 |
| Fuel consumption [US gal/h] | 5.21 | 44.95 | 7.73 | 4.37 | 14.38 | 1.43 | 0.42 | 1.83 | 2.94 | 3.99 | 16.21 |
| CO [g/h] | 364.38 | 3142.03 | 540.09 | 305.13 | 1004.98 | 99.85 | 29.49 | 127.82 | 205.36 | 279.07 | 1132.85 |
| NOx [g/h] | 70.90 | 611.32 | 105.08 | 59.37 | 195.53 | 19.43 | 5.74 | 24.87 | 39.96 | 54.30 | 220.41 |
| VOC [g/h] | 84.45 | 728.19 | 125.17 | 70.72 | 232.91 | 23.14 | 6.83 | 29.62 | 47.59 | 64.68 | 262.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.15 | 31.15 | 31.15 | 31.15 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.119 | 3.080 | 2.325 | 2.181 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1135 | 1135 | 757 | 757 |
| d_b, Bicycle Delay [s] | 7.41 | 7.41 | 15.32 | 15.32 |
| l_b,int, Bicycle LOS Score for Intersection | 2.230 | 1.930 | 2.041 | 2.160 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.678 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 235 | 960 | 579 | 77 | 957 | 121 | 224 | 257 | 121 | 239 | 250 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 235 | 960 | 579 | 77 | 957 | 121 | 224 | 257 | 121 | 239 | 250 | 27 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 267 | 161 | 21 | 266 | 34 | 62 | 71 | 34 | 66 | 69 | 8 |
| Total Analysis Volume [veh/h] | 261 | 1067 | 643 | 86 | 1063 | 134 | 249 | 286 | 134 | 266 | 278 | 30 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| l1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| l2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 9 | 35 | 35 | 7 | 33 | 33 | 8 | 12 | 12 | 9 | 13 | 13 |
| g / C, Green / Cycle | 0.10 | 0.40 | 0.40 | 0.08 | 0.38 | 0.38 | 0.10 | 0.13 | 0.13 | 0.10 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.21 | 0.40 | 0.02 | 0.21 | 0.08 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.02 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1592 | 3514 | 3600 | 1580 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 355 | 2056 | 640 | 284 | 1936 | 602 | 343 | 482 | 211 | 361 | 552 | 246 |
| d1, Uniform Delay [s] | 38.36 | 20.07 | 26.46 | 38.06 | 21.47 | 18.57 | 38.54 | 35.84 | 35.98 | 38.31 | 34.21 | 32.18 |
| k, delay calibration | 0.04 | 0.35 | 0.47 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.12 | 0.66 | 35.74 | 0.22 | 0.79 | 0.60 | 1.11 | 2.75 | 7.22 | 1.12 | 0.98 | 0.30 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.52 | 1.00 | 0.30 | 0.55 | 0.22 | 0.73 | 0.59 | 0.63 | 0.74 | 0.50 | 0.12 |
| d, Delay for Lane Group [s/veh] | 39.48 | 20.73 | 62.20 | 38.28 | 22.26 | 19.17 | 39.65 | 38.58 | 43.20 | 39.42 | 35.19 | 32.48 |
| Lane Group LOS | D | C | F | D | C | B | D | D | D | D | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.61 | 4.99 | 17.89 | 0.83 | 5.21 | 1.76 | 2.49 | 2.87 | 2.96 | 2.66 | 2.61 | 0.54 |
| 50th-Percentile Queue Length [ft/ln] | 65.24 | 124.67 | 447.13 | 20.72 | 130.19 | 43.95 | 62.32 | 71.87 | 73.88 | 66.46 | 65.37 | 13.40 |
| 95th-Percentile Queue Length [veh/ln] | 4.70 | 8.65 | 24.90 | 1.49 | 8.95 | 3.16 | 4.49 | 5.17 | 5.32 | 4.78 | 4.71 | 0.97 |
| 95th-Percentile Queue Length [ft/ln] | 117.43 | 216.23 | 622.58 | 37.29 | 223.76 | 79.10 | 112.18 | 129.36 | 132.98 | 119.62 | 117.67 | 24.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.48 | 20.73 | 62.20 | 38.28 | 22.26 | 19.17 | 39.65 | 38.58 | 43.20 | 39.42 | 35.19 | 32.48 |
| Movement LOS | D | C | F | D | C | B | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 36.74 | | | 23.01 | | | 39.91 | | | 37.01 | | |
| Approach LOS | D | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.33 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.678 | | | | | | | | | | | |

**Emissions**

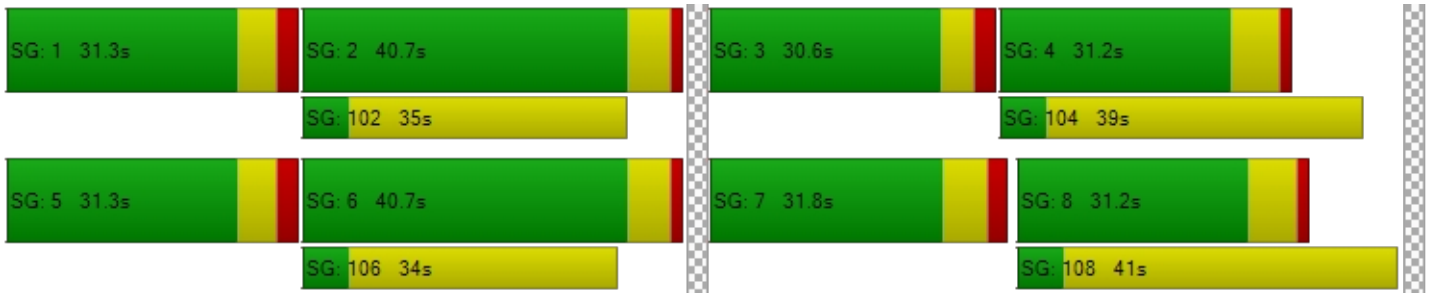
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.59 | 174.09 | 104.91 | 87.12 | 1076.89 | 135.75 | 32.54 | 37.37 | 17.51 | 275.59 | 288.03 | 31.08 |
| Stops [stops/h] | 214.26 | 614.16 | 734.21 | 68.04 | 641.34 | 72.16 | 204.66 | 236.03 | 121.31 | 218.25 | 214.68 | 22.01 |
| Fuel consumption [US gal/h] | 6.81 | 19.76 | 22.92 | 4.63 | 50.72 | 6.18 | 6.24 | 7.12 | 3.63 | 14.71 | 14.93 | 1.58 |
| CO [g/h] | 476.16 | 1381.20 | 1602.21 | 323.78 | 3545.59 | 431.75 | 436.20 | 497.70 | 253.49 | 1028.45 | 1043.72 | 110.23 |
| NOx [g/h] | 92.64 | 268.73 | 311.73 | 63.00 | 689.84 | 84.00 | 84.87 | 96.83 | 49.32 | 200.10 | 203.07 | 21.45 |
| VOC [g/h] | 110.36 | 320.11 | 371.33 | 75.04 | 821.72 | 100.06 | 101.09 | 115.35 | 58.75 | 238.35 | 241.89 | 25.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2604.79 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.31 | 35.31 | 35.31 | 35.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.469 | 3.324 | 2.906 | 3.048 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 798 | 798 | 570 | 570 |
| d_b, Bicycle Delay [s] | 15.83 | 15.83 | 22.48 | 22.41 |
| l_b,int, Bicycle LOS Score for Intersection | 2.644 | 2.265 | 2.112 | 2.033 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 47.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.023 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 198 | 218 | 2 | 1 | 269 | 11 | 20 | 0 | 286 | 2 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 198 | 218 | 2 | 1 | 269 | 11 | 20 | 0 | 286 | 2 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 54 | 59 | 1 | 0 | 73 | 3 | 5 | 0 | 78 | 1 | 0 | 0 |
| Total Analysis Volume [veh/h] | 215 | 237 | 2 | 1 | 292 | 12 | 22 | 0 | 311 | 2 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.42 | 0.02 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.13 | 0.00 | 0.00 | 7.71 | 0.00 | 0.00 | 30.51 | 29.00 | 16.28 | 47.81 | 23.67 | 10.46 |
| Movement LOS | A | A | A | A | A | A | D | D | C | E | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.41 | 0.41 | 0.41 | 0.00 | 0.00 | 0.00 | 3.17 | 3.17 | 3.17 | 0.07 | 0.07 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 10.17 | 10.17 | 10.17 | 0.04 | 0.04 | 0.04 | 79.20 | 79.20 | 79.20 | 1.77 | 1.77 | 1.77 |
| d_A, Approach Delay [s/veh] | 3.85 | | | 0.03 | | | 17.22 | | | 47.81 | | |
| Approach LOS | A | | | A | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 6.93 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 220.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.625 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 78 | 192 | 83 | 227 | 326 | 5 | 4 | 307 | 49 | 23 | 288 | 252 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 192 | 83 | 227 | 326 | 5 | 4 | 307 | 49 | 23 | 288 | 252 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 52 | 23 | 62 | 89 | 1 | 1 | 83 | 13 | 6 | 78 | 68 |
| Total Analysis Volume [veh/h] | 85 | 209 | 90 | 247 | 354 | 5 | 4 | 334 | 53 | 25 | 313 | 274 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 384 | 606 | 391 | 612 |
| Degree of Utilization, x | 1.01 | 1.62 | 1.03 | 1.58 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 12.26 | 35.52 | 12.89 | 34.76 |
| 95th-Percentile Queue Length [ft] | 306.39 | 887.97 | 322.31 | 868.98 |
| Approach Delay [s/veh] | 80.56 | 316.88 | 86.55 | 297.63 |
| Approach LOS | F | F | F | F |
| Intersection Delay [s/veh] | 220.25 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.703 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 422 | 289 | 43 | 84 | 258 | 38 | 90 | 346 | 144 | 22 | 211 | 50 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 422 | 289 | 43 | 84 | 258 | 38 | 90 | 346 | 144 | 22 | 211 | 50 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 113 | 78 | 12 | 23 | 69 | 10 | 24 | 93 | 39 | 6 | 57 | 13 |
| Total Analysis Volume [veh/h] | 454 | 311 | 46 | 90 | 277 | 41 | 97 | 372 | 155 | 24 | 227 | 54 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 22 | 30 | 30 | 9 | 18 | 10 | 19 | 19 | 5 | 14 | 14 |
| g / C, Green / Cycle | 0.28 | 0.38 | 0.38 | 0.12 | 0.22 | 0.12 | 0.24 | 0.24 | 0.06 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.16 | 0.03 | 0.05 | 0.17 | 0.05 | 0.10 | 0.10 | 0.01 | 0.12 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1886 | 1615 | 1810 | 1849 | 1810 | 3618 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 500 | 716 | 613 | 218 | 414 | 223 | 864 | 386 | 104 | 328 | 279 |
| d1, Uniform Delay [s] | 27.48 | 18.11 | 15.57 | 32.00 | 28.60 | 31.93 | 25.39 | 25.20 | 35.40 | 30.55 | 27.83 |
| k, delay calibration | 0.29 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 15.01 | 0.42 | 0.05 | 1.25 | 3.03 | 1.33 | 0.34 | 0.68 | 1.12 | 2.60 | 0.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.91 | 0.43 | 0.08 | 0.41 | 0.77 | 0.43 | 0.43 | 0.40 | 0.23 | 0.69 | 0.19 |
| d, Delay for Lane Group [s/veh] | 42.48 | 18.53 | 15.62 | 33.25 | 31.63 | 33.26 | 25.73 | 25.87 | 36.53 | 33.15 | 28.16 |
| Lane Group LOS | D | B | B | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 9.49 | 3.80 | 0.48 | 1.55 | 5.48 | 1.65 | 2.70 | 2.27 | 0.44 | 3.91 | 0.82 |
| 50th-Percentile Queue Length [ft/ln] | 237.24 | 94.88 | 12.02 | 38.85 | 137.00 | 41.33 | 67.39 | 56.70 | 11.00 | 97.74 | 20.54 |
| 95th-Percentile Queue Length [veh/ln] | 14.54 | 6.83 | 0.87 | 2.80 | 9.32 | 2.98 | 4.85 | 4.08 | 0.79 | 7.04 | 1.48 |
| 95th-Percentile Queue Length [ft/ln] | 363.54 | 170.79 | 21.64 | 69.93 | 232.98 | 74.39 | 121.30 | 102.05 | 19.81 | 175.94 | 36.98 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.48 | 18.53 | 15.62 | 33.25 | 31.63 | 31.63 | 33.26 | 25.73 | 25.87 | 36.53 | 33.15 | 28.16 |
| Movement LOS | D | B | B | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 31.77 | | | 31.99 | | | 26.94 | | | 32.53 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.52 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.703 | | | | | | | | | | | |

**Emissions**

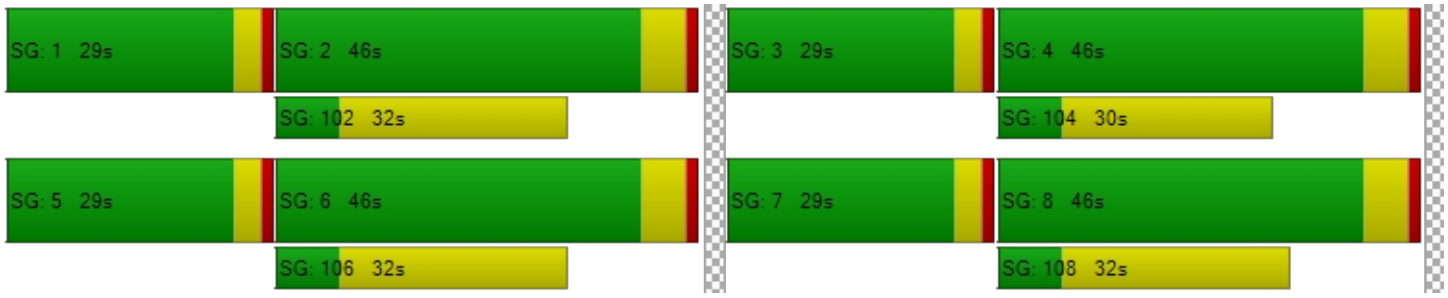
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 54.35 | 37.23 | 5.51 | 90.42 | 319.50 | 100.50 | 385.42 | 160.59 | 12.02 | 113.68 | 27.04 |
| Stops [stops/h] | 435.17 | 174.04 | 22.05 | 71.26 | 251.30 | 75.81 | 247.21 | 104.00 | 20.18 | 179.29 | 37.68 |
| Fuel consumption [US gal/h] | 11.20 | 4.61 | 0.61 | 4.59 | 16.12 | 5.19 | 18.65 | 7.79 | 0.89 | 8.09 | 1.79 |
| CO [g/h] | 782.79 | 322.44 | 42.58 | 321.15 | 1127.01 | 362.49 | 1303.60 | 544.55 | 62.26 | 565.50 | 125.37 |
| NOx [g/h] | 152.30 | 62.73 | 8.28 | 62.48 | 219.27 | 70.53 | 253.63 | 105.95 | 12.11 | 110.03 | 24.39 |
| VOC [g/h] | 181.42 | 74.73 | 9.87 | 74.43 | 261.19 | 84.01 | 302.12 | 126.20 | 14.43 | 131.06 | 29.05 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.02 | 29.02 | 29.02 | 29.02 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.587 | 2.357 | 2.810 | 2.556 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1019 | 1019 | 1019 | 1019 |
| d_b, Bicycle Delay [s] | 9.44 | 9.44 | 9.44 | 9.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.898 | 2.233 | 2.074 | 2.063 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 254 | 0 | 0 | 136 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 254 | 0 | 0 | 136 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 0 | 0 | 34 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 254 | 0 | 0 | 136 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 41.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.720 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 612 | 39 | 180 | 10 | 24 | 26 | 37 | 266 | 255 | 261 | 123 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 612 | 39 | 180 | 10 | 24 | 26 | 37 | 266 | 255 | 261 | 123 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 161 | 10 | 47 | 3 | 6 | 7 | 10 | 70 | 67 | 69 | 32 | 2 |
| Total Analysis Volume [veh/h] | 644 | 41 | 189 | 11 | 25 | 27 | 39 | 280 | 268 | 275 | 129 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 32 | 37 | 37 | 4 | 9 | 9 | 8 | 21 | 21 | 12 | 24 | 24 |
| g / C, Green / Cycle | 0.36 | 0.41 | 0.41 | 0.05 | 0.10 | 0.10 | 0.09 | 0.23 | 0.23 | 0.13 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.02 | 0.12 | 0.00 | 0.01 | 0.02 | 0.01 | 0.08 | 0.17 | 0.08 | 0.04 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1879 | 1595 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1611 |
| c, Capacity [veh/h] | 644 | 774 | 657 | 160 | 367 | 164 | 311 | 839 | 373 | 431 | 992 | 442 |
| d1, Uniform Delay [s] | 28.62 | 15.71 | 17.44 | 40.60 | 36.11 | 36.47 | 37.32 | 28.41 | 31.45 | 36.60 | 24.26 | 23.50 |
| k, delay calibration | 0.49 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 35.20 | 0.06 | 0.54 | 0.07 | 0.40 | 2.38 | 0.07 | 0.34 | 3.80 | 0.59 | 0.09 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.00 | 0.05 | 0.29 | 0.07 | 0.07 | 0.16 | 0.13 | 0.33 | 0.72 | 0.64 | 0.13 | 0.02 |
| d, Delay for Lane Group [s/veh] | 63.81 | 15.78 | 17.97 | 40.67 | 36.51 | 38.86 | 37.39 | 28.75 | 35.25 | 37.19 | 24.34 | 23.52 |
| Lane Group LOS | F | B | B | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 18.57 | 0.47 | 2.44 | 0.12 | 0.26 | 0.64 | 0.37 | 2.34 | 5.26 | 2.81 | 1.02 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 464.37 | 11.78 | 60.95 | 2.88 | 6.57 | 15.93 | 9.28 | 58.46 | 131.61 | 70.37 | 25.38 | 2.70 |
| 95th-Percentile Queue Length [veh/ln] | 25.65 | 0.85 | 4.39 | 0.21 | 0.47 | 1.15 | 0.67 | 4.21 | 9.03 | 5.07 | 1.83 | 0.19 |
| 95th-Percentile Queue Length [ft/ln] | 641.29 | 21.20 | 109.71 | 5.19 | 11.82 | 28.68 | 16.70 | 105.22 | 225.67 | 126.67 | 45.69 | 4.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 63.81 | 15.78 | 17.97 | 40.67 | 36.51 | 38.86 | 37.39 | 28.75 | 35.25 | 37.19 | 24.34 | 23.52 |
| Movement LOS | F | B | B | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 51.65 | | | 38.24 | | | 32.29 | | | 32.93 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 41.36 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.720 | | | | | | | | | | | |

**Emissions**

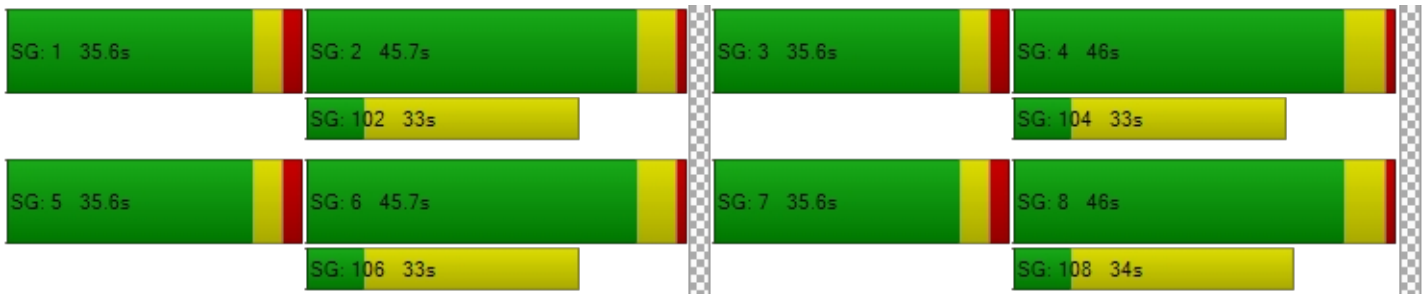
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 655.68 | 41.74 | 192.43 | 11.37 | 25.84 | 27.91 | 19.53 | 140.22 | 134.21 | 137.86 | 64.67 | 3.51 |
| Stops [stops/h] | 753.98 | 19.12 | 98.96 | 9.36 | 21.32 | 25.87 | 30.12 | 189.83 | 213.68 | 228.52 | 82.42 | 4.39 |
| Fuel consumption [US gal/h] | 40.21 | 1.80 | 8.52 | 0.61 | 1.37 | 1.51 | 1.41 | 9.25 | 9.70 | 9.02 | 3.76 | 0.20 |
| CO [g/h] | 2810.81 | 125.84 | 595.39 | 42.70 | 95.58 | 105.22 | 98.78 | 646.42 | 677.82 | 630.43 | 262.59 | 14.13 |
| NOx [g/h] | 546.88 | 24.48 | 115.84 | 8.31 | 18.60 | 20.47 | 19.22 | 125.77 | 131.88 | 122.66 | 51.09 | 2.75 |
| VOC [g/h] | 651.43 | 29.16 | 137.99 | 9.90 | 22.15 | 24.39 | 22.89 | 149.82 | 157.09 | 146.11 | 60.86 | 3.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5547.24 | 0.00 | 4578.61 |
| d_p, Pedestrian Delay [s] | 34.03 | 34.03 | 34.03 | 34.03 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.720 | 2.614 | 2.915 | 2.717 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 902 | 902 | 902 | 902 |
| d_b, Bicycle Delay [s] | 13.36 | 13.36 | 13.36 | 13.36 |
| l_b,int, Bicycle LOS Score for Intersection | 2.281 | 1.612 | 2.044 | 1.899 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.749 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 87 | 833 | 60 | 71 | 405 | 27 | 34 | 630 | 247 | 52 | 626 | 197 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 87 | 833 | 60 | 71 | 405 | 27 | 34 | 630 | 247 | 52 | 626 | 197 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 219 | 16 | 19 | 107 | 7 | 9 | 166 | 65 | 14 | 165 | 52 |
| Total Analysis Volume [veh/h] | 92 | 877 | 63 | 75 | 426 | 28 | 36 | 663 | 260 | 55 | 659 | 207 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 33 | 33 | 9 | 32 | 32 | 7 | 41 | 41 | 8 | 42 | 42 |
| g / C, Green / Cycle | 0.09 | 0.31 | 0.31 | 0.08 | 0.30 | 0.30 | 0.06 | 0.38 | 0.38 | 0.08 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.24 | 0.04 | 0.04 | 0.12 | 0.12 | 0.02 | 0.35 | 0.16 | 0.03 | 0.35 | 0.13 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1563 | 1801 | 1888 | 1847 | 1810 | 1897 | 1606 | 1810 | 1883 | 1615 |
| c, Capacity [veh/h] | 159 | 1110 | 481 | 151 | 574 | 561 | 112 | 727 | 615 | 137 | 747 | 641 |
| d1, Uniform Delay [s] | 46.88 | 33.84 | 26.69 | 46.83 | 29.48 | 29.50 | 48.00 | 31.28 | 24.28 | 47.11 | 29.91 | 22.31 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.43 | 0.17 | 0.04 | 0.43 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.25 | 1.97 | 0.19 | 0.94 | 0.69 | 0.71 | 0.61 | 15.71 | 0.71 | 0.71 | 12.38 | 0.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.79 | 0.13 | 0.50 | 0.40 | 0.40 | 0.32 | 0.91 | 0.42 | 0.40 | 0.88 | 0.32 |
| d, Delay for Lane Group [s/veh] | 48.12 | 35.82 | 26.87 | 47.77 | 30.17 | 30.21 | 48.61 | 46.99 | 24.98 | 47.82 | 42.30 | 22.73 |
| Lane Group LOS | D | D | C | D | C | C | D | D | C | D | D | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.33 | 10.13 | 1.14 | 1.89 | 4.56 | 4.49 | 0.91 | 18.18 | 4.69 | 1.38 | 17.08 | 3.47 |
| 50th-Percentile Queue Length [ft/ln] | 58.26 | 253.24 | 28.45 | 47.15 | 113.96 | 112.15 | 22.74 | 454.43 | 117.20 | 34.47 | 427.00 | 86.86 |
| 95th-Percentile Queue Length [veh/ln] | 4.19 | 15.35 | 2.05 | 3.39 | 8.06 | 7.96 | 1.64 | 25.17 | 8.24 | 2.48 | 23.86 | 6.25 |
| 95th-Percentile Queue Length [ft/ln] | 104.87 | 383.73 | 51.21 | 84.87 | 201.50 | 198.99 | 40.93 | 629.23 | 205.97 | 62.05 | 596.45 | 156.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.12 | 35.82 | 26.87 | 47.77 | 30.19 | 30.21 | 48.61 | 46.99 | 24.98 | 47.82 | 42.30 | 22.73 |
| Movement LOS | D | D | C | D | C | C | D | D | C | D | D | C |
| d_A, Approach Delay [s/veh] | 36.37 | | | 32.68 | | | 41.08 | | | 38.23 | | |
| Approach LOS | D | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 37.61 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.749 | | | | | | | | | | | |

**Emissions**

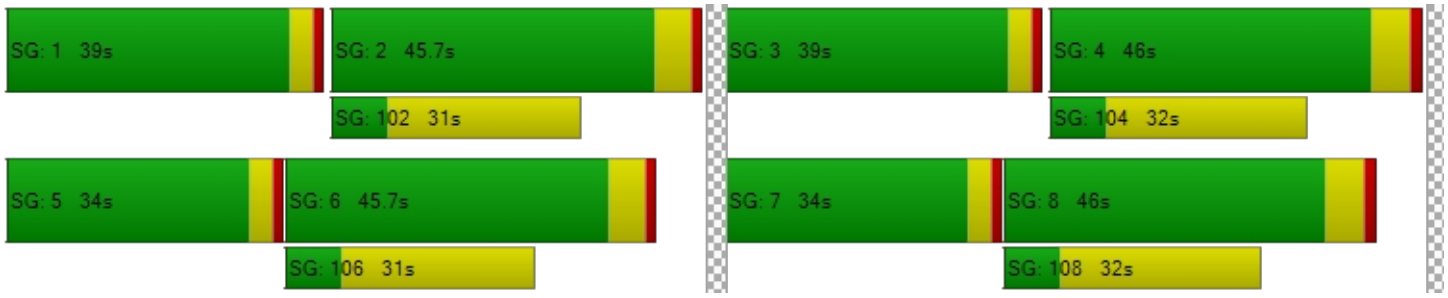
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.30 | 460.45 | 33.08 | 76.36 | 233.11 | 229.12 | 3.11 | 57.35 | 22.49 | 33.10 | 396.60 | 124.58 |
| Stops [stops/h] | 78.62 | 683.47 | 38.39 | 63.62 | 153.79 | 151.34 | 30.68 | 613.22 | 158.15 | 46.52 | 576.21 | 117.21 |
| Fuel consumption [US gal/h] | 3.53 | 30.67 | 1.96 | 4.14 | 11.31 | 11.12 | 0.84 | 15.93 | 4.06 | 2.25 | 26.43 | 6.69 |
| CO [g/h] | 247.03 | 2144.04 | 136.70 | 289.22 | 790.43 | 777.21 | 59.02 | 1113.44 | 283.72 | 157.14 | 1847.53 | 467.29 |
| NOx [g/h] | 48.06 | 417.15 | 26.60 | 56.27 | 153.79 | 151.22 | 11.48 | 216.64 | 55.20 | 30.57 | 359.46 | 90.92 |
| VOC [g/h] | 57.25 | 496.90 | 31.68 | 67.03 | 183.19 | 180.13 | 13.68 | 258.05 | 65.76 | 36.42 | 428.18 | 108.30 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 42.92 | 42.92 | 42.92 | 42.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.893 | 2.790 | 2.816 | 2.812 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 750 | 750 | 750 | 750 |
| d_b, Bicycle Delay [s] | 20.85 | 20.85 | 20.85 | 20.85 |
| l_b,int, Bicycle LOS Score for Intersection | 2.411 | 1.996 | 3.142 | 3.079 |
| Bicycle LOS | B | A | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.715 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 177 | 736 | 156 | 49 | 675 | 14 | 29 | 520 | 202 | 16 | 291 | 134 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 177 | 736 | 156 | 49 | 675 | 14 | 29 | 520 | 202 | 16 | 291 | 134 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 200 | 42 | 13 | 183 | 4 | 8 | 141 | 55 | 4 | 79 | 36 |
| Total Analysis Volume [veh/h] | 192 | 800 | 170 | 53 | 734 | 15 | 32 | 565 | 220 | 17 | 316 | 146 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 29 | 29 | 9 | 25 | 25 | 6 | 31 | 31 | 4 | 29 | 29 |
| g / C, Green / Cycle | 0.14 | 0.32 | 0.32 | 0.10 | 0.29 | 0.29 | 0.06 | 0.35 | 0.35 | 0.04 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.26 | 0.27 | 0.03 | 0.20 | 0.20 | 0.02 | 0.30 | 0.14 | 0.01 | 0.17 | 0.09 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1760 | 1810 | 1874 | 1860 | 1810 | 1874 | 1583 | 1761 | 1876 | 1583 |
| c, Capacity [veh/h] | 245 | 614 | 571 | 180 | 541 | 537 | 116 | 662 | 559 | 73 | 619 | 523 |
| d1, Uniform Delay [s] | 36.85 | 27.30 | 27.43 | 36.80 | 27.86 | 27.87 | 39.25 | 26.37 | 21.35 | 40.88 | 23.77 | 21.73 |
| k, delay calibration | 0.11 | 0.27 | 0.28 | 0.11 | 0.14 | 0.14 | 0.11 | 0.35 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.50 | 6.37 | 7.43 | 0.90 | 2.02 | 2.04 | 1.26 | 9.58 | 0.45 | 1.63 | 0.65 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.81 | 0.82 | 0.29 | 0.69 | 0.69 | 0.27 | 0.85 | 0.39 | 0.23 | 0.51 | 0.28 |
| d, Delay for Lane Group [s/veh] | 42.35 | 33.67 | 34.86 | 37.70 | 29.88 | 29.91 | 40.51 | 35.96 | 21.80 | 42.51 | 24.42 | 22.02 |
| Lane Group LOS | D | C | C | D | C | C | D | D | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.14 | 9.86 | 9.49 | 1.05 | 6.79 | 6.75 | 0.67 | 11.66 | 3.19 | 0.37 | 4.98 | 2.10 |
| 50th-Percentile Queue Length [ft/ln] | 103.57 | 246.53 | 237.13 | 26.28 | 169.86 | 168.81 | 16.73 | 291.40 | 79.72 | 9.34 | 124.38 | 52.39 |
| 95th-Percentile Queue Length [veh/ln] | 7.46 | 15.01 | 14.54 | 1.89 | 11.07 | 11.01 | 1.20 | 17.26 | 5.74 | 0.67 | 8.63 | 3.77 |
| 95th-Percentile Queue Length [ft/ln] | 186.43 | 375.29 | 363.40 | 47.30 | 276.73 | 275.35 | 30.11 | 431.38 | 143.49 | 16.81 | 215.82 | 94.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.35 | 34.12 | 34.86 | 37.70 | 29.89 | 29.91 | 40.51 | 35.96 | 21.80 | 42.51 | 24.42 | 22.02 |
| Movement LOS | D | C | C | D | C | C | D | D | C | D | C | C |
| d_A, Approach Delay [s/veh] | 35.59 | | | 30.41 | | | 32.33 | | | 24.33 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.84 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.715 | | | | | | | | | | | |

**Emissions**

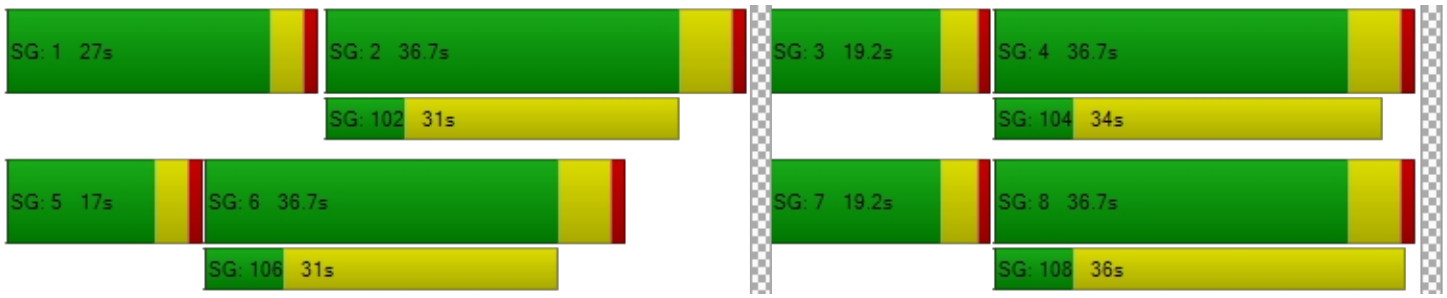
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.01 | 265.35 | 250.01 | 27.83 | 197.30 | 195.95 | 3.21 | 56.64 | 22.06 | 8.09 | 150.40 | 69.49 |
| Stops [stops/h] | 169.66 | 403.84 | 388.43 | 43.04 | 278.24 | 276.52 | 27.40 | 477.33 | 130.58 | 15.30 | 203.73 | 85.83 |
| Fuel consumption [US gal/h] | 7.26 | 17.54 | 16.74 | 1.90 | 12.51 | 12.43 | 0.71 | 12.01 | 3.36 | 0.61 | 9.26 | 4.10 |
| CO [g/h] | 507.53 | 1225.95 | 1169.94 | 132.50 | 874.26 | 868.61 | 49.94 | 839.56 | 234.56 | 42.96 | 647.18 | 286.80 |
| NOx [g/h] | 98.75 | 238.53 | 227.63 | 25.78 | 170.10 | 169.00 | 9.72 | 163.35 | 45.64 | 8.36 | 125.92 | 55.80 |
| VOC [g/h] | 117.62 | 284.13 | 271.14 | 30.71 | 202.62 | 201.31 | 11.57 | 194.58 | 54.36 | 9.96 | 149.99 | 66.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.64 | 33.64 | 33.64 | 33.64 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.971 | 2.819 | 2.619 | 2.593 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 705 | 705 | 705 | 705 |
| d_b, Bicycle Delay [s] | 18.42 | 18.42 | 18.42 | 18.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.518 | 2.221 | 2.908 | 2.350 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 71.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.935 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 589 | 480 | 290 | 368 | 341 | 366 | 668 | 1678 | 438 | 330 | 1545 | 216 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 334 | 0 | 0 | 294 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 589 | 480 | 290 | 368 | 341 | 32 | 668 | 1678 | 144 | 330 | 1545 | 216 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 155 | 126 | 76 | 97 | 90 | 8 | 176 | 442 | 38 | 87 | 407 | 57 |
| Total Analysis Volume [veh/h] | 620 | 505 | 305 | 387 | 359 | 34 | 703 | 1766 | 152 | 347 | 1626 | 227 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 28 | 45 | 0 | 19 | 36 | 0 | 24 | 44 | 0 | 24 | 44 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 30 | 30 | 17 | 23 | 23 | 29 | 56 | 56 | 15 | 42 | 42 |
| g / C, Green / Cycle | 0.18 | 0.22 | 0.22 | 0.13 | 0.17 | 0.17 | 0.22 | 0.42 | 0.42 | 0.12 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.26 | 0.14 | 0.19 | 0.11 | 0.07 | 0.01 | 0.20 | 0.34 | 0.09 | 0.10 | 0.32 | 0.14 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2768 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 421 | 791 | 353 | 449 | 881 | 474 | 753 | 2135 | 666 | 403 | 1616 | 503 |
| d1, Uniform Delay [s] | 54.96 | 47.34 | 50.26 | 57.09 | 49.44 | 46.56 | 51.54 | 34.92 | 25.34 | 58.19 | 45.96 | 36.73 |
| k, delay calibration | 0.04 | 0.04 | 0.14 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 213.83 | 0.32 | 8.03 | 1.94 | 0.34 | 0.07 | 2.51 | 3.85 | 0.80 | 2.15 | 23.96 | 2.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.47 | 0.64 | 0.86 | 0.86 | 0.41 | 0.07 | 0.93 | 0.83 | 0.23 | 0.86 | 1.01 | 0.45 |
| d, Delay for Lane Group [s/veh] | 268.79 | 47.66 | 58.28 | 59.03 | 49.79 | 46.63 | 54.05 | 38.77 | 26.14 | 60.34 | 69.92 | 39.64 |
| Lane Group LOS | F | D | E | E | D | D | D | D | C | E | F | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 19.47 | 7.57 | 10.45 | 6.39 | 3.53 | 0.47 | 11.52 | 17.05 | 3.20 | 5.77 | 20.79 | 6.20 |
| 50th-Percentile Queue Length [ft/ln] | 486.67 | 189.19 | 261.18 | 159.77 | 88.34 | 11.84 | 288.09 | 426.21 | 79.98 | 144.20 | 519.80 | 155.08 |
| 95th-Percentile Queue Length [veh/ln] | 31.27 | 12.08 | 15.75 | 10.54 | 6.36 | 0.85 | 17.09 | 23.82 | 5.76 | 9.71 | 28.39 | 10.29 |
| 95th-Percentile Queue Length [ft/ln] | 781.64 | 301.98 | 393.70 | 263.41 | 159.01 | 21.31 | 427.27 | 595.50 | 143.97 | 242.67 | 709.81 | 257.20 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 268.79 | 47.66 | 58.28 | 59.03 | 49.79 | 46.63 | 54.05 | 38.77 | 26.14 | 60.34 | 69.92 | 39.64 |
| Movement LOS | F | D | E | E | D | D | D | D | C | E | F | D |
| d_A, Approach Delay [s/veh] | 145.80 | | | 54.23 | | | 42.14 | | | 65.28 | | |
| Approach LOS | F | | | D | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 71.80 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.935 | | | | | | | | | | | |

**Emissions**

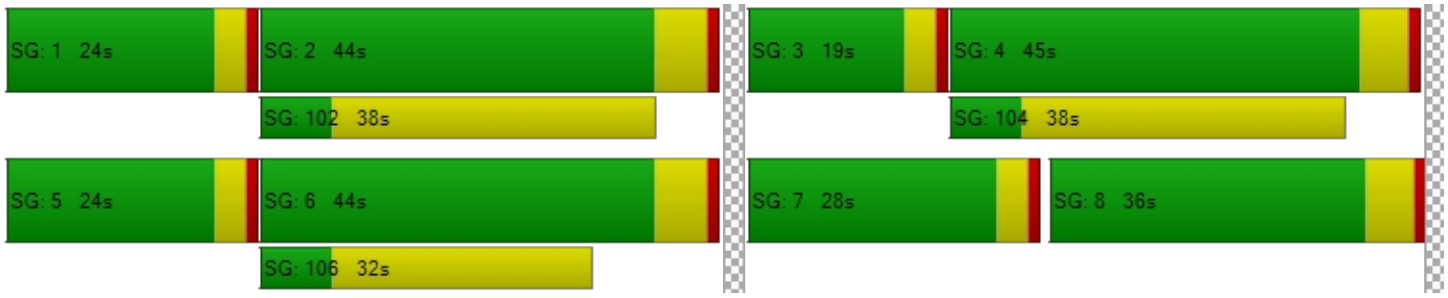
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.32 | 36.92 | 22.30 | 205.61 | 190.74 | 18.06 | 79.99 | 200.95 | 17.30 | 173.18 | 811.49 | 113.29 |
| Stops [stops/h] | 1047.62 | 407.25 | 281.11 | 343.91 | 285.24 | 25.49 | 620.15 | 1376.19 | 86.09 | 310.40 | 1678.38 | 166.92 |
| Fuel consumption [US gal/h] | 45.82 | 10.22 | 7.18 | 15.97 | 13.72 | 1.26 | 18.18 | 37.93 | 2.47 | 14.06 | 71.82 | 7.79 |
| CO [g/h] | 3202.87 | 714.38 | 501.69 | 1116.44 | 959.12 | 87.99 | 1271.06 | 2651.38 | 172.77 | 982.52 | 5019.96 | 544.50 |
| NOx [g/h] | 623.16 | 138.99 | 97.61 | 217.22 | 186.61 | 17.12 | 247.30 | 515.86 | 33.61 | 191.16 | 976.70 | 105.94 |
| VOC [g/h] | 742.30 | 165.56 | 116.27 | 258.75 | 222.28 | 20.39 | 294.58 | 614.48 | 40.04 | 227.71 | 1163.43 | 126.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 56.35 | 56.35 | 40.03 | 56.35 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.164 | 3.911 | 4.282 | 3.625 |
| Crosswalk LOS | C | D | E | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 587 | 453 | 568 | 568 |
| d_b, Bicycle Delay [s] | 33.37 | 40.07 | 34.29 | 34.29 |
| l_b,int, Bicycle LOS Score for Intersection | 2.346 | 2.172 | 3.163 | 2.770 |
| Bicycle LOS | B | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 54.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.830 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 645 | 0 | 1288 | 0 | 0 | 0 | 0 | 1504 | 488 | 0 | 2129 | 265 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 645 | 0 | 1288 | 0 | 0 | 0 | 0 | 1504 | 488 | 0 | 2129 | 265 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 172 | 0 | 343 | 0 | 0 | 0 | 0 | 400 | 130 | 0 | 566 | 70 |
| Total Analysis Volume [veh/h] | 686 | 0 | 1370 | 0 | 0 | 0 | 0 | 1600 | 519 | 0 | 2265 | 282 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.48 | | 0.31 | 0.26 | 0.18 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4442 | 828 |
| d1, Uniform Delay [s] | 30.57 | 41.07 | | 22.33 | 20.89 | 18.68 |
| k, delay calibration | 0.27 | 0.30 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.46 | 130.26 | | 1.01 | 0.42 | 1.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 1.28 | | 0.60 | 0.51 | 0.34 |
| d, Delay for Lane Group [s/veh] | 31.03 | 171.33 | | 23.34 | 21.32 | 19.80 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.20 | 35.53 | | 11.19 | 8.80 | 5.10 |
| 50th-Percentile Queue Length [ft/ln] | 130.09 | 888.21 | | 279.72 | 219.99 | 127.41 |
| 95th-Percentile Queue Length [veh/ln] | 8.94 | 52.75 | | 16.67 | 13.66 | 8.80 |
| 95th-Percentile Queue Length [ft/ln] | 223.62 | 1318.71 | | 416.87 | 341.62 | 219.97 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.03 | 0.00 | 171.33 | 0.00 | 0.00 | 0.00 | 0.00 | 23.34 | 0.00 | 0.00 | 21.32 | 19.80 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 124.52 | | | 0.00 | | | 17.89 | | | 21.15 | | |
| Approach LOS | F | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 54.57 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.830 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 89.92 | 179.59 | | 251.77 | 257.72 | 32.09 |
| Stops [stops/h] | 426.21 | 1940.00 | | 916.45 | 1201.26 | 139.15 |
| Fuel consumption [US gal/h] | 15.26 | 89.80 | | 27.62 | 33.59 | 3.97 |
| CO [g/h] | 1066.41 | 6276.95 | | 1930.93 | 2348.28 | 277.23 |
| NOx [g/h] | 207.48 | 1221.27 | | 375.69 | 456.89 | 53.94 |
| VOC [g/h] | 247.15 | 1454.74 | | 447.51 | 544.24 | 64.25 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.084 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.440 | 2.400 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.577 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 72 | 0 | 457 | 0 | 1932 | 569 | 0 | 2118 | 717 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 72 | 0 | 457 | 0 | 1932 | 569 | 0 | 2118 | 717 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 122 | 0 | 514 | 151 | 0 | 563 | 191 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 77 | 0 | 486 | 0 | 2055 | 605 | 0 | 2253 | 763 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 28 | 28 | 88 | 88 | 88 |
| g / C, Green / Cycle | | 0.21 | 0.21 | 0.68 | 0.68 | 0.68 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.17 | 0.30 | 0.38 | 0.33 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 752 | 610 | 4660 | 1085 | 4690 |
| d1, Uniform Delay [s] | | 41.01 | 48.35 | 9.43 | 10.64 | 9.81 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.15 | 5.82 | 0.30 | 2.07 | 0.35 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.10 | 0.80 | 0.44 | 0.56 | 0.48 |
| d, Delay for Lane Group [s/veh] | | 41.15 | 54.17 | 9.74 | 12.71 | 10.16 |
| Lane Group LOS | | D | D | A | B | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.02 | 7.95 | 5.94 | 8.38 | 6.77 |
| 50th-Percentile Queue Length [ft/ln] | | 25.45 | 198.86 | 148.40 | 209.53 | 169.27 |
| 95th-Percentile Queue Length [veh/ln] | | 1.83 | 12.58 | 9.93 | 13.13 | 11.04 |
| 95th-Percentile Queue Length [ft/ln] | | 45.81 | 314.49 | 248.29 | 328.23 | 275.95 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 41.15 | 0.00 | 54.17 | 0.00 | 9.74 | 12.71 | 0.00 | 10.16 | 0.00 |
| Movement LOS | | | | D | | D | | A | B | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 52.39 | | | 10.41 | | | 7.71 | | |
| Approach LOS | A | | | D | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 13.62 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.577 | | | | | | | | | | | |

**Emissions**

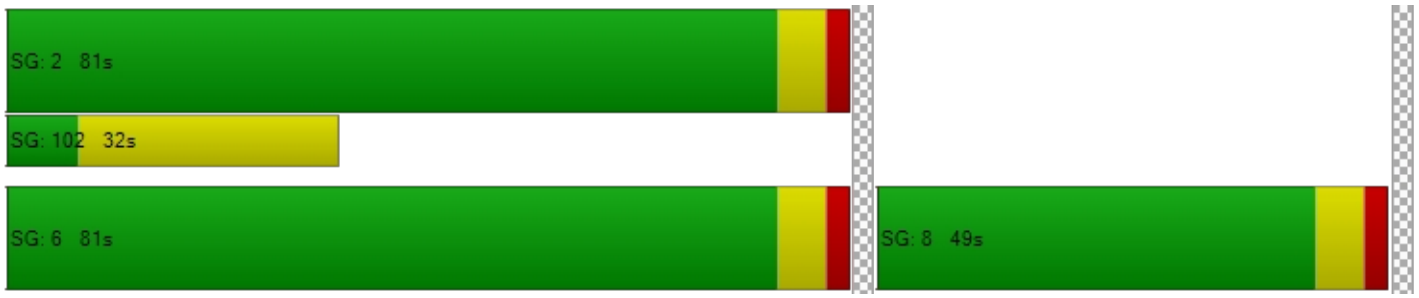
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.87 | 74.89 | 198.99 | 58.58 | 354.53 |
| Stops [stops/h] | | 56.41 | 440.78 | 657.87 | 232.22 | 750.39 |
| Fuel consumption [US gal/h] | | 1.44 | 10.88 | 19.07 | 6.46 | 26.14 |
| CO [g/h] | | 101.00 | 760.16 | 1333.13 | 451.61 | 1827.30 |
| NOx [g/h] | | 19.65 | 147.90 | 259.38 | 87.87 | 355.53 |
| VOC [g/h] | | 23.41 | 176.18 | 308.96 | 104.67 | 423.49 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.027 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1142 | 1142 | |
| d_b, Bicycle Delay [s] | 64.97 | 29.62 | 11.95 | 11.95 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.657 | 2.489 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 18.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.734 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 41 | 193 | 79 | 3 | 102 | 42 | 64 | 256 | 95 | 70 | 149 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 41 | 193 | 79 | 3 | 102 | 42 | 64 | 256 | 95 | 70 | 149 | 4 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 51 | 21 | 1 | 27 | 11 | 17 | 68 | 25 | 19 | 40 | 1 |
| Total Analysis Volume [veh/h] | 44 | 205 | 84 | 3 | 109 | 45 | 68 | 272 | 101 | 74 | 159 | 4 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 570 | 533 | 601 | 548 |
| Degree of Utilization, x | 0.58 | 0.29 | 0.73 | 0.43 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.75 | 1.22 | 6.30 | 2.17 |
| 95th-Percentile Queue Length [ft] | 93.80 | 30.53 | 157.60 | 54.19 |
| Approach Delay [s/veh] | 17.85 | 12.55 | 23.76 | 14.49 |
| Approach LOS | C | B | C | B |
| Intersection Delay [s/veh] | 18.69 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 344.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.549 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 317 | 387 | 117 | 17 | 240 | 66 | 75 | 303 | 331 | 35 | 481 | 35 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 317 | 387 | 117 | 17 | 240 | 66 | 75 | 303 | 331 | 35 | 481 | 35 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 91 | 111 | 34 | 5 | 69 | 19 | 22 | 87 | 95 | 10 | 138 | 10 |
| Total Analysis Volume [veh/h] | 364 | 445 | 134 | 20 | 276 | 76 | 86 | 348 | 380 | 40 | 553 | 40 |
| Pedestrian Volume [ped/h] | 5 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 809 | 346 | 372 | 331 | 348 | 380 | 304 | 593 |
| Degree of Utilization, x | 2.55 | 0.39 | 1.15 | 0.26 | 1.00 | 1.02 | 0.13 | 1.85 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 66.05 | 1.78 | 15.18 | 1.02 | 11.49 | 12.46 | 0.45 | 39.67 |
| 95th-Percentile Queue Length [ft] | 1651.16 | 44.44 | 379.54 | 25.43 | 287.20 | 311.45 | 11.21 | 991.70 |
| Approach Delay [s/veh] | 628.44 | | 130.14 | 76.28 | | | 394.10 | |
| Approach LOS | F | | F | F | | | F | |
| Intersection Delay [s/veh] | 344.89 | | | | | | | |
| Intersection LOS | F | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.695 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 84 | 521 | 121 | 143 | 421 | 32 | 167 | 397 | 225 | 42 | 386 | 178 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 84 | 521 | 121 | 143 | 421 | 32 | 167 | 397 | 225 | 42 | 386 | 178 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 137 | 32 | 38 | 111 | 8 | 44 | 104 | 59 | 11 | 102 | 47 |
| Total Analysis Volume [veh/h] | 88 | 548 | 127 | 151 | 443 | 34 | 176 | 418 | 237 | 44 | 406 | 187 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 19 | 19 | 10 | 20 | 20 | 10 | 25 | 25 | 6 | 21 | 21 |
| g / C, Green / Cycle | 0.11 | 0.25 | 0.25 | 0.13 | 0.27 | 0.27 | 0.13 | 0.33 | 0.33 | 0.08 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.19 | 0.19 | 0.08 | 0.13 | 0.13 | 0.10 | 0.22 | 0.15 | 0.02 | 0.22 | 0.12 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1743 | 1810 | 1868 | 1814 | 1810 | 1892 | 1549 | 1810 | 1874 | 1581 |
| c, Capacity [veh/h] | 204 | 468 | 437 | 233 | 497 | 482 | 237 | 619 | 507 | 150 | 523 | 441 |
| d1, Uniform Delay [s] | 31.45 | 26.27 | 26.30 | 31.54 | 23.58 | 23.60 | 31.86 | 22.13 | 20.31 | 32.83 | 25.27 | 22.39 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.44 | 2.36 | 2.57 | 3.01 | 0.74 | 0.77 | 4.54 | 1.29 | 0.67 | 1.07 | 2.52 | 0.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.74 | 0.75 | 0.65 | 0.49 | 0.49 | 0.74 | 0.68 | 0.47 | 0.29 | 0.78 | 0.42 |
| d, Delay for Lane Group [s/veh] | 32.89 | 28.63 | 28.87 | 34.55 | 24.32 | 24.37 | 36.40 | 23.42 | 20.98 | 33.90 | 27.79 | 23.04 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.50 | 5.65 | 5.33 | 2.64 | 3.41 | 3.34 | 3.18 | 5.93 | 3.06 | 0.76 | 6.41 | 2.55 |
| 50th-Percentile Queue Length [ft/ln] | 37.59 | 141.24 | 133.30 | 65.91 | 85.17 | 83.50 | 79.48 | 148.25 | 76.61 | 18.92 | 160.23 | 63.64 |
| 95th-Percentile Queue Length [veh/ln] | 2.71 | 9.55 | 9.12 | 4.75 | 6.13 | 6.01 | 5.72 | 9.92 | 5.52 | 1.36 | 10.56 | 4.58 |
| 95th-Percentile Queue Length [ft/ln] | 67.66 | 238.69 | 227.98 | 118.64 | 153.30 | 150.29 | 143.06 | 248.09 | 137.90 | 34.06 | 264.03 | 114.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.89 | 28.72 | 28.87 | 34.55 | 24.34 | 24.37 | 36.40 | 23.42 | 20.98 | 33.90 | 27.79 | 23.04 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 29.22 | | | 26.80 | | | 25.48 | | | 26.82 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.07 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.695 | | | | | | | | | | | |

**Emissions**

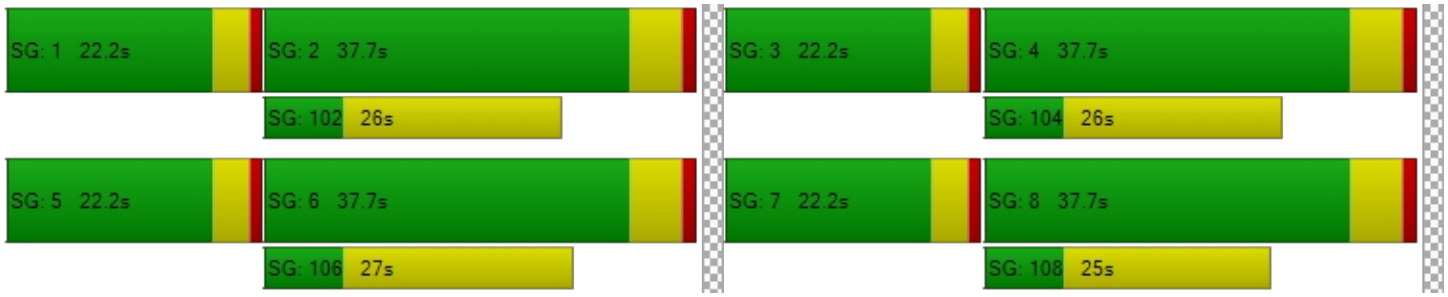
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 47.55 | 188.15 | 176.60 | 75.08 | 119.90 | 117.29 | 83.77 | 198.94 | 112.80 | 21.68 | 200.07 | 92.15 |
| Stops [stops/h] | 71.24 | 267.65 | 252.62 | 124.91 | 161.40 | 158.23 | 150.61 | 280.94 | 145.19 | 35.86 | 303.65 | 120.60 |
| Fuel consumption [US gal/h] | 2.99 | 11.40 | 10.73 | 5.19 | 7.31 | 7.16 | 6.05 | 12.30 | 6.68 | 1.49 | 12.93 | 5.53 |
| CO [g/h] | 209.15 | 796.69 | 749.85 | 362.68 | 510.95 | 500.33 | 422.72 | 860.12 | 467.18 | 104.34 | 903.74 | 386.89 |
| NOx [g/h] | 40.69 | 155.01 | 145.89 | 70.56 | 99.41 | 97.35 | 82.25 | 167.35 | 90.90 | 20.30 | 175.84 | 75.27 |
| VOC [g/h] | 48.47 | 184.64 | 173.78 | 84.05 | 118.42 | 115.96 | 97.97 | 199.34 | 108.27 | 24.18 | 209.45 | 89.67 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.79 | 27.79 | 27.79 | 27.79 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.677 | 2.741 | 2.619 | 2.609 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 842 | 842 | 842 | 842 |
| d_b, Bicycle Delay [s] | 12.73 | 12.74 | 12.74 | 12.74 |
| l_b,int, Bicycle LOS Score for Intersection | 2.189 | 2.078 | 2.931 | 2.611 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 49.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.820 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 320 | 380 | 157 | 389 | 253 | 181 | 321 | 1424 | 572 | 178 | 1333 | 92 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 320 | 380 | 157 | 389 | 253 | 181 | 321 | 1424 | 572 | 178 | 1333 | 92 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 83 | 99 | 41 | 101 | 66 | 47 | 84 | 371 | 149 | 46 | 347 | 24 |
| Total Analysis Volume [veh/h] | 333 | 396 | 164 | 405 | 264 | 189 | 334 | 1483 | 596 | 185 | 1389 | 96 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 27 | 27 | 14 | 20 | 20 | 13 | 62 | 62 | 13 | 62 | 62 |
| g / C, Green / Cycle | 0.16 | 0.20 | 0.20 | 0.11 | 0.15 | 0.15 | 0.10 | 0.47 | 0.47 | 0.10 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.11 | 0.10 | 0.12 | 0.07 | 0.12 | 0.10 | 0.29 | 0.37 | 0.05 | 0.27 | 0.06 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 260 | 718 | 321 | 373 | 539 | 241 | 348 | 2438 | 757 | 345 | 2428 | 761 |
| d1, Uniform Delay [s] | 55.56 | 47.38 | 46.94 | 59.07 | 51.66 | 54.23 | 59.30 | 25.90 | 29.38 | 56.68 | 25.31 | 19.65 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 129.43 | 0.53 | 1.00 | 42.92 | 0.55 | 4.53 | 7.05 | 1.14 | 8.11 | 0.48 | 0.99 | 0.34 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.28 | 0.55 | 0.51 | 1.09 | 0.49 | 0.79 | 0.96 | 0.61 | 0.79 | 0.54 | 0.57 | 0.13 |
| d, Delay for Lane Group [s/veh] | 184.99 | 47.91 | 47.94 | 101.99 | 52.21 | 58.77 | 66.35 | 27.04 | 37.49 | 57.16 | 26.29 | 19.99 |
| Lane Group LOS | F | D | D | F | D | E | E | C | D | E | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 8.92 | 5.84 | 4.84 | 8.47 | 4.08 | 6.38 | 5.91 | 11.68 | 17.32 | 2.91 | 10.24 | 1.68 |
| 50th-Percentile Queue Length [ft/ln] | 223.02 | 146.00 | 120.95 | 211.73 | 102.02 | 159.38 | 147.81 | 291.93 | 433.01 | 72.64 | 255.95 | 42.12 |
| 95th-Percentile Queue Length [veh/ln] | 15.24 | 9.80 | 8.45 | 13.67 | 7.35 | 10.52 | 9.90 | 17.28 | 24.15 | 5.23 | 15.49 | 3.03 |
| 95th-Percentile Queue Length [ft/ln] | 380.92 | 245.08 | 211.13 | 341.79 | 183.64 | 262.91 | 247.50 | 432.03 | 603.64 | 130.76 | 387.13 | 75.81 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 184.99 | 47.91 | 47.94 | 101.99 | 52.21 | 58.77 | 66.35 | 27.04 | 37.49 | 57.16 | 26.29 | 19.99 |
| Movement LOS | F | D | D | F | D | E | E | C | D | E | C | B |
| d_A, Approach Delay [s/veh] | 99.03 | | | 77.15 | | | 35.06 | | | 29.35 | | |
| Approach LOS | F | | | E | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 49.41 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.820 | | | | | | | | | | | |

**Emissions**

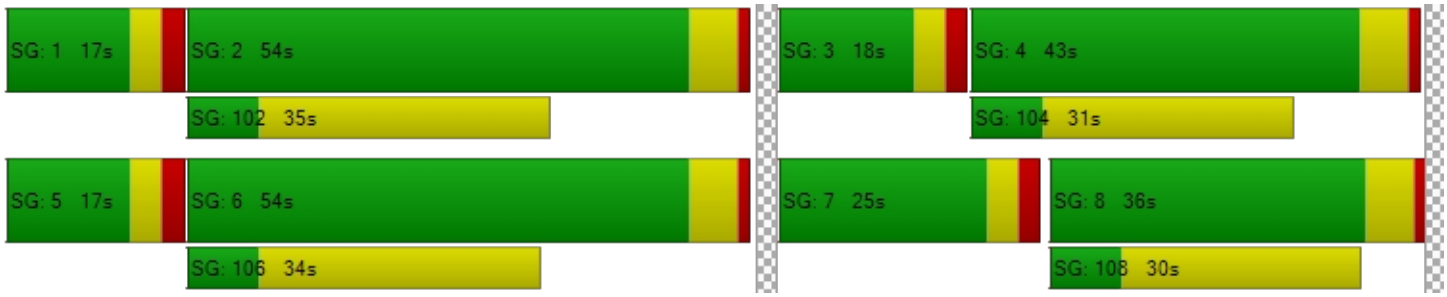
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 34.85 | 41.45 | 17.17 | 218.85 | 142.66 | 102.13 | 166.69 | 740.13 | 297.45 | 21.32 | 160.10 | 11.06 |
| Stops [stops/h] | 486.16 | 318.26 | 131.83 | 461.56 | 222.40 | 173.72 | 322.20 | 954.57 | 471.96 | 158.36 | 836.91 | 45.91 |
| Fuel consumption [US gal/h] | 18.56 | 8.47 | 3.51 | 19.96 | 9.91 | 7.42 | 13.15 | 43.90 | 19.40 | 4.85 | 23.32 | 1.34 |
| CO [g/h] | 1297.19 | 592.18 | 245.33 | 1395.44 | 692.44 | 518.95 | 919.29 | 3068.83 | 1355.98 | 339.12 | 1630.42 | 93.71 |
| NOx [g/h] | 252.39 | 115.22 | 47.73 | 271.50 | 134.72 | 100.97 | 178.86 | 597.08 | 263.82 | 65.98 | 317.22 | 18.23 |
| VOC [g/h] | 300.64 | 137.24 | 56.86 | 323.41 | 160.48 | 120.27 | 213.05 | 711.23 | 314.26 | 78.60 | 377.86 | 21.72 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.52 | 55.52 | 55.52 | 55.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.972 | 2.847 | 3.336 | 3.472 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.02 | 39.23 | 26.59 | 26.59 |
| l_b,int, Bicycle LOS Score for Intersection | 2.296 | 2.267 | 2.887 | 2.478 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 109.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.224 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 464 | 77 | 10 | 4 | 78 | 29 | 29 | 198 | 362 | 0 | 86 | 16 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 464 | 77 | 10 | 4 | 78 | 29 | 29 | 198 | 362 | 0 | 86 | 16 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 135 | 22 | 3 | 1 | 23 | 8 | 8 | 58 | 105 | 0 | 25 | 5 |
| Total Analysis Volume [veh/h] | 540 | 90 | 12 | 5 | 91 | 34 | 34 | 230 | 421 | 0 | 100 | 19 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 642 | 482 | 685 | 475 |
| Degree of Utilization, x | 1.22 | 0.27 | 1.17 | 0.25 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 24.53 | 1.08 | 23.41 | 0.98 |
| 95th-Percentile Queue Length [ft] | 613.14 | 27.09 | 585.31 | 24.55 |
| Approach Delay [s/veh] | 139.94 | 13.23 | 115.95 | 13.10 |
| Approach LOS | F | B | F | B |
| Intersection Delay [s/veh] | 109.49 | | | |
| Intersection LOS | F | | | |

**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 202.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.196 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 274 | 461 | 23 | 436 | 317 | 70 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 274 | 461 | 23 | 436 | 317 | 70 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 115 | 6 | 109 | 79 | 18 |
| Total Analysis Volume [veh/h] | 274 | 461 | 23 | 436 | 317 | 70 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.03 | 0.00 | 1.20 | 0.12 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 9.16 | 0.00 | 202.17 | 194.93 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.04 | 0.04 | 19.26 | 19.26 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.97 | 0.97 | 481.40 | 481.40 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.46 | | 200.86 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 49.30 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.625 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 2 | 497 | 30 | 154 | 337 | 111 | 102 | 193 | 68 | 109 | 129 | 125 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 497 | 30 | 154 | 337 | 111 | 102 | 193 | 68 | 109 | 129 | 125 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 129 | 8 | 40 | 88 | 29 | 27 | 50 | 18 | 28 | 34 | 33 |
| Total Analysis Volume [veh/h] | 2 | 518 | 31 | 160 | 351 | 116 | 106 | 201 | 71 | 114 | 134 | 130 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 21 | 21 | 8 | 29 | 7 | 10 | 10 | 7 | 10 | 10 |
| g / C, Green / Cycle | 0.00 | 0.34 | 0.34 | 0.13 | 0.47 | 0.11 | 0.16 | 0.16 | 0.11 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.28 | 0.02 | 0.09 | 0.26 | 0.06 | 0.07 | 0.08 | 0.06 | 0.07 | 0.08 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1806 | 1810 | 1900 | 1735 | 1787 | 1900 | 1605 |
| c, Capacity [veh/h] | 9 | 635 | 548 | 243 | 847 | 195 | 307 | 280 | 197 | 312 | 263 |
| d1, Uniform Delay [s] | 31.15 | 18.99 | 14.00 | 25.83 | 11.96 | 26.59 | 23.86 | 23.93 | 26.58 | 23.64 | 23.91 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.47 | 2.64 | 0.04 | 1.14 | 0.56 | 0.88 | 1.97 | 2.29 | 1.00 | 1.75 | 2.66 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.22 | 0.82 | 0.06 | 0.66 | 0.55 | 0.54 | 0.46 | 0.47 | 0.58 | 0.43 | 0.49 |
| d, Delay for Lane Group [s/veh] | 35.62 | 21.63 | 14.04 | 26.97 | 12.53 | 27.47 | 25.83 | 26.21 | 27.58 | 25.38 | 26.57 |
| Lane Group LOS | D | C | B | C | B | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.04 | 6.17 | 0.26 | 2.10 | 3.72 | 1.42 | 1.87 | 1.79 | 1.48 | 1.71 | 1.72 |
| 50th-Percentile Queue Length [ft/ln] | 0.97 | 154.21 | 6.45 | 52.48 | 93.06 | 35.58 | 46.80 | 44.78 | 37.04 | 42.64 | 42.99 |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 10.24 | 0.46 | 3.78 | 6.70 | 2.56 | 3.37 | 3.22 | 2.67 | 3.07 | 3.10 |
| 95th-Percentile Queue Length [ft/ln] | 1.75 | 256.04 | 11.62 | 94.46 | 167.52 | 64.04 | 84.24 | 80.60 | 66.67 | 76.75 | 77.39 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.62 | 21.63 | 14.04 | 26.97 | 12.53 | 12.53 | 27.47 | 25.95 | 26.21 | 27.58 | 25.38 | 26.57 |
| Movement LOS | D | C | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 21.25 | | | 16.21 | | | 26.42 | | | 26.45 | | |
| Approach LOS | C | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.64 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.625 | | | | | | | | | | | |

**Emissions**

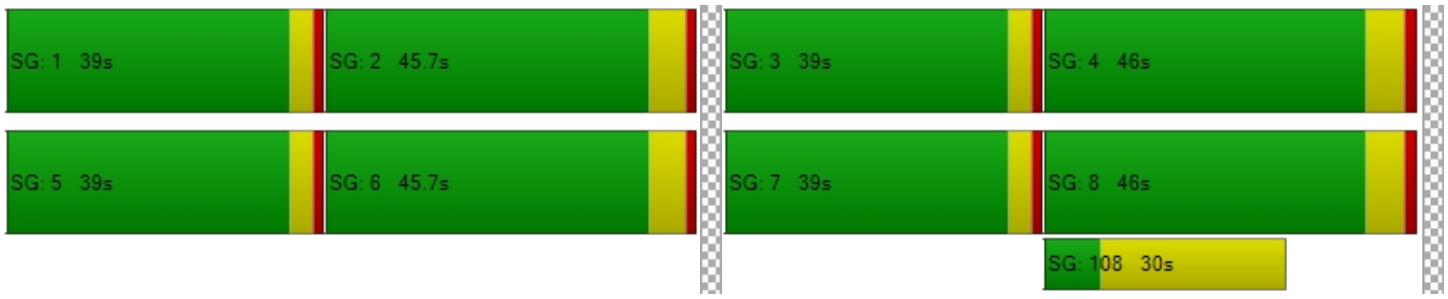
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.01 | 260.49 | 15.59 | 79.75 | 232.76 | 52.24 | 68.96 | 65.09 | 29.88 | 35.12 | 34.07 |
| Stops [stops/h] | 2.23 | 353.88 | 14.81 | 120.42 | 213.56 | 81.64 | 107.39 | 102.75 | 84.99 | 97.84 | 98.66 |
| Fuel consumption [US gal/h] | 0.08 | 15.61 | 0.81 | 5.11 | 11.82 | 3.27 | 4.26 | 4.05 | 2.95 | 3.37 | 3.36 |
| CO [g/h] | 5.36 | 1091.04 | 56.42 | 357.11 | 826.52 | 228.27 | 297.81 | 282.78 | 205.86 | 235.57 | 234.74 |
| NOx [g/h] | 1.04 | 212.28 | 10.98 | 69.48 | 160.81 | 44.41 | 57.94 | 55.02 | 40.05 | 45.83 | 45.67 |
| VOC [g/h] | 1.24 | 252.86 | 13.07 | 82.76 | 191.55 | 52.90 | 69.02 | 65.54 | 47.71 | 54.60 | 54.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.34 | 23.89 | 23.63 | 23.63 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.598 | 2.598 | 2.320 | 2.534 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1275 | 1275 | 1275 | 1275 |
| d_b, Bicycle Delay [s] | 4.12 | 4.12 | 4.12 | 4.12 |
| l_b,int, Bicycle LOS Score for Intersection | 2.469 | 2.594 | 1.871 | 2.183 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 63.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.503 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 57 | 400 | 1 | 10 | 519 | 8 | 60 | 11 | 6 | 5 | 49 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 57 | 400 | 1 | 10 | 519 | 8 | 60 | 11 | 6 | 5 | 49 | 24 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 104 | 0 | 3 | 135 | 2 | 16 | 3 | 2 | 1 | 13 | 6 |
| Total Analysis Volume [veh/h] | 59 | 417 | 1 | 10 | 541 | 8 | 63 | 11 | 6 | 5 | 51 | 25 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.50 | 0.05 | 0.01 | 0.03 | 0.26 | 0.04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.81 | 0.00 | 0.00 | 8.28 | 0.00 | 0.00 | 63.11 | 52.32 | 40.97 | 33.69 | 30.03 | 17.51 |
| Movement LOS | A | A | A | A | A | A | F | F | E | D | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.19 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 2.87 | 2.87 | 2.87 | 1.37 | 1.37 | 1.37 |
| 95th-Percentile Queue Length [ft/ln] | 4.68 | 0.00 | 0.00 | 0.68 | 0.00 | 0.00 | 71.80 | 71.80 | 71.80 | 34.13 | 34.13 | 34.13 |
| d_A, Approach Delay [s/veh] | 1.09 | | | 0.15 | | | 59.97 | | | 26.39 | | |
| Approach LOS | A | | | A | | | F | | | D | | |
| d_I, Intersection Delay [s/veh] | 6.30 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.758 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 240 | 289 | 201 | 29 | 409 | 23 | 13 | 290 | 132 | 117 | 347 | 20 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 240 | 289 | 201 | 29 | 409 | 23 | 13 | 290 | 132 | 117 | 347 | 20 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 79 | 55 | 8 | 111 | 6 | 4 | 79 | 36 | 32 | 94 | 5 |
| Total Analysis Volume [veh/h] | 261 | 314 | 218 | 32 | 445 | 25 | 14 | 315 | 143 | 127 | 377 | 22 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 29 | 29 | 2 | 20 | 1 | 11 | 11 | 6 | 16 |
| g / C, Green / Cycle | 0.17 | 0.46 | 0.46 | 0.03 | 0.31 | 0.01 | 0.17 | 0.17 | 0.09 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.17 | 0.14 | 0.02 | 0.25 | 0.01 | 0.13 | 0.13 | 0.07 | 0.21 |
| s, saturation flow rate [veh/h] | 1810 | 1882 | 1595 | 1810 | 1874 | 1810 | 1900 | 1687 | 1810 | 1882 |
| c, Capacity [veh/h] | 315 | 862 | 730 | 49 | 583 | 25 | 326 | 289 | 166 | 469 |
| d1, Uniform Delay [s] | 25.36 | 11.22 | 10.80 | 30.64 | 20.13 | 31.17 | 24.97 | 25.11 | 28.22 | 22.75 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.17 | 0.37 | 0.32 | 5.17 | 3.77 | 6.97 | 2.37 | 3.07 | 2.76 | 3.34 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.36 | 0.30 | 0.65 | 0.81 | 0.56 | 0.73 | 0.76 | 0.77 | 0.85 |
| d, Delay for Lane Group [s/veh] | 27.53 | 11.58 | 11.13 | 35.81 | 23.90 | 38.14 | 27.34 | 28.18 | 30.98 | 26.09 |
| Lane Group LOS | C | B | B | D | C | D | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.54 | 2.35 | 1.58 | 0.54 | 6.42 | 0.24 | 3.22 | 3.04 | 1.83 | 5.33 |
| 50th-Percentile Queue Length [ft/ln] | 88.61 | 58.69 | 39.41 | 13.39 | 160.49 | 6.09 | 80.58 | 75.93 | 45.69 | 133.35 |
| 95th-Percentile Queue Length [veh/ln] | 6.38 | 4.23 | 2.84 | 0.96 | 10.57 | 0.44 | 5.80 | 5.47 | 3.29 | 9.12 |
| 95th-Percentile Queue Length [ft/ln] | 159.50 | 105.65 | 70.94 | 24.11 | 264.37 | 10.97 | 145.04 | 136.67 | 82.25 | 228.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.53 | 11.58 | 11.13 | 35.81 | 23.90 | 23.90 | 38.14 | 27.54 | 28.18 | 30.98 | 26.09 | 26.09 |
| Movement LOS | C | B | B | D | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 16.71 | | | 24.66 | | | 28.05 | | | 27.27 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.21 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.758 | | | | | | | | | | | |

**Emissions**

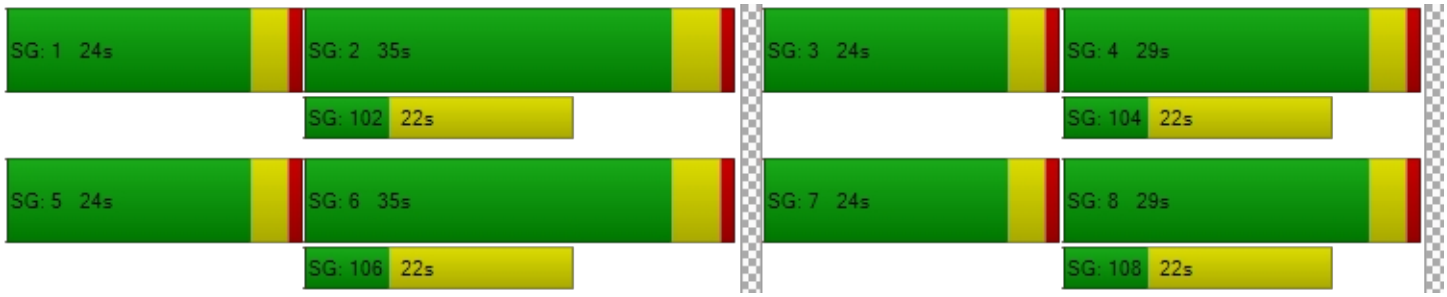
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 130.19 | 156.63 | 108.74 | 16.03 | 235.39 | 6.98 | 118.85 | 109.60 | 127.21 | 399.65 |
| Stops [stops/h] | 201.05 | 133.17 | 89.42 | 30.39 | 364.13 | 13.82 | 182.83 | 172.27 | 103.68 | 302.56 |
| Fuel consumption [US gal/h] | 8.42 | 7.76 | 5.33 | 1.06 | 13.99 | 0.52 | 7.67 | 7.16 | 6.45 | 19.58 |
| CO [g/h] | 588.88 | 542.76 | 372.76 | 74.15 | 977.79 | 36.34 | 536.32 | 500.41 | 450.86 | 1368.61 |
| NOx [g/h] | 114.57 | 105.60 | 72.53 | 14.43 | 190.24 | 7.07 | 104.35 | 97.36 | 87.72 | 266.28 |
| VOC [g/h] | 136.48 | 125.79 | 86.39 | 17.19 | 226.61 | 8.42 | 124.30 | 115.97 | 104.49 | 317.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.69 | 21.69 | 21.69 | 21.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.722 | 2.198 | 2.527 | 2.511 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 945 | 945 | 788 | 788 |
| d_b, Bicycle Delay [s] | 8.83 | 8.83 | 11.66 | 11.66 |
| l_b,int, Bicycle LOS Score for Intersection | 2.868 | 2.388 | 1.949 | 2.428 |
| Bicycle LOS | C | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.673 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 186 | 787 | 97 | 31 | 634 | 46 | 21 | 422 | 212 | 25 | 298 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 186 | 787 | 97 | 31 | 634 | 46 | 21 | 422 | 212 | 25 | 298 | 40 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 205 | 25 | 8 | 165 | 12 | 5 | 110 | 55 | 7 | 78 | 10 |
| Total Analysis Volume [veh/h] | 194 | 820 | 101 | 32 | 660 | 48 | 22 | 440 | 221 | 26 | 310 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 21 | 21 | 4 | 17 | 17 | 3 | 19 | 19 | 3 | 19 | 19 |
| g / C, Green / Cycle | 0.14 | 0.34 | 0.34 | 0.06 | 0.26 | 0.26 | 0.05 | 0.30 | 0.30 | 0.05 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.23 | 0.06 | 0.02 | 0.19 | 0.19 | 0.01 | 0.23 | 0.14 | 0.01 | 0.09 | 0.03 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1608 | 1810 | 1888 | 1840 | 1810 | 1888 | 1598 | 1810 | 3618 | 1593 |
| c, Capacity [veh/h] | 248 | 1213 | 542 | 111 | 491 | 478 | 83 | 563 | 477 | 95 | 1102 | 485 |
| d1, Uniform Delay [s] | 26.56 | 18.17 | 14.96 | 28.62 | 21.58 | 21.59 | 29.41 | 20.51 | 18.25 | 29.07 | 16.88 | 15.85 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.30 | 0.67 | 0.16 | 1.40 | 2.10 | 2.18 | 1.67 | 2.42 | 0.70 | 1.53 | 0.14 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.68 | 0.19 | 0.29 | 0.73 | 0.73 | 0.26 | 0.78 | 0.46 | 0.27 | 0.28 | 0.09 |
| d, Delay for Lane Group [s/veh] | 31.86 | 18.83 | 15.13 | 30.02 | 23.68 | 23.78 | 31.08 | 22.92 | 18.95 | 30.60 | 17.02 | 15.92 |
| Lane Group LOS | C | B | B | C | C | C | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.90 | 4.45 | 0.90 | 0.49 | 4.80 | 4.70 | 0.35 | 5.85 | 2.54 | 0.39 | 1.50 | 0.39 |
| 50th-Percentile Queue Length [ft/ln] | 72.61 | 111.17 | 22.60 | 12.25 | 119.88 | 117.53 | 8.75 | 146.15 | 63.44 | 9.71 | 37.55 | 9.67 |
| 95th-Percentile Queue Length [veh/ln] | 5.23 | 7.91 | 1.63 | 0.88 | 8.39 | 8.26 | 0.63 | 9.81 | 4.57 | 0.70 | 2.70 | 0.70 |
| 95th-Percentile Queue Length [ft/ln] | 130.70 | 197.63 | 40.69 | 22.05 | 209.66 | 206.43 | 15.76 | 245.28 | 114.19 | 17.48 | 67.58 | 17.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.86 | 18.83 | 15.13 | 30.02 | 23.72 | 23.78 | 31.08 | 22.92 | 18.95 | 30.60 | 17.02 | 15.92 |
| Movement LOS | C | B | B | C | C | C | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 20.76 | | | 24.00 | | | 21.90 | | | 17.83 | | |
| Approach LOS | C | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 21.47 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.673 | | | | | | | | | | | |

**Emissions**

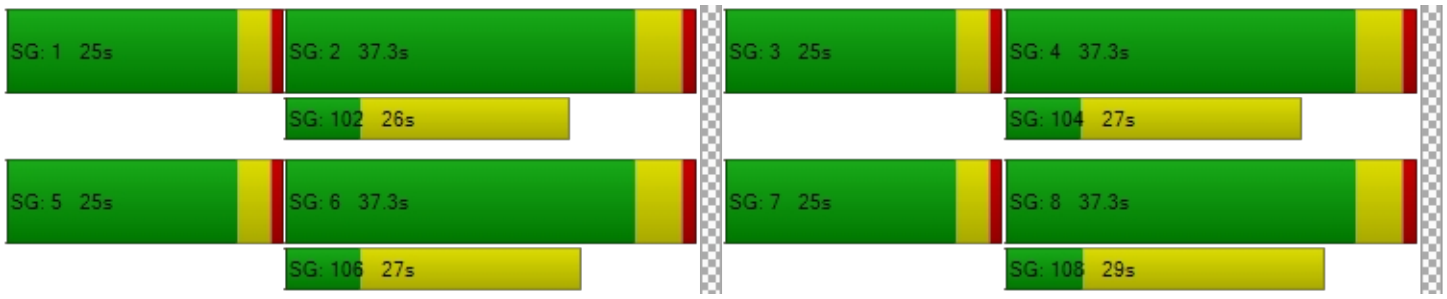
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.78 | 163.91 | 20.19 | 15.96 | 178.57 | 174.59 | 10.84 | 216.82 | 108.90 | 2.68 | 32.01 | 4.34 |
| Stops [stops/h] | 164.25 | 502.93 | 51.13 | 27.71 | 271.16 | 265.86 | 19.80 | 330.60 | 143.51 | 21.96 | 169.86 | 21.88 |
| Fuel consumption [US gal/h] | 4.63 | 15.01 | 1.64 | 1.01 | 10.57 | 10.35 | 0.69 | 12.80 | 6.13 | 0.53 | 4.28 | 0.56 |
| CO [g/h] | 323.57 | 1049.53 | 114.54 | 70.30 | 739.14 | 723.43 | 48.57 | 895.05 | 428.38 | 36.84 | 299.36 | 38.92 |
| NOx [g/h] | 62.96 | 204.20 | 22.29 | 13.68 | 143.81 | 140.75 | 9.45 | 174.14 | 83.35 | 7.17 | 58.25 | 7.57 |
| VOC [g/h] | 74.99 | 243.24 | 26.55 | 16.29 | 171.30 | 167.66 | 11.26 | 207.44 | 99.28 | 8.54 | 69.38 | 9.02 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.78 | 21.78 | 21.78 | 21.78 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.927 | 2.597 | 2.522 | 2.559 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1005 | 1005 | 1005 | 1005 |
| d_b, Bicycle Delay [s] | 7.87 | 7.88 | 7.87 | 7.88 |
| l_b,int, Bicycle LOS Score for Intersection | 2.479 | 2.170 | 2.687 | 1.871 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.572 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 485 | 1105 | 0 | 0 | 521 | 306 | 0 | 0 | 0 | 120 | 0 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 485 | 1105 | 0 | 0 | 521 | 306 | 0 | 0 | 0 | 120 | 0 | 19 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 129 | 294 | 0 | 0 | 139 | 81 | 0 | 0 | 0 | 32 | 0 | 5 |
| Total Analysis Volume [veh/h] | 516 | 1176 | 0 | 0 | 554 | 326 | 0 | 0 | 0 | 128 | 0 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 11 | 40 | 23 | 23 | | 7 | 7 |
| g / C, Green / Cycle | 0.19 | 0.66 | 0.38 | 0.38 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.33 | 0.23 | 0.27 | | 0.07 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1648 | | 1787 | 1615 |
| c, Capacity [veh/h] | 660 | 2373 | 709 | 621 | | 218 | 197 |
| d1, Uniform Delay [s] | 23.21 | 5.16 | 15.26 | 15.95 | | 24.97 | 23.47 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.78 | 0.30 | 1.66 | 2.79 | | 5.27 | 0.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.50 | 0.62 | 0.71 | | 0.59 | 0.10 |
| d, Delay for Lane Group [s/veh] | 23.99 | 5.46 | 16.92 | 18.74 | | 30.24 | 23.95 |
| Lane Group LOS | C | A | B | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.09 | 1.94 | 4.25 | 4.59 | | 1.78 | 0.24 |
| 50th-Percentile Queue Length [ft/ln] | 77.23 | 48.59 | 106.37 | 114.69 | | 44.61 | 6.03 |
| 95th-Percentile Queue Length [veh/ln] | 5.56 | 3.50 | 7.64 | 8.10 | | 3.21 | 0.43 |
| 95th-Percentile Queue Length [ft/ln] | 139.01 | 87.47 | 190.94 | 202.51 | | 80.30 | 10.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.99 | 5.46 | 0.00 | 0.00 | 17.29 | 18.74 | 0.00 | 0.00 | 0.00 | 30.24 | 0.00 | 23.95 |
| Movement LOS | C | A | | | B | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 11.11 | | | 17.83 | | | 0.00 | | | 29.39 | | |
| Approach LOS | B | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 14.28 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.572 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 55.78 | 127.12 | 87.95 | 87.95 | | 11.00 | 1.72 |
| Stops [stops/h] | 370.33 | 233.02 | 255.04 | 274.99 | | 106.96 | 14.46 |
| Fuel consumption [US gal/h] | 9.04 | 8.56 | 7.70 | 8.11 | | 3.14 | 0.42 |
| CO [g/h] | 631.57 | 598.51 | 538.28 | 567.05 | | 219.65 | 29.61 |
| NOx [g/h] | 122.88 | 116.45 | 104.73 | 110.33 | | 42.74 | 5.76 |
| VOC [g/h] | 146.37 | 138.71 | 124.75 | 131.42 | | 50.91 | 6.86 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.39 | 27.39 | 20.04 | 20.04 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.022 | 2.880 | 2.103 | 1.825 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1499 | 1499 | 0 | 999 |
| d_b, Bicycle Delay [s] | 1.89 | 1.89 | 30.03 | 7.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.956 | 2.286 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.757 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1012 | 310 | 40 | 603 | 0 | 586 | 0 | 416 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1012 | 310 | 40 | 603 | 0 | 586 | 0 | 416 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 264 | 81 | 10 | 157 | 0 | 153 | 0 | 108 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1054 | 323 | 42 | 628 | 0 | 610 | 0 | 433 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 48 | 48 | 4 | 58 | 29 | 29 | |
| g / C, Green / Cycle | 0.48 | 0.48 | 0.04 | 0.58 | 0.29 | 0.29 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.39 | 0.02 | 0.18 | 0.18 | 0.27 | |
| s, saturation flow rate [veh/h] | 1889 | 1745 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 905 | 836 | 74 | 2059 | 1019 | 469 | |
| d1, Uniform Delay [s] | 21.35 | 22.41 | 46.97 | 10.80 | 30.29 | 34.22 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.39 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 6.00 | 9.05 | 2.58 | 0.38 | 1.21 | 21.87 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.82 | 0.57 | 0.30 | 0.60 | 0.92 | |
| d, Delay for Lane Group [s/veh] | 27.35 | 31.46 | 49.55 | 11.18 | 31.50 | 56.09 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 13.56 | 14.76 | 1.04 | 3.22 | 5.94 | 12.11 | |
| 50th-Percentile Queue Length [ft/ln] | 339.04 | 368.88 | 26.11 | 80.50 | 148.56 | 302.72 | |
| 95th-Percentile Queue Length [veh/ln] | 19.60 | 21.05 | 1.88 | 5.80 | 9.94 | 17.82 | |
| 95th-Percentile Queue Length [ft/ln] | 490.03 | 526.37 | 46.99 | 144.89 | 248.51 | 445.39 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 28.77 | 31.46 | 49.55 | 11.18 | 0.00 | 31.50 | 0.00 | 56.09 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 29.41 | | | 13.59 | | | 41.71 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 30.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.757 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.69 | 45.69 | 4.54 | 67.89 | 72.50 | 51.46 | |
| Stops [stops/h] | 488.44 | 531.42 | 37.61 | 231.93 | 428.06 | 436.11 | |
| Fuel consumption [US gal/h] | 10.27 | 11.27 | 1.05 | 6.64 | 14.29 | 14.76 | |
| CO [g/h] | 717.63 | 787.44 | 73.16 | 464.15 | 998.59 | 1032.01 | |
| NOx [g/h] | 139.62 | 153.21 | 14.24 | 90.31 | 194.29 | 200.79 | |
| VOC [g/h] | 166.32 | 182.50 | 16.96 | 107.57 | 231.43 | 239.18 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.909 | 2.968 | 2.566 | 1.898 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.696 | 2.112 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.031 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 463 | 4 | 2 | 367 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 463 | 4 | 2 | 367 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 154 | 1 | 1 | 122 |
| Total Analysis Volume [veh/h] | 7 | 5 | 617 | 5 | 3 | 489 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 21.34 | 12.93 | 0.00 | 0.00 | 8.77 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.13 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 3.20 | 3.20 | 0.00 | 0.00 | 0.13 | 0.13 |
| d_A, Approach Delay [s/veh] | 17.84 | | 0.00 | | 0.05 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.21 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.002 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 1 | 15 | 15 | 233 | 296 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 15 | 15 | 233 | 296 | 3 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 4 | 4 | 64 | 81 | 1 |
| Total Analysis Volume [veh/h] | 1 | 16 | 16 | 256 | 325 | 3 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.17 | 9.29 | 7.97 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.58 | 1.58 | 0.99 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.46 | | 0.47 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.47 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.086 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 12 | 228 | 62 | 12 | 275 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 12 | 228 | 62 | 12 | 275 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 3 | 60 | 16 | 3 | 72 |
| Total Analysis Volume [veh/h] | 49 | 13 | 240 | 65 | 13 | 289 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.98 | 9.58 | 0.00 | 0.00 | 7.87 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.33 | 0.33 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.33 | 8.33 | 0.00 | 0.00 | 0.78 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.48 | | 0.00 | | 0.34 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.22 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 63.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.829 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 140 | 369 | 63 | 8 | 270 | 78 | 139 | 193 | 10 | 338 | 69 | 92 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 140 | 369 | 63 | 8 | 270 | 78 | 139 | 193 | 10 | 338 | 69 | 92 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 97 | 17 | 2 | 71 | 21 | 37 | 51 | 3 | 89 | 18 | 24 |
| Total Analysis Volume [veh/h] | 147 | 388 | 66 | 8 | 284 | 82 | 146 | 203 | 11 | 356 | 73 | 97 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 43 | 43 | 32 | 32 | 14 | 15 | 15 | 32 | 33 |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.23 | 0.23 | 0.10 | 0.11 | 0.11 | 0.23 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.29 | 0.04 | 0.00 | 0.20 | 0.08 | 0.06 | 0.01 | 0.21 | 0.10 |
| s, saturation flow rate [veh/h] | 1874 | 1615 | 1810 | 1828 | 1810 | 3600 | 1584 | 1659 | 1721 |
| c, Capacity [veh/h] | 584 | 503 | 420 | 424 | 184 | 384 | 169 | 388 | 410 |
| d1, Uniform Delay [s] | 45.73 | 34.07 | 40.87 | 50.87 | 60.52 | 58.34 | 55.43 | 51.56 | 44.38 |
| k, delay calibration | 0.44 | 0.04 | 0.23 | 0.43 | 0.04 | 0.23 | 0.23 | 0.32 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 19.55 | 0.04 | 0.04 | 17.76 | 2.90 | 2.41 | 0.34 | 20.91 | 1.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.92 | 0.13 | 0.02 | 0.86 | 0.79 | 0.53 | 0.07 | 0.92 | 0.41 |
| d, Delay for Lane Group [s/veh] | 65.27 | 34.11 | 40.91 | 68.63 | 63.42 | 60.75 | 55.77 | 72.47 | 45.80 |
| Lane Group LOS | E | C | D | E | E | E | E | E | D |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 20.73 | 1.62 | 0.22 | 14.22 | 5.00 | 3.40 | 0.35 | 13.83 | 4.94 |
| 50th-Percentile Queue Length [ft/ln] | 518.14 | 40.48 | 5.44 | 355.56 | 125.12 | 84.95 | 8.82 | 345.66 | 123.62 |
| 95th-Percentile Queue Length [veh/ln] | 28.19 | 2.91 | 0.39 | 20.41 | 8.67 | 6.12 | 0.63 | 19.92 | 8.59 |
| 95th-Percentile Queue Length [ft/ln] | 704.79 | 72.87 | 9.79 | 510.18 | 216.85 | 152.90 | 15.87 | 498.11 | 214.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 65.27 | 65.27 | 34.11 | 40.91 | 68.63 | 68.63 | 63.42 | 60.75 | 55.77 | 72.47 | 45.80 | 45.80 |
| Movement LOS | E | E | C | D | E | E | E | E | E | E | D | D |
| d_A, Approach Delay [s/veh] | 61.85 | | | 68.04 | | | 61.68 | | | 63.85 | | |
| Approach LOS | E | | | E | | | E | | | E | | |
| d_I, Intersection Delay [s/veh] | 63.63 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.829 | | | | | | | | | | | |

**Emissions**

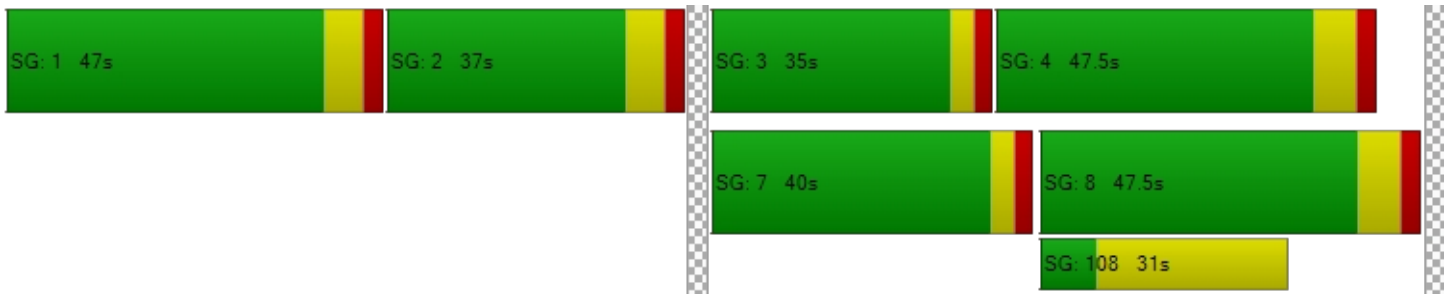
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 533.09 | 65.76 | 0.23 | 10.30 | 53.84 | 74.86 | 4.06 | 179.86 | 85.89 |
| Stops [stops/h] | 541.64 | 42.32 | 5.68 | 371.69 | 130.80 | 177.60 | 9.22 | 361.34 | 129.22 |
| Fuel consumption [US gal/h] | 32.04 | 3.40 | 0.11 | 7.59 | 5.69 | 7.74 | 0.40 | 16.82 | 6.44 |
| CO [g/h] | 2239.86 | 237.60 | 7.50 | 530.43 | 398.08 | 541.19 | 28.11 | 1175.66 | 450.46 |
| NOx [g/h] | 435.80 | 46.23 | 1.46 | 103.20 | 77.45 | 105.30 | 5.47 | 228.74 | 87.64 |
| VOC [g/h] | 519.11 | 55.07 | 1.74 | 122.93 | 92.26 | 125.43 | 6.52 | 272.47 | 104.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 58.31 | 62.53 | 62.05 | 62.05 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.457 | 2.290 | 2.538 | 2.480 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 581 | 436 | 581 | 581 |
| d_b, Bicycle Delay [s] | 34.68 | 42.14 | 34.72 | 34.68 |
| l_b,int, Bicycle LOS Score for Intersection | 2.551 | 2.177 | 1.857 | 2.428 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.669 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 164 | 515 | 244 | 9 | 450 | 113 | 357 | 260 | 5 | 111 | 135 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 515 | 244 | 9 | 450 | 113 | 357 | 260 | 5 | 111 | 135 | 4 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 143 | 68 | 3 | 125 | 31 | 99 | 72 | 1 | 31 | 38 | 1 |
| Total Analysis Volume [veh/h] | 182 | 572 | 271 | 10 | 500 | 126 | 397 | 289 | 6 | 123 | 150 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 21 | 21 | 1 | 14 | 14 | 16 | 17 | 17 | 8 | 9 | 9 |
| g / C, Green / Cycle | 0.14 | 0.34 | 0.34 | 0.02 | 0.22 | 0.22 | 0.25 | 0.26 | 0.26 | 0.13 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.16 | 0.17 | 0.01 | 0.14 | 0.08 | 0.22 | 0.15 | 0.00 | 0.07 | 0.08 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1810 | 1867 | 1615 |
| c, Capacity [veh/h] | 245 | 1212 | 538 | 42 | 799 | 359 | 450 | 495 | 423 | 228 | 258 | 224 |
| d1, Uniform Delay [s] | 26.40 | 16.69 | 16.90 | 30.51 | 22.34 | 20.85 | 22.91 | 20.38 | 17.31 | 26.07 | 25.67 | 23.67 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.14 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.68 | 0.38 | 0.97 | 1.06 | 1.08 | 0.78 | 7.57 | 1.36 | 0.02 | 0.74 | 2.56 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.47 | 0.50 | 0.24 | 0.63 | 0.35 | 0.88 | 0.58 | 0.01 | 0.54 | 0.58 | 0.02 |
| d, Delay for Lane Group [s/veh] | 28.08 | 17.07 | 17.87 | 31.57 | 23.41 | 21.63 | 30.48 | 21.74 | 17.33 | 26.81 | 28.24 | 23.71 |
| Lane Group LOS | C | B | B | C | C | C | C | C | B | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.43 | 2.75 | 2.73 | 0.15 | 3.00 | 1.43 | 6.21 | 3.64 | 0.06 | 1.61 | 2.08 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 60.68 | 68.87 | 68.17 | 3.68 | 74.96 | 35.81 | 155.27 | 90.92 | 1.57 | 40.22 | 51.95 | 1.23 |
| 95th-Percentile Queue Length [veh/ln] | 4.37 | 4.96 | 4.91 | 0.27 | 5.40 | 2.58 | 10.30 | 6.55 | 0.11 | 2.90 | 3.74 | 0.09 |
| 95th-Percentile Queue Length [ft/ln] | 109.23 | 123.96 | 122.71 | 6.63 | 134.93 | 64.45 | 257.44 | 163.66 | 2.82 | 72.39 | 93.52 | 2.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 28.08 | 17.07 | 17.87 | 31.57 | 23.41 | 21.63 | 30.48 | 21.74 | 17.33 | 26.81 | 28.24 | 23.71 |
| Movement LOS | C | B | B | C | C | C | C | C | B | C | C | C |
| d_A, Approach Delay [s/veh] | 19.24 | | | 23.19 | | | 26.72 | | | 27.54 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.04 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.669 | | | | | | | | | | | |

**Emissions**

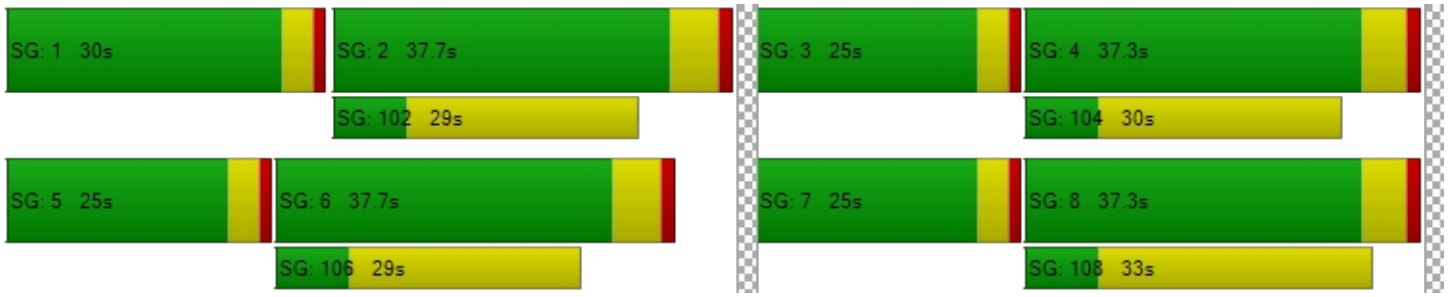
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 83.31 | 261.83 | 124.05 | 9.96 | 498.22 | 125.55 | 397.64 | 289.47 | 6.01 | 61.70 | 75.24 | 2.01 |
| Stops [stops/h] | 137.75 | 312.67 | 154.75 | 8.36 | 340.33 | 81.28 | 352.47 | 206.41 | 3.56 | 91.29 | 117.94 | 2.78 |
| Fuel consumption [US gal/h] | 5.94 | 15.56 | 7.52 | 0.53 | 24.29 | 6.01 | 20.78 | 14.34 | 0.29 | 3.92 | 4.91 | 0.12 |
| CO [g/h] | 415.51 | 1087.30 | 525.32 | 36.79 | 1697.94 | 419.88 | 1452.50 | 1002.06 | 20.15 | 274.08 | 343.03 | 8.57 |
| NOx [g/h] | 80.84 | 211.55 | 102.21 | 7.16 | 330.36 | 81.69 | 282.60 | 194.96 | 3.92 | 53.33 | 66.74 | 1.67 |
| VOC [g/h] | 96.30 | 251.99 | 121.75 | 8.53 | 393.51 | 97.31 | 336.63 | 232.24 | 4.67 | 63.52 | 79.50 | 1.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.67 | 21.67 | 21.67 | 21.67 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.881 | 2.869 | 2.392 | 2.421 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1009 | 1009 | 1009 | 1009 |
| d_b, Bicycle Delay [s] | 7.79 | 7.79 | 7.79 | 7.79 |
| l_b,int, Bicycle LOS Score for Intersection | 2.405 | 2.084 | 2.701 | 2.017 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 164 | 803 | 197 | 52 | 526 | 49 | 68 | 67 | 343 | 161 | 48 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 803 | 197 | 52 | 526 | 49 | 68 | 67 | 343 | 161 | 48 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 216 | 53 | 14 | 141 | 13 | 18 | 18 | 92 | 43 | 13 | 23 |
| Total Analysis Volume [veh/h] | 176 | 863 | 212 | 56 | 566 | 53 | 73 | 72 | 369 | 173 | 52 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 207 | | | 411 | | | 813 | | | 1120 | | |
| Exiting Flow Rate [veh/h] | 1132 | | | 1037 | | | 283 | | | 350 | | |
| Demand Flow Rate [veh/h] | 164 | 803 | 197 | 52 | 526 | 49 | 68 | 67 | 343 | 161 | 48 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 176 | 863 | 212 | 56 | 566 | 53 | 73 | 72 | 369 | 173 | 52 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.97 |
| Entry Flow Rate [veh/h] | 592 | 670 | 323 | 363 | 150 | 377 | 176 | 154 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1177 | 1177 | 926 | 1002 | 639 | 712 | 482 | 549 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1169 | 1163 | 910 | 988 | 622 | 698 | 463 | 531 |
| X, volume / capacity | 0.50 | 0.57 | 0.35 | 0.36 | 0.23 | 0.53 | 0.36 | 0.28 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | B | B | B |
| 95th-Percentile Queue Length [veh] | 2.92 | 3.75 | 1.57 | 1.67 | 0.90 | 3.13 | 1.64 | 1.14 |
| 95th-Percentile Queue Length [ft] | 73.04 | 93.84 | 39.35 | 41.74 | 22.49 | 78.35 | 41.03 | 28.61 |
| Approach Delay [s/veh] | 9.36 | | 7.65 | | 12.13 | | 12.50 | |
| Approach LOS | A | | A | | B | | B | |
| Intersection Delay [s/veh] | 9.82 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.423 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1072 | 865 | 0 | 532 | 464 | 0 | 0 | 0 | 43 | 0 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1072 | 865 | 0 | 532 | 464 | 0 | 0 | 0 | 43 | 0 | 27 |
| Peak Hour Factor | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 1.0000 | 1.0000 | 0.8900 | 1.0000 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 301 | 243 | 0 | 149 | 130 | 0 | 0 | 0 | 12 | 0 | 8 |
| Total Analysis Volume [veh/h] | 0 | 1204 | 972 | 0 | 598 | 521 | 0 | 0 | 0 | 48 | 0 | 30 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 42 | 42 | 42 | | 42 | 42 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 24 | 24 | 24 | | 5 | 5 |
| g / C, Green / Cycle | 0.58 | 0.58 | 0.58 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.17 | 0.32 | | 0.03 | 0.02 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 2089 | 2082 | 932 | | 207 | 188 |
| d1, Uniform Delay [s] | 5.53 | 4.42 | 5.45 | | 16.83 | 16.69 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.14 | 0.98 | | 1.21 | 0.84 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.29 | 0.56 | | 0.23 | 0.16 |
| d, Delay for Lane Group [s/veh] | 6.01 | 4.56 | 6.43 | | 18.05 | 17.53 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 0.51 | 1.26 | | 0.38 | 0.24 |
| 50th-Percentile Queue Length [ft/ln] | 32.89 | 12.70 | 31.47 | | 9.45 | 5.88 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 0.91 | 2.27 | | 0.68 | 0.42 |
| 95th-Percentile Queue Length [ft/ln] | 59.20 | 22.86 | 56.64 | | 17.02 | 10.58 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.01 | 0.00 | 0.00 | 4.56 | 6.43 | 0.00 | 0.00 | 0.00 | 18.05 | 0.00 | 17.53 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.50 | | | 5.43 | | | 0.00 | | | 17.85 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.86 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.423 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 137.73 | 59.00 | 51.40 | | 3.40 | 2.12 |
| Stops [stops/h] | 226.57 | 87.48 | 108.38 | | 32.56 | 20.24 |
| Fuel consumption [US gal/h] | 9.01 | 3.66 | 3.79 | | 0.89 | 0.55 |
| CO [g/h] | 629.78 | 256.16 | 265.01 | | 62.55 | 38.73 |
| NOx [g/h] | 122.53 | 49.84 | 51.56 | | 12.17 | 7.53 |
| VOC [g/h] | 145.96 | 59.37 | 61.42 | | 14.50 | 8.98 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.92 | 17.92 | 11.35 | 11.35 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.814 | 2.961 | 1.924 | 1.941 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1674 | 1674 | 0 | 957 |
| d_b, Bicycle Delay [s] | 0.55 | 0.55 | 20.90 | 5.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.553 | 2.483 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 75.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.010 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1392 | 81 | 28 | 566 | 0 | 517 | 0 | 676 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1392 | 81 | 28 | 566 | 0 | 517 | 0 | 676 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 387 | 23 | 8 | 157 | 0 | 144 | 0 | 188 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1547 | 90 | 31 | 629 | 0 | 574 | 0 | 751 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 4 | 54 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.51 | 0.37 | 0.37 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.43 | 0.44 | 0.02 | 0.17 | 0.32 | 0.47 | |
| s, saturation flow rate [veh/h] | 1892 | 1856 | 1810 | 3595 | 1801 | 1607 | |
| c, Capacity [veh/h] | 797 | 781 | 63 | 1829 | 674 | 601 | |
| d1, Uniform Delay [s] | 30.96 | 30.96 | 50.68 | 15.62 | 30.73 | 33.46 | |
| k, delay calibration | 0.46 | 0.47 | 0.04 | 0.19 | 0.38 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 37.68 | 44.31 | 2.22 | 0.20 | 10.17 | 125.38 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.03 | 1.05 | 0.49 | 0.34 | 0.85 | 1.25 | |
| d, Delay for Lane Group [s/veh] | 68.64 | 75.26 | 52.90 | 15.82 | 40.91 | 158.83 | |
| Lane Group LOS | F | F | D | B | D | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 27.07 | 27.99 | 0.83 | 4.25 | 14.16 | 34.93 | |
| 50th-Percentile Queue Length [ft/ln] | 676.77 | 699.77 | 20.76 | 106.27 | 354.11 | 873.16 | |
| 95th-Percentile Queue Length [veh/ln] | 36.34 | 37.96 | 1.49 | 7.63 | 20.34 | 51.31 | |
| 95th-Percentile Queue Length [ft/ln] | 908.50 | 948.94 | 37.37 | 190.80 | 508.41 | 1282.68 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 71.76 | 75.26 | 52.90 | 15.82 | 0.00 | 40.91 | 0.00 | 158.83 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | E | E | D | B | | D | | F | | | |
| d_A, Approach Delay [s/veh] | 71.95 | | | 17.56 | | | 107.75 | | | 0.00 | | |
| Approach LOS | E | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 75.13 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 1.010 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 66.30 | 66.30 | 3.55 | 71.95 | 44.89 | 58.73 | |
| Stops [stops/h] | 911.98 | 942.98 | 27.98 | 286.40 | 477.17 | 1176.63 | |
| Fuel consumption [US gal/h] | 25.04 | 26.53 | 0.80 | 8.05 | 15.14 | 48.09 | |
| CO [g/h] | 1750.50 | 1854.55 | 56.13 | 562.89 | 1058.48 | 3361.45 | |
| NOx [g/h] | 340.58 | 360.83 | 10.92 | 109.52 | 205.94 | 654.02 | |
| VOC [g/h] | 405.70 | 429.81 | 13.01 | 130.46 | 245.31 | 779.05 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 50.18 | 50.18 | 43.00 | 43.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.248 | 3.145 | 2.907 | 1.782 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 842 | 655 | 749 | 0 |
| d_b, Bicycle Delay [s] | 17.91 | 24.16 | 20.92 | 53.43 |
| l_b,int, Bicycle LOS Score for Intersection | 2.910 | 2.104 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 652.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.507 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 355 | 86 | 24 | 163 | 59 | 5 | 86 | 157 | 31 | 27 | 265 | 249 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 355 | 86 | 24 | 163 | 59 | 5 | 86 | 157 | 31 | 27 | 265 | 249 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 103 | 25 | 7 | 47 | 17 | 1 | 25 | 46 | 9 | 8 | 77 | 72 |
| Total Analysis Volume [veh/h] | 413 | 100 | 28 | 190 | 69 | 6 | 100 | 183 | 36 | 31 | 308 | 290 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | Yes | No | | |
| Storage Area [veh] | 2 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 1.83 | 0.51 | 0.03 | 1.67 | 0.29 | 0.01 | 0.10 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 649.88 | 652.16 | 637.80 | 402.24 | 26.58 | 16.33 | 9.05 | 0.00 | 0.00 | 7.71 | 0.00 | 0.00 |
| Movement LOS | F | F | F | F | D | C | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 43.40 | 43.40 | 43.40 | 14.45 | 1.23 | 1.23 | 0.34 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1084.90 | 1084.90 | 1084.90 | 361.15 | 30.86 | 30.86 | 8.41 | 0.00 | 0.00 | 1.75 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 649.68 | | | 295.69 | | | 2.84 | | | 0.38 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 245.71 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 18.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.771 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 4 | 0 | 0 | 9 | 219 | 498 | 9 | 2 | 1 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 4 | 0 | 0 | 9 | 219 | 498 | 9 | 2 | 1 | 2 | 0 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 0 | 0 | 3 | 62 | 141 | 3 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 3 | 5 | 0 | 0 | 10 | 249 | 566 | 10 | 2 | 1 | 2 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 3 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 611 | 741 | 750 | 663 |
| Degree of Utilization, x | 0.01 | 0.35 | 0.77 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.04 | 1.57 | 7.49 | 0.01 |
| 95th-Percentile Queue Length [ft] | 0.99 | 39.25 | 187.15 | 0.34 |
| Approach Delay [s/veh] | 8.97 | 10.44 | 22.00 | 8.45 |
| Approach LOS | A | B | C | A |
| Intersection Delay [s/veh] | 18.30 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.547 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 347 | 4 | 0 | 180 | 131 | 11 | 237 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 347 | 4 | 0 | 180 | 131 | 11 | 237 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 110 | 1 | 0 | 57 | 41 | 3 | 75 |
| Total Analysis Volume [veh/h] | 439 | 5 | 0 | 228 | 166 | 14 | 300 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 11 | 0 | 10 | 10 | 1 | 11 |
| g / C, Green / Cycle | 0.33 | 0.33 | 0.00 | 0.29 | 0.29 | 0.03 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.00 | 0.00 | 0.06 | 0.10 | 0.01 | 0.16 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 1880 |
| c, Capacity [veh/h] | 597 | 533 | 1 | 1044 | 461 | 55 | 599 |
| d1, Uniform Delay [s] | 10.13 | 7.70 | 0.00 | 9.23 | 9.65 | 16.19 | 9.44 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.67 | 0.00 | 0.00 | 0.14 | 0.65 | 0.89 | 0.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.01 | 0.00 | 0.22 | 0.36 | 0.25 | 0.50 |
| d, Delay for Lane Group [s/veh] | 10.80 | 7.70 | 0.00 | 9.38 | 10.31 | 17.07 | 10.33 |
| Lane Group LOS | B | A | A | A | B | B | B |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.12 | 0.02 | 0.00 | 0.38 | 0.63 | 0.10 | 1.42 |
| 50th-Percentile Queue Length [ft/ln] | 52.97 | 0.44 | 0.00 | 9.43 | 15.65 | 2.56 | 35.45 |
| 95th-Percentile Queue Length [veh/ln] | 3.81 | 0.03 | 0.00 | 0.68 | 1.13 | 0.18 | 2.55 |
| 95th-Percentile Queue Length [ft/ln] | 95.34 | 0.80 | 0.00 | 16.97 | 28.18 | 4.60 | 63.81 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 10.80 | 7.70 | 0.00 | 9.38 | 10.31 | 17.07 | 10.33 |
| Movement LOS | B | A | A | A | B | B | B |
| d_A, Approach Delay [s/veh] | 10.77 | | 9.77 | | | 10.63 | |
| Approach LOS | B | | A | | | B | |
| d_I, Intersection Delay [s/veh] | 10.39 | | | | | | |
| Intersection LOS | B | | | | | | |
| Intersection V/C | 0.547 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 328.55 | 3.74 | 0.00 | 114.07 | 83.05 | 18.17 | 389.45 |
| Stops [stops/h] | 224.12 | 1.88 | 0.00 | 79.80 | 66.23 | 10.82 | 149.98 |
| Fuel consumption [US gal/h] | 15.73 | 0.17 | 0.00 | 5.48 | 4.15 | 0.86 | 17.49 |
| CO [g/h] | 1099.41 | 12.04 | 0.00 | 383.06 | 289.82 | 59.88 | 1222.68 |
| NOx [g/h] | 213.90 | 2.34 | 0.00 | 74.53 | 56.39 | 11.65 | 237.89 |
| VOC [g/h] | 254.80 | 2.79 | 0.00 | 88.78 | 67.17 | 13.88 | 283.37 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.79 | 13.52 | 13.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.083 | 2.630 | 2.226 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1293 | 1880 | 1880 |
| d_b, Bicycle Delay [s] | 2.13 | 0.06 | 0.06 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.885 | 2.078 |
| Bicycle LOS | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 91.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.199 |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 60.00 | 190.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 272 | 8 | 11 | 30 | 34 | 793 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 272 | 8 | 11 | 30 | 34 | 793 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 72 | 2 | 3 | 8 | 9 | 211 |
| Total Analysis Volume [veh/h] | 289 | 9 | 12 | 32 | 36 | 844 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 518 | 625 | 518 | 549 | 880 |
| Degree of Utilization, x | 0.56 | 0.01 | 0.02 | 0.06 | 1.20 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.39 | 0.04 | 0.07 | 0.19 | 29.48 |
| 95th-Percentile Queue Length [ft] | 84.87 | 1.10 | 1.78 | 4.63 | 737.02 |
| Approach Delay [s/veh] | 17.82 | | 9.71 | | 121.04 |
| Approach LOS | C | | A | | F |
| Intersection Delay [s/veh] | 91.86 | | | | |
| Intersection LOS | F | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 55.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.565 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 49 | 108 | 28 | 2 | 38 | 237 | 678 | 502 | 83 | 15 | 313 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 49 | 108 | 28 | 2 | 38 | 237 | 678 | 502 | 83 | 15 | 313 | 2 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 29 | 7 | 1 | 10 | 63 | 180 | 134 | 22 | 4 | 83 | 1 |
| Total Analysis Volume [veh/h] | 52 | 115 | 30 | 2 | 40 | 252 | 721 | 534 | 88 | 16 | 333 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 7 | 25 | 25 | 0 | 18 | 18 | 15 | 26 | 26 | 3 | 14 | 14 |
| g / C, Green / Cycle | 0.08 | 0.29 | 0.29 | 0.01 | 0.21 | 0.21 | 0.18 | 0.31 | 0.31 | 0.04 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.03 | 0.02 | 0.00 | 0.02 | 0.16 | 0.21 | 0.15 | 0.06 | 0.01 | 0.09 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 153 | 1004 | 473 | 11 | 391 | 344 | 627 | 1097 | 484 | 69 | 595 | 270 |
| d1, Uniform Delay [s] | 36.27 | 21.77 | 21.44 | 41.57 | 26.55 | 30.81 | 34.55 | 23.72 | 21.36 | 39.24 | 32.17 | 29.19 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.32 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.30 | 0.13 | 0.15 | 7.36 | 0.33 | 8.71 | 72.07 | 2.14 | 1.14 | 1.69 | 5.18 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.11 | 0.06 | 0.18 | 0.10 | 0.73 | 1.15 | 0.49 | 0.18 | 0.23 | 0.56 | 0.01 |
| d, Delay for Lane Group [s/veh] | 37.56 | 21.90 | 21.58 | 48.93 | 26.88 | 39.51 | 106.62 | 25.85 | 22.51 | 40.93 | 37.35 | 29.26 |
| Lane Group LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.04 | 0.83 | 0.44 | 0.06 | 0.67 | 5.45 | 12.48 | 4.49 | 1.39 | 0.35 | 3.47 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 26.10 | 20.69 | 10.88 | 1.59 | 16.68 | 136.14 | 311.99 | 112.26 | 34.75 | 8.70 | 86.72 | 0.96 |
| 95th-Percentile Queue Length [veh/ln] | 1.88 | 1.49 | 0.78 | 0.11 | 1.20 | 9.27 | 19.51 | 7.97 | 2.50 | 0.63 | 6.24 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 46.98 | 37.25 | 19.58 | 2.86 | 30.02 | 231.81 | 487.82 | 199.15 | 62.55 | 15.66 | 156.10 | 1.72 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.56 | 21.90 | 21.58 | 48.93 | 26.88 | 39.51 | 106.62 | 25.85 | 22.51 | 40.93 | 37.35 | 29.26 |
| Movement LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 25.99 | | | 37.86 | | | 68.99 | | | 37.47 | | |
| Approach LOS | C | | | D | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 55.86 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.565 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.46 | 9.87 | 2.57 | 0.55 | 10.97 | 69.10 | 99.64 | 73.80 | 12.16 | 19.96 | 415.32 | 2.49 |
| Stops [stops/h] | 44.77 | 71.00 | 18.66 | 2.73 | 28.61 | 233.52 | 1070.36 | 385.15 | 59.61 | 14.93 | 297.52 | 1.64 |
| Fuel consumption [US gal/h] | 0.83 | 1.31 | 0.34 | 0.06 | 0.83 | 6.16 | 25.66 | 7.98 | 1.23 | 1.04 | 21.27 | 0.12 |
| CO [g/h] | 57.91 | 91.64 | 23.82 | 4.02 | 57.91 | 430.65 | 1793.39 | 557.49 | 86.19 | 72.50 | 1486.91 | 8.64 |
| NOx [g/h] | 11.27 | 17.83 | 4.64 | 0.78 | 11.27 | 83.79 | 348.93 | 108.47 | 16.77 | 14.11 | 289.30 | 1.68 |
| VOC [g/h] | 13.42 | 21.24 | 5.52 | 0.93 | 13.42 | 99.81 | 415.64 | 129.20 | 19.98 | 16.80 | 344.61 | 2.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.69 | 31.69 | 31.69 | 31.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.362 | 2.516 | 2.866 | 2.598 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 476 | 476 | 953 | 953 |
| d_b, Bicycle Delay [s] | 24.36 | 24.36 | 11.50 | 11.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.722 | 2.045 | 2.668 | 1.849 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.212 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 39 | 2 | 66 | 35 | 59 | 171 | 350 | 31 | 1 | 233 | 78 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 39 | 2 | 66 | 35 | 59 | 171 | 350 | 31 | 1 | 233 | 78 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 11 | 1 | 18 | 10 | 16 | 46 | 95 | 8 | 0 | 63 | 21 |
| Total Analysis Volume [veh/h] | 18 | 42 | 2 | 72 | 38 | 64 | 186 | 380 | 34 | 1 | 253 | 85 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 11 | 7 | 15 | 15 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.16 | 0.11 | 0.23 | 0.23 | 0.14 | 0.28 | 0.28 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.02 | 0.02 | 0.04 | 0.05 | 0.11 | 0.02 | 0.00 | 0.07 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1809 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 292 | 390 | 434 | 369 | 504 | 1015 | 458 | 7 | 522 | 424 |
| d1, Uniform Delay [s] | 31.35 | 24.48 | 27.40 | 20.63 | 21.05 | 26.31 | 19.50 | 17.80 | 33.73 | 26.54 | 25.39 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 0.81 | 0.08 | 0.49 | 1.27 | 0.17 | 0.49 | 0.15 | 3.80 | 1.49 | 0.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.15 | 0.18 | 0.09 | 0.17 | 0.37 | 0.37 | 0.07 | 0.15 | 0.48 | 0.20 |
| d, Delay for Lane Group [s/veh] | 31.88 | 25.29 | 27.48 | 21.13 | 22.32 | 26.48 | 19.99 | 17.95 | 37.53 | 28.03 | 25.88 |
| Lane Group LOS | C | C | C | C | C | C | B | B | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.29 | 0.65 | 0.48 | 0.48 | 0.84 | 1.31 | 2.32 | 0.39 | 0.02 | 1.68 | 0.53 |
| 50th-Percentile Queue Length [ft/ln] | 7.16 | 16.19 | 12.00 | 11.89 | 21.12 | 32.77 | 57.99 | 9.66 | 0.53 | 42.06 | 13.37 |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 1.17 | 0.86 | 0.86 | 1.52 | 2.36 | 4.18 | 0.70 | 0.04 | 3.03 | 0.96 |
| 95th-Percentile Queue Length [ft/ln] | 12.89 | 29.15 | 21.61 | 21.40 | 38.02 | 58.99 | 104.39 | 17.38 | 0.96 | 75.70 | 24.07 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.88 | 25.29 | 25.29 | 27.48 | 21.13 | 22.32 | 26.48 | 19.99 | 17.95 | 37.53 | 28.03 | 25.88 |
| Movement LOS | C | C | C | C | C | C | C | B | B | D | C | C |
| d_A, Approach Delay [s/veh] | 27.20 | | | 24.20 | | | 21.88 | | | 27.52 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.212 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.33 | 3.26 | 93.47 | 49.33 | 83.08 | 231.98 | 473.94 | 42.41 | 0.17 | 43.76 | 14.70 |
| Stops [stops/h] | 15.23 | 34.43 | 51.05 | 25.27 | 44.90 | 139.34 | 246.59 | 20.53 | 1.13 | 178.83 | 56.86 |
| Fuel consumption [US gal/h] | 0.26 | 0.55 | 4.32 | 2.20 | 3.76 | 11.32 | 22.42 | 1.98 | 0.04 | 7.64 | 2.45 |
| CO [g/h] | 17.88 | 38.50 | 301.71 | 154.01 | 262.98 | 791.41 | 1567.06 | 138.63 | 3.02 | 534.19 | 171.03 |
| NOx [g/h] | 3.48 | 7.49 | 58.70 | 29.97 | 51.17 | 153.98 | 304.89 | 26.97 | 0.59 | 103.93 | 33.28 |
| VOC [g/h] | 4.14 | 8.92 | 69.93 | 35.69 | 60.95 | 183.42 | 363.18 | 32.13 | 0.70 | 123.80 | 39.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.76 | 23.76 | 23.76 | 23.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.968 | 2.569 | 2.708 | 2.818 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 591 | 591 | 886 | 886 |
| d_b, Bicycle Delay [s] | 16.82 | 16.82 | 10.51 | 10.51 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.847 | 2.055 | 1.839 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.188 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 157 | 0 | 277 | 170 | 188 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 157 | 0 | 277 | 170 | 188 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 69 | 43 | 47 |
| Total Analysis Volume [veh/h] | 0 | 157 | 0 | 277 | 170 | 188 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.25 | 10.32 | 8.01 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.69 | 0.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 17.28 | 17.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.32 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.05 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.112 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 100 | 0 | 0 | 206 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 0 | 0 | 206 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 0 | 0 | 52 | 0 | 0 |
| Total Analysis Volume [veh/h] | 100 | 0 | 0 | 206 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.53 | 9.29 | 0.00 | 0.00 | 7.64 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.38 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 9.40 | 9.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.53 | | 0.00 | | 3.82 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.11 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Near Term MP1 Improved AM.pdf

Scenario 17 Near Term AM MP1 Improved
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.643 | 30.6 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Right | 0.633 | 34.6 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.605 | 30.0 | C |
| 4 | Minnewawa Ave & International Ave | All-way stop | HCM 7th Edition | NB Left | 0.804 | 19.0 | C |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | SB Left | 0.918 | 36.8 | D |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.893 | 53.8 | D |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.779 | 39.1 | D |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.704 | 33.0 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.768 | 35.0 | D |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.858 | 44.1 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.528 | 18.9 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Right | 0.997 | 35.3 | D |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.460 | 14.2 | B |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.830 | 44.2 | D |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 1.057 | 105.9 | F |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.651 | 35.8 | D |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.816 | 52.8 | D |
| 21 | Fowler Ave & Perrin Ave | Signalized | HCM 7th Edition | NB Thru | 0.709 | 20.1 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.776 | 35.0 | C |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | WB Left | 0.095 | 25.0 | D |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.683 | 21.3 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 1.013 | 89.8 | F |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.868 | 35.1 | D |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.714 | 25.8 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.077 | 20.8 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.022 | 18.4 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.427 | 29.8 | D |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Thru | 0.767 | 39.5 | D |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.667 | 25.1 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | EB Right | | 14.5 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.647 | 8.2 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.571 | 14.2 | B |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.305 | 24.9 | C |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Right | 0.679 | 13.6 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.354 | 8.4 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | SB Left | | 10.1 | B |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Right | 0.669 | 50.2 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.347 | 27.5 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.174 | 10.8 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.144 | 9.2 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.643 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 437 | 437 | 18 | 56 | 483 | 91 | 20 | 80 | 320 | 8 | 242 | 135 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 437 | 437 | 18 | 56 | 483 | 91 | 20 | 80 | 320 | 8 | 242 | 135 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 142 | 142 | 6 | 18 | 157 | 30 | 6 | 26 | 104 | 3 | 79 | 44 |
| Total Analysis Volume [veh/h] | 568 | 568 | 23 | 73 | 627 | 118 | 26 | 104 | 416 | 10 | 314 | 175 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 16 | 31 | 31 | 7 | 20 | 20 | 4 | 25 | 25 | 2 | 23 | 23 |
| g / C, Green / Cycle | 0.19 | 0.36 | 0.36 | 0.08 | 0.24 | 0.24 | 0.04 | 0.30 | 0.30 | 0.02 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.16 | 0.01 | 0.04 | 0.12 | 0.08 | 0.01 | 0.06 | 0.26 | 0.01 | 0.17 | 0.11 |
| s, saturation flow rate [veh/h] | 3475 | 3560 | 1615 | 1759 | 5065 | 1573 | 1810 | 1877 | 1603 | 1810 | 1894 | 1565 |
| c, Capacity [veh/h] | 656 | 1281 | 581 | 136 | 1200 | 373 | 79 | 562 | 480 | 36 | 509 | 420 |
| d1, Uniform Delay [s] | 33.61 | 20.83 | 17.76 | 37.93 | 28.39 | 26.89 | 39.65 | 22.21 | 28.32 | 41.25 | 27.38 | 25.71 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.33 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.40 | 0.78 | 0.09 | 1.22 | 1.15 | 1.57 | 0.90 | 0.37 | 13.29 | 1.51 | 2.09 | 1.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.87 | 0.44 | 0.04 | 0.54 | 0.52 | 0.32 | 0.33 | 0.19 | 0.87 | 0.28 | 0.62 | 0.42 |
| d, Delay for Lane Group [s/veh] | 35.01 | 21.61 | 17.85 | 39.14 | 29.53 | 28.45 | 40.55 | 22.58 | 41.60 | 42.76 | 29.47 | 26.84 |
| Lane Group LOS | D | C | B | D | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.36 | 3.98 | 0.28 | 1.42 | 3.53 | 1.98 | 0.52 | 1.49 | 9.09 | 0.22 | 5.73 | 2.97 |
| 50th-Percentile Queue Length [ft/ln] | 134.07 | 99.53 | 6.99 | 35.51 | 88.29 | 49.57 | 13.08 | 37.31 | 227.19 | 5.49 | 143.18 | 74.37 |
| 95th-Percentile Queue Length [veh/ln] | 9.16 | 7.17 | 0.50 | 2.56 | 6.36 | 3.57 | 0.94 | 2.69 | 14.03 | 0.40 | 9.65 | 5.35 |
| 95th-Percentile Queue Length [ft/ln] | 229.01 | 179.15 | 12.59 | 63.92 | 158.92 | 89.22 | 23.54 | 67.16 | 350.78 | 9.88 | 241.31 | 133.87 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.01 | 21.61 | 17.85 | 39.14 | 29.53 | 28.45 | 40.55 | 22.58 | 41.60 | 42.76 | 29.47 | 26.84 |
| Movement LOS | D | C | B | D | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 28.10 | | | 30.24 | | | 37.93 | | | 28.81 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.57 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.643 | | | | | | | | | | | |

**Emissions**

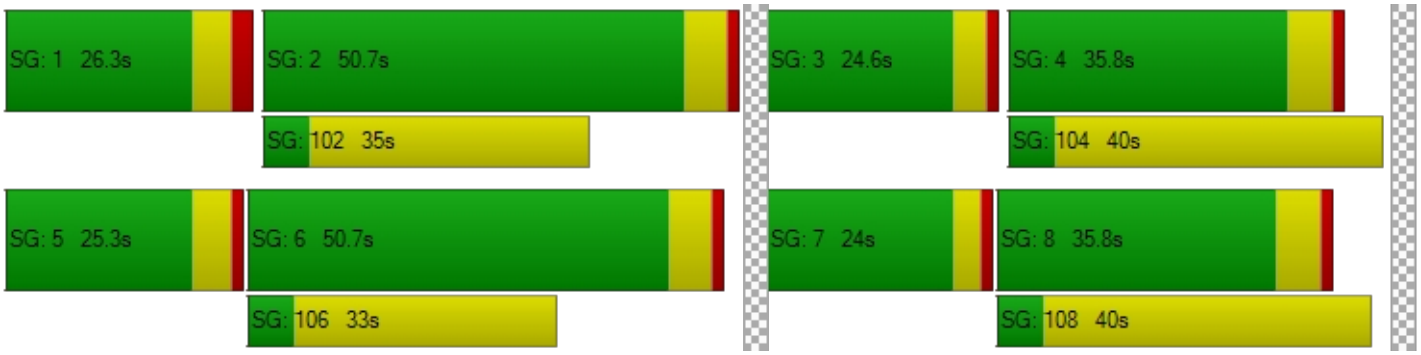
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 286.73 | 286.73 | 11.61 | 7.19 | 61.76 | 11.62 | 2.59 | 10.36 | 41.44 | 10.38 | 325.79 | 181.57 |
| Stops [stops/h] | 453.07 | 336.35 | 11.82 | 60.00 | 447.56 | 83.75 | 22.09 | 63.04 | 383.88 | 9.27 | 241.94 | 125.67 |
| Fuel consumption [US gal/h] | 20.60 | 17.26 | 0.65 | 1.74 | 12.71 | 2.36 | 0.58 | 1.62 | 9.72 | 0.57 | 16.63 | 9.12 |
| CO [g/h] | 1440.19 | 1206.71 | 45.70 | 121.86 | 888.20 | 164.84 | 40.40 | 113.01 | 679.09 | 39.52 | 1162.53 | 637.83 |
| NOx [g/h] | 280.21 | 234.78 | 8.89 | 23.71 | 172.81 | 32.07 | 7.86 | 21.99 | 132.13 | 7.69 | 226.19 | 124.10 |
| VOC [g/h] | 333.78 | 279.67 | 10.59 | 28.24 | 205.85 | 38.20 | 9.36 | 26.19 | 157.39 | 9.16 | 269.43 | 147.82 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.09 | 34.09 | 34.09 | 34.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.174 | 2.961 | 2.751 | 2.300 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1056 | 1056 | 704 | 704 |
| d_b, Bicycle Delay [s] | 9.49 | 9.49 | 17.89 | 17.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.516 | 2.010 | 2.461 | 2.383 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.633 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 130 | 660 | 28 | 76 | 699 | 63 | 77 | 134 | 245 | 215 | 186 | 203 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 130 | 660 | 28 | 76 | 699 | 63 | 77 | 134 | 245 | 215 | 186 | 203 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 185 | 8 | 21 | 196 | 18 | 22 | 38 | 69 | 60 | 52 | 57 |
| Total Analysis Volume [veh/h] | 146 | 742 | 31 | 85 | 785 | 71 | 87 | 151 | 275 | 242 | 209 | 228 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 9 | 27 | 27 | 7 | 25 | 25 | 7 | 20 | 20 | 14 | 26 |
| g / C, Green / Cycle | 0.10 | 0.30 | 0.30 | 0.08 | 0.27 | 0.27 | 0.08 | 0.22 | 0.22 | 0.16 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.14 | 0.02 | 0.05 | 0.15 | 0.04 | 0.05 | 0.08 | 0.17 | 0.14 | 0.25 |
| s, saturation flow rate [veh/h] | 1747 | 5127 | 1567 | 1711 | 5090 | 1615 | 1772 | 1888 | 1577 | 1758 | 1722 |
| c, Capacity [veh/h] | 180 | 1532 | 468 | 133 | 1392 | 442 | 139 | 418 | 349 | 280 | 490 |
| d1, Uniform Delay [s] | 39.97 | 26.18 | 22.84 | 40.76 | 28.43 | 25.15 | 40.69 | 30.00 | 33.43 | 37.36 | 31.23 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.09 | 0.33 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.28 | 0.77 | 0.19 | 1.89 | 1.17 | 0.55 | 1.73 | 0.63 | 4.73 | 6.76 | 15.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.48 | 0.07 | 0.64 | 0.56 | 0.16 | 0.63 | 0.36 | 0.79 | 0.87 | 0.89 |
| d, Delay for Lane Group [s/veh] | 43.25 | 26.95 | 23.03 | 42.65 | 29.60 | 25.70 | 42.42 | 30.63 | 38.15 | 44.11 | 46.39 |
| Lane Group LOS | D | C | C | D | C | C | D | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.17 | 4.14 | 0.47 | 1.81 | 4.66 | 1.15 | 1.89 | 2.75 | 5.89 | 5.68 | 10.96 |
| 50th-Percentile Queue Length [ft/ln] | 79.23 | 103.40 | 11.63 | 45.35 | 116.38 | 28.71 | 47.28 | 68.80 | 147.37 | 141.96 | 273.97 |
| 95th-Percentile Queue Length [veh/ln] | 5.70 | 7.44 | 0.84 | 3.27 | 8.19 | 2.07 | 3.40 | 4.95 | 9.88 | 9.59 | 16.39 |
| 95th-Percentile Queue Length [ft/ln] | 142.62 | 186.12 | 20.94 | 81.63 | 204.84 | 51.68 | 85.10 | 123.84 | 246.92 | 239.65 | 409.70 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.25 | 26.95 | 23.03 | 42.65 | 29.60 | 25.70 | 42.42 | 30.63 | 38.15 | 44.11 | 46.39 | 46.39 |
| Movement LOS | D | C | C | D | C | C | D | C | D | D | D | D |
| d_A, Approach Delay [s/veh] | 29.41 | | | 30.48 | | | 36.66 | | | 45.58 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.56 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.633 | | | | | | | | | | | |

**Emissions**

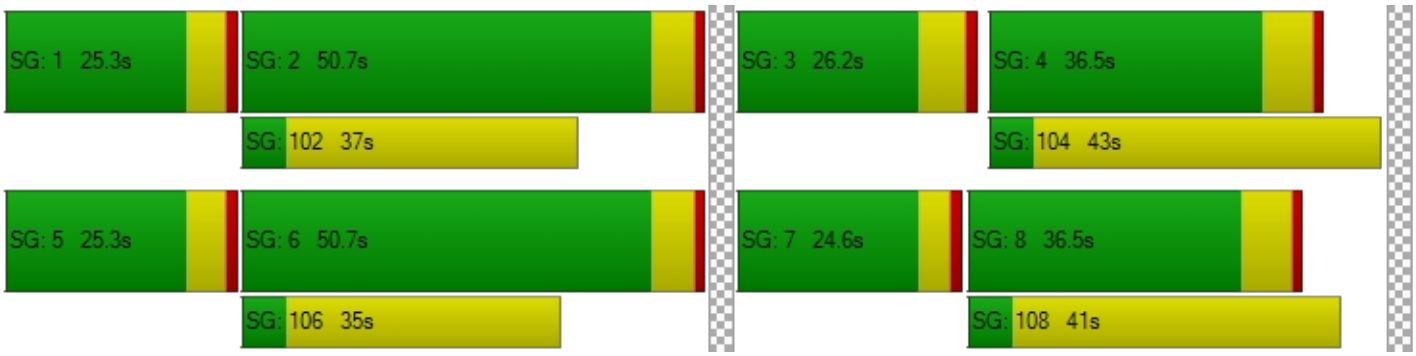
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 147.91 | 751.70 | 31.41 | 42.91 | 396.27 | 35.84 | 9.47 | 16.43 | 29.92 | 251.06 | 453.36 |
| Stops [stops/h] | 125.48 | 491.26 | 18.42 | 71.82 | 552.90 | 45.47 | 74.87 | 108.95 | 233.39 | 224.81 | 433.88 |
| Fuel consumption [US gal/h] | 8.16 | 36.78 | 1.48 | 3.28 | 26.49 | 2.27 | 1.83 | 2.60 | 5.50 | 13.75 | 25.19 |
| CO [g/h] | 570.67 | 2571.18 | 103.44 | 229.07 | 1851.35 | 158.64 | 127.60 | 181.73 | 384.41 | 961.10 | 1760.44 |
| NOx [g/h] | 111.03 | 500.26 | 20.12 | 44.57 | 360.21 | 30.87 | 24.83 | 35.36 | 74.79 | 186.99 | 342.52 |
| VOC [g/h] | 132.26 | 595.90 | 23.97 | 53.09 | 429.07 | 36.77 | 29.57 | 42.12 | 89.09 | 222.74 | 408.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.91 | 36.91 | 36.91 | 36.91 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.179 | 3.133 | 2.438 | 2.250 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 990 | 990 | 660 | 660 |
| d_b, Bicycle Delay [s] | 11.60 | 11.60 | 20.41 | 20.41 |
| l_b,int, Bicycle LOS Score for Intersection | 2.065 | 2.077 | 2.406 | 2.680 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.605 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 113 | 748 | 197 | 91 | 1298 | 231 | 96 | 238 | 158 | 299 | 235 | 83 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 113 | 748 | 197 | 91 | 1298 | 231 | 96 | 238 | 158 | 299 | 235 | 83 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 208 | 55 | 25 | 361 | 64 | 27 | 66 | 44 | 83 | 65 | 23 |
| Total Analysis Volume [veh/h] | 126 | 831 | 219 | 101 | 1442 | 257 | 107 | 264 | 176 | 332 | 261 | 92 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 35 | 35 | 7 | 34 | 34 | 8 | 15 | 15 | 11 | 20 | 20 |
| g / C, Green / Cycle | 0.08 | 0.37 | 0.37 | 0.08 | 0.37 | 0.37 | 0.08 | 0.16 | 0.16 | 0.12 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.16 | 0.14 | 0.03 | 0.28 | 0.17 | 0.03 | 0.07 | 0.11 | 0.09 | 0.07 | 0.06 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1542 | 3467 | 3526 | 1561 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 287 | 1911 | 602 | 274 | 1884 | 571 | 281 | 561 | 248 | 421 | 752 | 336 |
| d1, Uniform Delay [s] | 40.68 | 21.88 | 21.21 | 40.65 | 25.81 | 22.14 | 40.62 | 35.63 | 37.07 | 39.88 | 31.33 | 30.82 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 0.51 | 1.20 | 0.31 | 2.15 | 1.80 | 0.32 | 1.45 | 8.46 | 1.26 | 0.38 | 0.60 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.44 | 0.43 | 0.36 | 0.37 | 0.77 | 0.45 | 0.38 | 0.47 | 0.71 | 0.79 | 0.35 | 0.27 |
| d, Delay for Lane Group [s/veh] | 41.07 | 22.39 | 22.41 | 40.96 | 27.96 | 23.95 | 40.94 | 37.08 | 45.52 | 41.15 | 31.70 | 31.42 |
| Lane Group LOS | D | C | C | D | C | C | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 4.19 | 3.34 | 1.05 | 8.75 | 4.13 | 1.11 | 2.67 | 4.14 | 3.55 | 2.38 | 1.68 |
| 50th-Percentile Queue Length [ft/ln] | 32.95 | 104.81 | 83.60 | 26.30 | 218.64 | 103.14 | 27.87 | 66.87 | 103.43 | 88.80 | 59.51 | 41.99 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 7.55 | 6.02 | 1.89 | 13.60 | 7.43 | 2.01 | 4.81 | 7.45 | 6.39 | 4.28 | 3.02 |
| 95th-Percentile Queue Length [ft/ln] | 59.31 | 188.65 | 150.48 | 47.35 | 339.89 | 185.66 | 50.16 | 120.37 | 186.17 | 159.85 | 107.12 | 75.58 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.07 | 22.39 | 22.41 | 40.96 | 27.96 | 23.95 | 40.94 | 37.08 | 45.52 | 41.15 | 31.70 | 31.42 |
| Movement LOS | D | C | C | D | C | C | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 24.39 | | | 28.11 | | | 40.55 | | | 36.24 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 30.01 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.605 | | | | | | | | | | | |

**Emissions**

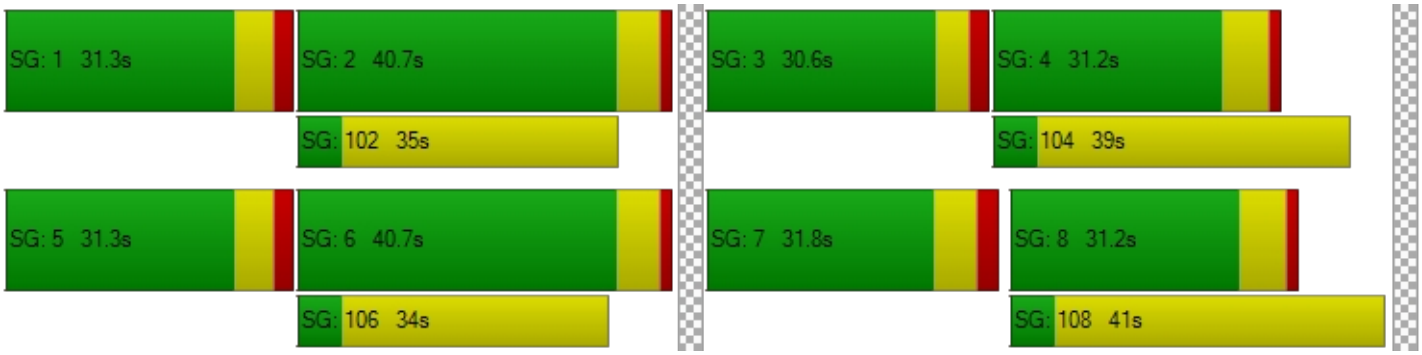
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 20.56 | 135.59 | 35.73 | 102.32 | 1460.85 | 260.36 | 13.98 | 34.50 | 23.00 | 343.98 | 270.41 | 95.32 |
| Stops [stops/h] | 101.95 | 486.47 | 129.35 | 81.39 | 1014.84 | 159.59 | 86.24 | 206.92 | 160.03 | 274.79 | 184.15 | 64.97 |
| Fuel consumption [US gal/h] | 3.31 | 15.79 | 4.18 | 5.52 | 72.70 | 12.42 | 2.68 | 6.32 | 4.86 | 18.52 | 13.57 | 4.78 |
| CO [g/h] | 231.13 | 1104.03 | 292.24 | 385.68 | 5081.95 | 868.24 | 187.57 | 442.00 | 339.50 | 1294.34 | 948.28 | 333.94 |
| NOx [g/h] | 44.97 | 214.80 | 56.86 | 75.04 | 988.76 | 168.93 | 36.49 | 86.00 | 66.05 | 251.83 | 184.50 | 64.97 |
| VOC [g/h] | 53.57 | 255.87 | 67.73 | 89.39 | 1177.79 | 201.22 | 43.47 | 102.44 | 78.68 | 299.97 | 219.77 | 77.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 7375.40 | 0.00 | 350.75 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.97 | 37.97 | 37.97 | 37.97 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.417 | 3.363 | 2.874 | 2.986 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 752 | 752 | 537 | 537 |
| d_b, Bicycle Delay [s] | 18.12 | 18.12 | 24.93 | 24.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.206 | 2.550 | 2.011 | 2.125 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 19.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.804 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 383 | 100 | 0 | 0 | 230 | 16 | 2 | 0 | 114 | 0 | 1 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 383 | 100 | 0 | 0 | 230 | 16 | 2 | 0 | 114 | 0 | 1 | 0 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 117 | 30 | 0 | 0 | 70 | 5 | 1 | 0 | 35 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 467 | 122 | 0 | 0 | 280 | 20 | 2 | 0 | 139 | 0 | 1 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 733 | 708 | 651 | 561 |
| Degree of Utilization, x | 0.80 | 0.42 | 0.22 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 8.38 | 2.12 | 0.82 | 0.01 |
| 95th-Percentile Queue Length [ft] | 209.51 | 52.96 | 20.44 | 0.13 |
| Approach Delay [s/veh] | 24.80 | 11.77 | 10.04 | 9.43 |
| Approach LOS | C | B | B | A |
| Intersection Delay [s/veh] | 18.98 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.918 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 258 | 185 | 20 | 169 | 169 | 7 | 4 | 145 | 62 | 54 | 362 | 305 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 258 | 185 | 20 | 169 | 169 | 7 | 4 | 145 | 62 | 54 | 362 | 305 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 49 | 5 | 45 | 45 | 2 | 1 | 39 | 16 | 14 | 96 | 81 |
| Total Analysis Volume [veh/h] | 274 | 197 | 21 | 180 | 180 | 7 | 4 | 154 | 66 | 57 | 385 | 324 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 0 | 8 | 0 | 0 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | | No | |
| Maximum Recall | No | No | | No | No | | | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 17 | 18 | 12 | 13 | 42 | 42 |
| g / C, Green / Cycle | 0.20 | 0.22 | 0.14 | 0.16 | 0.50 | 0.50 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.14 | 0.11 | 0.11 | 0.14 | 0.50 |
| s, saturation flow rate [veh/h] | 1599 | 1611 | 1569 | 1644 | 1597 | 1526 |
| c, Capacity [veh/h] | 316 | 353 | 218 | 265 | 841 | 807 |
| d1, Uniform Delay [s] | 32.71 | 29.67 | 35.22 | 33.43 | 12.30 | 21.02 |
| k, delay calibration | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.78 | 1.76 | 7.60 | 3.45 | 0.17 | 21.41 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.87 | 0.62 | 0.82 | 0.71 | 0.27 | 0.95 |
| d, Delay for Lane Group [s/veh] | 41.49 | 31.43 | 42.82 | 36.89 | 12.47 | 42.44 |
| Lane Group LOS | D | C | D | D | B | D |
| Critical Lane Group | Yes | No | No | Yes | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 6.02 | 4.04 | 3.96 | 3.78 | 2.33 | 18.27 |
| 50th-Percentile Queue Length [ft/ln] | 150.38 | 101.09 | 99.06 | 94.52 | 58.31 | 456.78 |
| 95th-Percentile Queue Length [veh/ln] | 10.04 | 7.28 | 7.13 | 6.81 | 4.20 | 25.28 |
| 95th-Percentile Queue Length [ft/ln] | 250.94 | 181.97 | 178.31 | 170.13 | 104.96 | 632.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.49 | 31.43 | 31.43 | 42.82 | 36.89 | 36.89 | 12.47 | 12.47 | 12.47 | 42.44 | 42.44 | 42.44 |
| Movement LOS | D | C | C | D | D | D | B | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 37.03 | | | 39.80 | | | 12.47 | | | 42.44 | | |
| Approach LOS | D | | | D | | | B | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.84 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.918 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 275.29 | 219.03 | 90.61 | 94.13 | 232.39 | 470.19 |
| Stops [stops/h] | 257.68 | 173.22 | 169.74 | 161.95 | 99.91 | 782.68 |
| Fuel consumption [US gal/h] | 15.07 | 11.37 | 6.24 | 6.17 | 10.69 | 30.30 |
| CO [g/h] | 1053.38 | 794.61 | 435.92 | 431.52 | 747.01 | 2117.64 |
| NOx [g/h] | 204.95 | 154.60 | 84.81 | 83.96 | 145.34 | 412.02 |
| VOC [g/h] | 244.13 | 184.16 | 101.03 | 100.01 | 173.13 | 490.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | F | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 952 | 952 | 952 | 952 |
| d_b, Bicycle Delay [s] | 11.54 | 11.54 | 11.54 | 11.54 |
| l_b,int, Bicycle LOS Score for Intersection | 2.371 | 2.165 | 1.929 | 2.824 |
| Bicycle LOS | B | B | A | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 53.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.893 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 118 | 247 | 95 | 168 | 248 | 108 | 33 | 488 | 622 | 31 | 262 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 118 | 247 | 95 | 168 | 248 | 108 | 33 | 488 | 622 | 31 | 262 | 69 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 73 | 28 | 49 | 73 | 32 | 10 | 144 | 183 | 9 | 77 | 20 |
| Total Analysis Volume [veh/h] | 139 | 291 | 112 | 198 | 292 | 127 | 39 | 574 | 732 | 36 | 308 | 81 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 26 | 26 | 14 | 29 | 7 | 42 | 42 | 7 | 42 | 42 |
| g / C, Green / Cycle | 0.10 | 0.25 | 0.25 | 0.13 | 0.27 | 0.07 | 0.40 | 0.40 | 0.07 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.16 | 0.07 | 0.11 | 0.24 | 0.02 | 0.16 | 0.46 | 0.02 | 0.16 | 0.05 |
| s, saturation flow rate [veh/h] | 1774 | 1855 | 1517 | 1794 | 1780 | 1711 | 3512 | 1601 | 1810 | 1879 | 1568 |
| c, Capacity [veh/h] | 183 | 457 | 374 | 235 | 488 | 123 | 1408 | 642 | 124 | 748 | 624 |
| d1, Uniform Delay [s] | 45.69 | 35.26 | 32.10 | 44.46 | 36.08 | 46.18 | 22.47 | 31.33 | 46.35 | 22.71 | 20.03 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.18 | 0.11 | 0.11 | 0.50 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.27 | 1.47 | 0.44 | 7.95 | 7.09 | 1.47 | 0.19 | 81.01 | 1.27 | 0.36 | 0.09 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.64 | 0.30 | 0.84 | 0.86 | 0.32 | 0.41 | 1.14 | 0.29 | 0.41 | 0.13 |
| d, Delay for Lane Group [s/veh] | 51.96 | 36.73 | 32.54 | 52.41 | 43.17 | 47.65 | 22.66 | 112.33 | 47.62 | 23.08 | 20.12 |
| Lane Group LOS | D | D | C | D | D | D | C | F | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.71 | 6.52 | 2.26 | 5.35 | 10.57 | 0.98 | 4.71 | 29.00 | 0.90 | 5.12 | 1.19 |
| 50th-Percentile Queue Length [ft/ln] | 92.82 | 162.91 | 56.59 | 133.74 | 264.35 | 24.39 | 117.65 | 724.94 | 22.48 | 128.05 | 29.65 |
| 95th-Percentile Queue Length [veh/ln] | 6.68 | 10.70 | 4.07 | 9.14 | 15.91 | 1.76 | 8.26 | 41.38 | 1.62 | 8.83 | 2.14 |
| 95th-Percentile Queue Length [ft/ln] | 167.07 | 267.57 | 101.86 | 228.57 | 397.68 | 43.91 | 206.60 | 1034.51 | 40.46 | 220.84 | 53.38 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.96 | 36.73 | 32.54 | 52.41 | 43.17 | 43.17 | 47.65 | 22.66 | 112.33 | 47.62 | 23.08 | 20.12 |
| Movement LOS | D | D | C | D | D | D | D | C | F | D | C | C |
| d_A, Approach Delay [s/veh] | 39.77 | | | 46.13 | | | 72.19 | | | 24.59 | | |
| Approach LOS | D | | | D | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 53.80 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.893 | | | | | | | | | | | |

**Emissions**

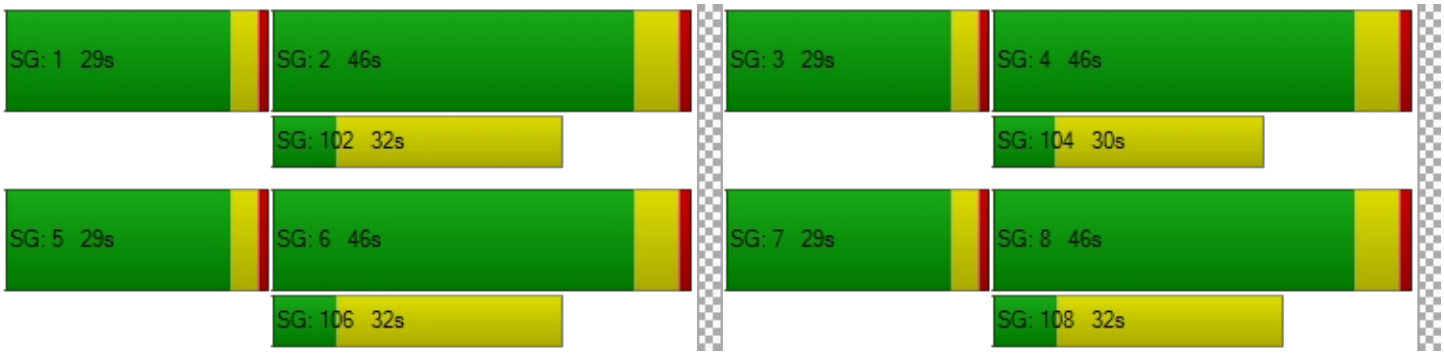
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 16.64 | 34.84 | 13.41 | 198.93 | 420.97 | 40.41 | 594.70 | 758.40 | 18.03 | 154.24 | 40.56 |
| Stops [stops/h] | 127.72 | 224.17 | 77.87 | 184.03 | 363.77 | 33.57 | 323.79 | 997.56 | 30.93 | 176.20 | 40.81 |
| Fuel consumption [US gal/h] | 3.63 | 6.16 | 2.17 | 11.22 | 22.63 | 2.25 | 27.53 | 57.44 | 1.43 | 9.32 | 2.32 |
| CO [g/h] | 253.60 | 430.34 | 151.65 | 784.19 | 1582.08 | 157.04 | 1924.54 | 4015.13 | 99.78 | 651.22 | 161.91 |
| NOx [g/h] | 49.34 | 83.73 | 29.51 | 152.58 | 307.82 | 30.55 | 374.44 | 781.20 | 19.41 | 126.70 | 31.50 |
| VOC [g/h] | 58.77 | 99.74 | 35.15 | 181.74 | 366.66 | 36.39 | 446.03 | 930.55 | 23.12 | 150.93 | 37.53 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 7794.10 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.90 | 41.90 | 41.90 | 41.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.724 | 2.448 | 2.980 | 2.732 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 764 | 764 | 764 | 764 |
| d_b, Bicycle Delay [s] | 19.97 | 19.97 | 19.97 | 19.97 |
| l_b,int, Bicycle LOS Score for Intersection | 2.454 | 2.578 | 2.669 | 2.261 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 233 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 233 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 58 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 233 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.779 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 177 | 59 | 88 | 19 | 71 | 67 | 32 | 459 | 527 | 341 | 129 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 177 | 59 | 88 | 19 | 71 | 67 | 32 | 459 | 527 | 341 | 129 | 48 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 53 | 18 | 27 | 6 | 21 | 20 | 10 | 138 | 159 | 103 | 39 | 14 |
| Total Analysis Volume [veh/h] | 213 | 71 | 106 | 23 | 86 | 81 | 39 | 553 | 635 | 411 | 155 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 16 | 22 | 22 | 6 | 13 | 13 | 8 | 42 | 42 | 16 | 50 | 50 |
| g / C, Green / Cycle | 0.15 | 0.21 | 0.21 | 0.06 | 0.12 | 0.12 | 0.08 | 0.41 | 0.41 | 0.16 | 0.48 | 0.48 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.04 | 0.07 | 0.01 | 0.02 | 0.05 | 0.01 | 0.15 | 0.40 | 0.12 | 0.04 | 0.04 |
| s, saturation flow rate [veh/h] | 1788 | 1705 | 1449 | 3514 | 3618 | 1577 | 3428 | 3618 | 1587 | 3514 | 3509 | 1613 |
| c, Capacity [veh/h] | 275 | 364 | 310 | 223 | 448 | 195 | 282 | 1485 | 651 | 548 | 1699 | 781 |
| d1, Uniform Delay [s] | 41.63 | 33.01 | 34.13 | 45.17 | 40.24 | 41.39 | 43.61 | 21.00 | 29.66 | 41.29 | 14.25 | 14.13 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.48 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.79 | 0.58 | 1.46 | 0.07 | 1.05 | 7.04 | 0.08 | 0.23 | 29.08 | 0.79 | 0.03 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.19 | 0.34 | 0.10 | 0.19 | 0.41 | 0.14 | 0.37 | 0.98 | 0.75 | 0.09 | 0.07 |
| d, Delay for Lane Group [s/veh] | 43.42 | 33.58 | 35.59 | 45.24 | 41.29 | 48.43 | 43.69 | 21.23 | 58.74 | 42.08 | 14.28 | 14.18 |
| Lane Group LOS | D | C | D | D | D | D | D | C | E | D | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.08 | 1.45 | 2.27 | 0.28 | 1.03 | 2.26 | 0.44 | 4.26 | 18.92 | 4.96 | 0.96 | 0.72 |
| 50th-Percentile Queue Length [ft/ln] | 127.11 | 36.18 | 56.74 | 6.91 | 25.83 | 56.43 | 11.05 | 106.49 | 473.06 | 124.11 | 23.97 | 17.96 |
| 95th-Percentile Queue Length [veh/ln] | 8.78 | 2.61 | 4.09 | 0.50 | 1.86 | 4.06 | 0.80 | 7.64 | 26.06 | 8.62 | 1.73 | 1.29 |
| 95th-Percentile Queue Length [ft/ln] | 219.56 | 65.13 | 102.13 | 12.44 | 46.50 | 101.58 | 19.90 | 191.12 | 651.41 | 215.46 | 43.15 | 32.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.42 | 33.58 | 35.59 | 45.24 | 41.29 | 48.43 | 43.69 | 21.23 | 58.74 | 42.08 | 14.28 | 14.18 |
| Movement LOS | D | C | D | D | D | D | D | C | E | D | B | B |
| d_A, Approach Delay [s/veh] | 39.50 | | | 44.81 | | | 41.35 | | | 32.58 | | |
| Approach LOS | D | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 39.07 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.779 | | | | | | | | | | | |

**Emissions**

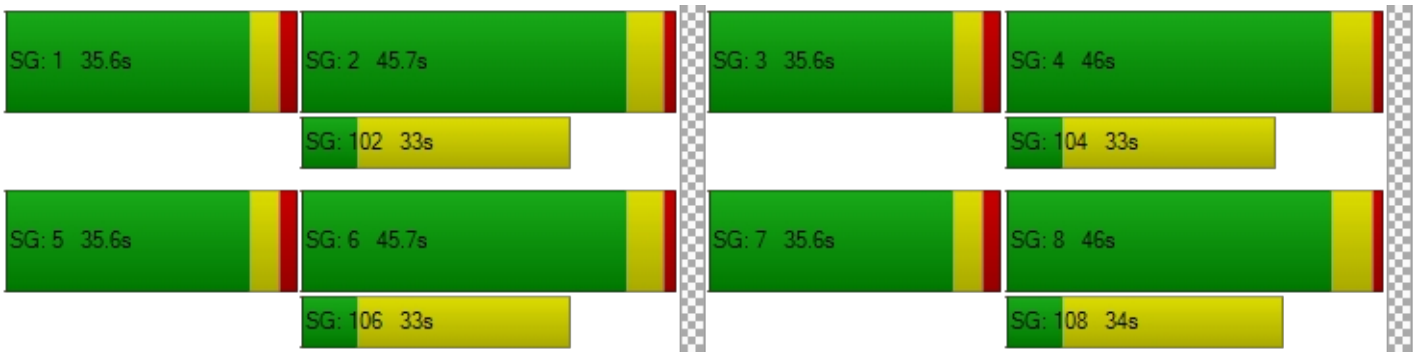
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 216.86 | 72.29 | 107.92 | 23.77 | 88.90 | 83.73 | 19.53 | 276.93 | 317.99 | 206.04 | 77.70 | 29.08 |
| Stops [stops/h] | 179.25 | 51.03 | 80.01 | 19.50 | 72.86 | 79.58 | 31.17 | 300.35 | 667.08 | 350.02 | 67.62 | 25.33 |
| Fuel consumption [US gal/h] | 11.54 | 3.60 | 5.46 | 1.30 | 4.78 | 4.68 | 1.48 | 16.27 | 28.48 | 13.93 | 4.02 | 1.50 |
| CO [g/h] | 806.92 | 251.46 | 381.77 | 90.74 | 334.44 | 327.46 | 103.40 | 1137.51 | 1990.63 | 974.02 | 281.19 | 105.15 |
| NOx [g/h] | 157.00 | 48.93 | 74.28 | 17.65 | 65.07 | 63.71 | 20.12 | 221.32 | 387.30 | 189.51 | 54.71 | 20.46 |
| VOC [g/h] | 187.01 | 58.28 | 88.48 | 21.03 | 77.51 | 75.89 | 23.96 | 263.63 | 461.35 | 225.74 | 65.17 | 24.37 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 4541.32 | 2945.50 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.65 | 40.65 | 40.65 | 40.65 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.751 | 2.650 | 2.989 | 2.782 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 783 | 783 | 783 | 783 |
| d_b, Bicycle Delay [s] | 18.89 | 18.89 | 18.89 | 18.89 |
| l_b,int, Bicycle LOS Score for Intersection | 1.881 | 1.716 | 2.572 | 2.074 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.704 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 44 | 375 | 20 | 181 | 645 | 42 | 36 | 559 | 209 | 35 | 557 | 184 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 44 | 375 | 20 | 181 | 645 | 42 | 36 | 559 | 209 | 35 | 557 | 184 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 108 | 6 | 52 | 185 | 12 | 10 | 161 | 60 | 10 | 160 | 53 |
| Total Analysis Volume [veh/h] | 51 | 431 | 23 | 208 | 741 | 48 | 41 | 643 | 240 | 40 | 640 | 211 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 20 | 20 | 13 | 26 | 26 | 7 | 37 | 37 | 6 | 37 | 37 |
| g / C, Green / Cycle | 0.08 | 0.22 | 0.22 | 0.14 | 0.28 | 0.28 | 0.07 | 0.40 | 0.40 | 0.07 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.12 | 0.02 | 0.12 | 0.21 | 0.21 | 0.02 | 0.35 | 0.15 | 0.02 | 0.34 | 0.13 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1477 | 1724 | 1874 | 1835 | 1810 | 1858 | 1592 | 1810 | 1886 | 1599 |
| c, Capacity [veh/h] | 140 | 758 | 321 | 245 | 526 | 515 | 128 | 741 | 635 | 126 | 750 | 636 |
| d1, Uniform Delay [s] | 40.62 | 32.49 | 28.92 | 38.94 | 30.58 | 30.58 | 41.11 | 25.72 | 19.80 | 41.18 | 25.54 | 19.43 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.34 | 0.17 | 0.04 | 0.33 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.59 | 1.03 | 0.14 | 3.17 | 3.43 | 3.50 | 0.53 | 9.47 | 0.57 | 0.53 | 8.19 | 0.45 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.57 | 0.07 | 0.85 | 0.76 | 0.76 | 0.32 | 0.87 | 0.38 | 0.32 | 0.85 | 0.33 |
| d, Delay for Lane Group [s/veh] | 41.20 | 33.52 | 29.07 | 42.11 | 34.01 | 34.08 | 41.65 | 35.19 | 20.37 | 41.71 | 33.73 | 19.88 |
| Lane Group LOS | D | C | C | D | C | C | D | D | C | D | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.08 | 4.19 | 0.40 | 4.61 | 8.09 | 7.93 | 0.87 | 13.70 | 3.48 | 0.85 | 13.30 | 2.99 |
| 50th-Percentile Queue Length [ft/ln] | 27.07 | 104.84 | 10.02 | 115.19 | 202.36 | 198.32 | 21.87 | 342.40 | 86.89 | 21.36 | 332.57 | 74.70 |
| 95th-Percentile Queue Length [veh/ln] | 1.95 | 7.55 | 0.72 | 8.13 | 12.76 | 12.55 | 1.57 | 19.77 | 6.26 | 1.54 | 19.28 | 5.38 |
| 95th-Percentile Queue Length [ft/ln] | 48.73 | 188.72 | 18.04 | 203.20 | 319.01 | 313.80 | 39.37 | 494.13 | 156.41 | 38.45 | 482.11 | 134.47 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.20 | 33.52 | 29.07 | 42.11 | 34.04 | 34.08 | 41.65 | 35.19 | 20.37 | 41.71 | 33.73 | 19.88 |
| Movement LOS | D | C | C | D | C | C | D | D | C | D | C | B |
| d_A, Approach Delay [s/veh] | 34.10 | | | 35.73 | | | 31.63 | | | 30.81 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 33.02 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.704 | | | | | | | | | | | |

**Emissions**

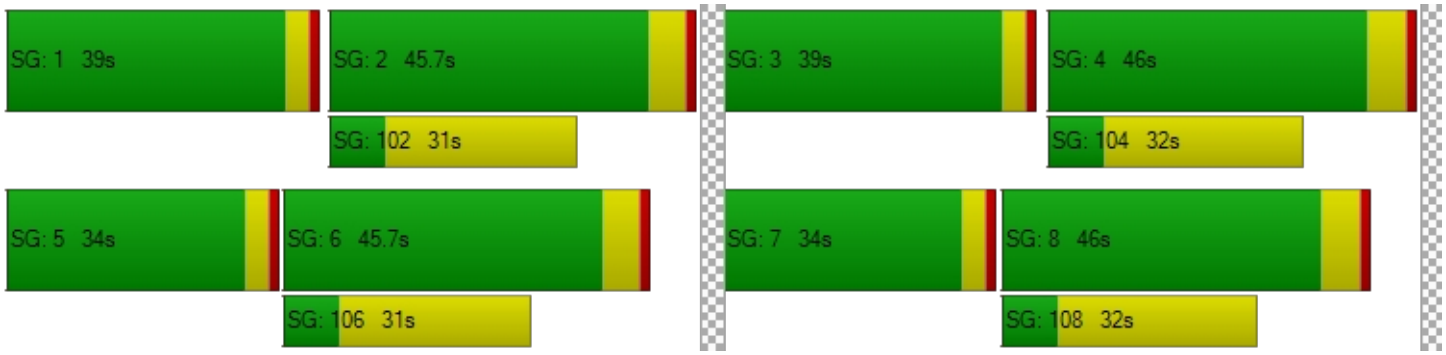
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 26.78 | 226.29 | 12.08 | 211.77 | 405.96 | 397.34 | 3.55 | 55.62 | 20.76 | 24.07 | 385.16 | 126.98 |
| Stops [stops/h] | 41.99 | 325.22 | 15.54 | 178.66 | 313.85 | 307.59 | 33.93 | 531.05 | 134.77 | 33.13 | 515.81 | 115.86 |
| Fuel consumption [US gal/h] | 1.87 | 14.74 | 0.74 | 11.26 | 20.58 | 20.15 | 0.89 | 13.11 | 3.38 | 1.58 | 24.01 | 6.65 |
| CO [g/h] | 130.54 | 1030.35 | 51.95 | 787.26 | 1438.34 | 1408.55 | 62.27 | 916.68 | 236.41 | 110.20 | 1678.21 | 464.62 |
| NOx [g/h] | 25.40 | 200.47 | 10.11 | 153.17 | 279.85 | 274.05 | 12.12 | 178.35 | 46.00 | 21.44 | 326.52 | 90.40 |
| VOC [g/h] | 30.25 | 238.79 | 12.04 | 182.45 | 333.35 | 326.45 | 14.43 | 212.45 | 54.79 | 25.54 | 388.94 | 107.68 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.07 | 36.07 | 36.07 | 36.07 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.826 | 2.792 | 2.787 | 2.817 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 862 | 862 | 862 | 862 |
| d_b, Bicycle Delay [s] | 15.04 | 15.04 | 15.04 | 15.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.976 | 2.382 | 3.084 | 3.030 |
| Bicycle LOS | A | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.768 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 136 | 358 | 46 | 201 | 679 | 44 | 12 | 376 | 324 | 22 | 587 | 53 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 136 | 358 | 46 | 201 | 679 | 44 | 12 | 376 | 324 | 22 | 587 | 53 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 101 | 13 | 56 | 191 | 12 | 3 | 106 | 91 | 6 | 165 | 15 |
| Total Analysis Volume [veh/h] | 153 | 402 | 52 | 226 | 763 | 49 | 13 | 422 | 364 | 25 | 660 | 60 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 22 | 22 | 13 | 23 | 23 | 3 | 31 | 31 | 5 | 33 | 33 |
| g / C, Green / Cycle | 0.14 | 0.26 | 0.26 | 0.15 | 0.27 | 0.27 | 0.03 | 0.36 | 0.36 | 0.05 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.13 | 0.13 | 0.13 | 0.22 | 0.22 | 0.01 | 0.23 | 0.24 | 0.01 | 0.35 | 0.04 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1752 | 1791 | 1891 | 1851 | 1810 | 1835 | 1547 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 242 | 474 | 454 | 263 | 512 | 501 | 61 | 652 | 549 | 100 | 705 | 603 |
| d1, Uniform Delay [s] | 35.53 | 27.30 | 27.34 | 36.20 | 29.52 | 29.52 | 40.85 | 23.46 | 23.56 | 39.33 | 26.08 | 17.55 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.29 | 0.16 | 0.16 | 0.11 | 0.19 | 0.20 | 0.11 | 0.44 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.70 | 0.77 | 0.83 | 18.75 | 4.45 | 4.55 | 1.70 | 1.91 | 2.55 | 1.30 | 19.58 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.49 | 0.49 | 0.86 | 0.80 | 0.80 | 0.21 | 0.65 | 0.66 | 0.25 | 0.94 | 0.10 |
| d, Delay for Lane Group [s/veh] | 38.23 | 28.08 | 28.17 | 54.95 | 33.97 | 34.07 | 42.55 | 25.37 | 26.11 | 40.63 | 45.66 | 17.62 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | D | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.07 | 3.88 | 3.76 | 5.77 | 7.98 | 7.83 | 0.29 | 6.90 | 6.07 | 0.52 | 15.51 | 0.73 |
| 50th-Percentile Queue Length [ft/ln] | 76.82 | 97.05 | 94.01 | 144.20 | 199.58 | 195.76 | 7.18 | 172.61 | 151.76 | 13.08 | 387.68 | 18.15 |
| 95th-Percentile Queue Length [veh/ln] | 5.53 | 6.99 | 6.77 | 9.71 | 12.62 | 12.42 | 0.52 | 11.21 | 10.11 | 0.94 | 21.97 | 1.31 |
| 95th-Percentile Queue Length [ft/ln] | 138.28 | 174.69 | 169.22 | 242.67 | 315.42 | 310.49 | 12.93 | 280.34 | 252.77 | 23.54 | 549.14 | 32.67 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.23 | 28.12 | 28.17 | 54.95 | 34.02 | 34.07 | 42.55 | 25.37 | 26.11 | 40.63 | 45.66 | 17.62 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | D | B |
| d_A, Approach Delay [s/veh] | 30.67 | | | 38.58 | | | 25.99 | | | 43.23 | | |
| Approach LOS | C | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.01 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.768 | | | | | | | | | | | |

**Emissions**

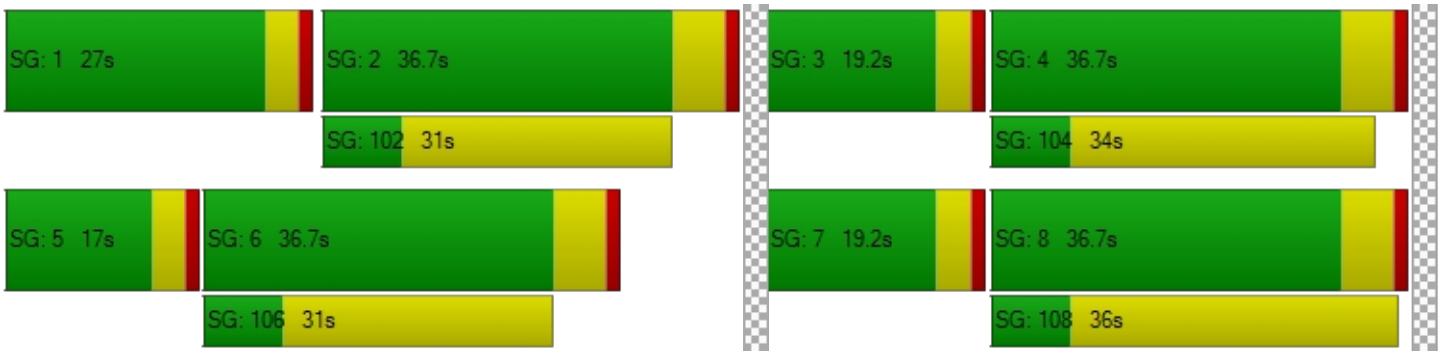
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 81.29 | 122.70 | 118.51 | 118.66 | 215.42 | 210.90 | 1.30 | 42.31 | 36.49 | 11.90 | 314.12 | 28.56 |
| Stops [stops/h] | 127.48 | 161.04 | 156.00 | 239.28 | 331.17 | 324.85 | 11.92 | 286.42 | 251.82 | 21.70 | 643.32 | 30.12 |
| Fuel consumption [US gal/h] | 5.56 | 7.53 | 7.28 | 9.57 | 14.34 | 14.05 | 0.31 | 7.19 | 6.32 | 0.88 | 24.90 | 1.57 |
| CO [g/h] | 388.77 | 526.19 | 508.92 | 668.90 | 1002.22 | 982.34 | 21.35 | 502.60 | 441.51 | 61.82 | 1740.38 | 109.64 |
| NOx [g/h] | 75.64 | 102.38 | 99.02 | 130.14 | 194.99 | 191.13 | 4.15 | 97.79 | 85.90 | 12.03 | 338.62 | 21.33 |
| VOC [g/h] | 90.10 | 121.95 | 117.95 | 155.02 | 232.27 | 227.67 | 4.95 | 116.48 | 102.32 | 14.33 | 403.35 | 25.41 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.09 | 33.09 | 33.09 | 33.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.879 | 2.740 | 2.736 | 2.657 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 714 | 714 | 714 | 714 |
| d_b, Bicycle Delay [s] | 17.93 | 17.93 | 17.93 | 17.93 |
| l_b,int, Bicycle LOS Score for Intersection | 2.060 | 2.416 | 2.878 | 2.789 |
| Bicycle LOS | B | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 44.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.858 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 280 | 279 | 132 | 167 | 376 | 774 | 261 | 1117 | 187 | 143 | 1470 | 243 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 280 | 279 | 132 | 167 | 376 | 774 | 261 | 1117 | 187 | 143 | 1470 | 243 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 75 | 75 | 35 | 45 | 101 | 208 | 70 | 300 | 50 | 38 | 395 | 65 |
| Total Analysis Volume [veh/h] | 301 | 300 | 142 | 180 | 404 | 832 | 281 | 1201 | 201 | 154 | 1581 | 261 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 41 | 41 | 14 | 41 | 41 | 13 | 46 | 46 | 13 | 45 | 45 |
| g / C, Green / Cycle | 0.11 | 0.32 | 0.32 | 0.11 | 0.32 | 0.32 | 0.10 | 0.35 | 0.35 | 0.10 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.09 | 0.09 | 0.05 | 0.08 | 0.29 | 0.08 | 0.24 | 0.13 | 0.05 | 0.31 | 0.17 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1546 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 367 | 1117 | 491 | 366 | 1626 | 899 | 340 | 1773 | 556 | 341 | 1769 | 552 |
| d1, Uniform Delay [s] | 56.78 | 33.11 | 33.35 | 54.67 | 32.89 | 42.91 | 57.32 | 35.88 | 31.30 | 55.18 | 39.97 | 32.91 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.75 | 0.05 | 0.12 | 0.38 | 0.09 | 5.25 | 1.98 | 2.10 | 1.82 | 0.35 | 7.40 | 2.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.27 | 0.29 | 0.49 | 0.25 | 0.93 | 0.83 | 0.68 | 0.36 | 0.45 | 0.89 | 0.47 |
| d, Delay for Lane Group [s/veh] | 58.53 | 33.16 | 33.47 | 55.05 | 32.98 | 48.15 | 59.30 | 37.98 | 33.12 | 55.53 | 47.37 | 35.80 |
| Lane Group LOS | E | C | C | E | C | D | E | D | C | E | D | D |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.86 | 3.50 | 3.34 | 2.74 | 3.09 | 13.06 | 4.53 | 10.79 | 4.86 | 2.35 | 16.49 | 6.67 |
| 50th-Percentile Queue Length [ft/ln] | 121.48 | 87.45 | 83.61 | 68.60 | 77.32 | 326.59 | 113.13 | 269.66 | 121.38 | 58.78 | 412.33 | 166.86 |
| 95th-Percentile Queue Length [veh/ln] | 8.47 | 6.30 | 6.02 | 4.94 | 5.57 | 18.99 | 8.01 | 16.17 | 8.47 | 4.23 | 23.15 | 10.91 |
| 95th-Percentile Queue Length [ft/ln] | 211.87 | 157.40 | 150.50 | 123.47 | 139.18 | 474.78 | 200.35 | 404.31 | 211.72 | 105.80 | 578.83 | 272.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.53 | 33.16 | 33.47 | 55.05 | 32.98 | 48.15 | 59.30 | 37.98 | 33.12 | 55.53 | 47.37 | 35.80 |
| Movement LOS | E | C | C | E | C | D | E | D | C | E | D | D |
| d_A, Approach Delay [s/veh] | 43.49 | | | 44.70 | | | 40.96 | | | 46.49 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 44.08 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.858 | | | | | | | | | | | |

**Emissions**

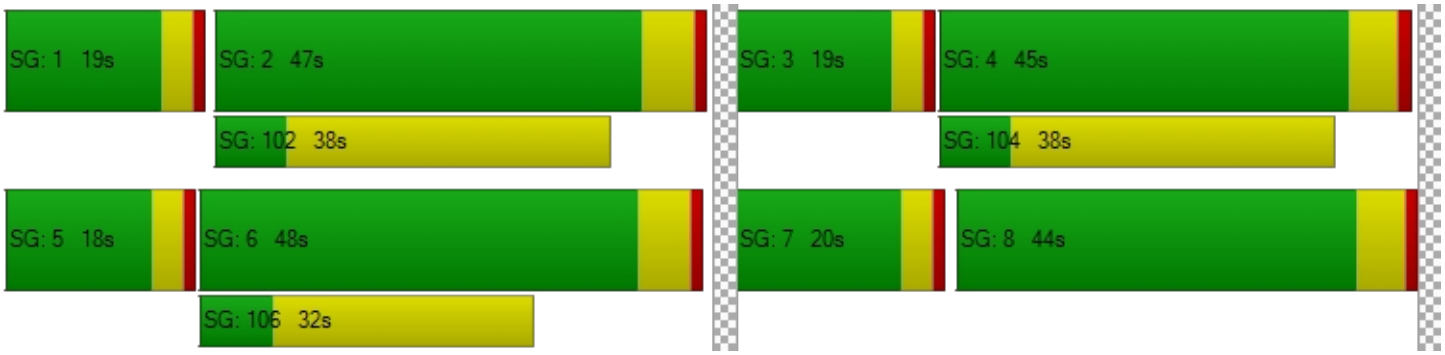
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 22.00 | 21.93 | 10.38 | 95.63 | 214.65 | 442.04 | 31.97 | 136.66 | 22.87 | 76.86 | 789.03 | 130.26 |
| Stops [stops/h] | 269.07 | 193.68 | 92.59 | 151.93 | 256.88 | 723.33 | 250.56 | 895.86 | 134.42 | 130.18 | 1369.84 | 184.78 |
| Fuel consumption [US gal/h] | 7.02 | 4.71 | 2.25 | 7.18 | 13.26 | 32.30 | 7.60 | 25.10 | 3.81 | 5.99 | 59.32 | 8.66 |
| CO [g/h] | 490.43 | 329.38 | 157.17 | 502.11 | 927.07 | 2257.61 | 531.35 | 1754.76 | 266.31 | 418.93 | 4146.25 | 605.60 |
| NOx [g/h] | 95.42 | 64.09 | 30.58 | 97.69 | 180.37 | 439.25 | 103.38 | 341.41 | 51.81 | 81.51 | 806.71 | 117.83 |
| VOC [g/h] | 113.66 | 76.34 | 36.42 | 116.37 | 214.86 | 523.22 | 123.15 | 406.68 | 61.72 | 97.09 | 960.93 | 140.35 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.48 | 54.48 | 32.36 | 54.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.987 | 3.396 | 3.718 | 3.439 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 646 | 631 |
| d_b, Bicycle Delay [s] | 31.67 | 32.36 | 29.80 | 30.48 |
| l_b,int, Bicycle LOS Score for Intersection | 1.968 | 2.338 | 2.485 | 2.657 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.528 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 526 | 0 | 0 | 0 | 0 | 1032 | 243 | 0 | 2412 | 66 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 526 | 0 | 0 | 0 | 0 | 1032 | 243 | 0 | 2412 | 66 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 140 | 0 | 0 | 0 | 0 | 274 | 65 | 0 | 641 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 560 | 0 | 0 | 0 | 0 | 1098 | 259 | 0 | 2566 | 70 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 32 | 32 | | 84 | 84 | 84 |
| g / C, Green / Cycle | 0.25 | 0.25 | | 0.65 | 0.65 | 0.65 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.20 | | 0.22 | 0.30 | 0.04 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1274 | 683 | | 3266 | 5487 | 1031 |
| d1, Uniform Delay [s] | 40.73 | 46.22 | | 10.40 | 11.66 | 8.51 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 6.00 | | 0.28 | 0.29 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.82 | | 0.34 | 0.47 | 0.07 |
| d, Delay for Lane Group [s/veh] | 41.20 | 52.22 | | 10.68 | 11.95 | 8.64 |
| Lane Group LOS | D | D | | B | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.20 | 8.69 | | 4.40 | 6.87 | 0.71 |
| 50th-Percentile Queue Length [ft/ln] | 104.95 | 217.36 | | 109.94 | 171.78 | 17.80 |
| 95th-Percentile Queue Length [veh/ln] | 7.56 | 13.53 | | 7.84 | 11.17 | 1.28 |
| 95th-Percentile Queue Length [ft/ln] | 188.91 | 338.25 | | 195.92 | 279.25 | 32.03 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.20 | 0.00 | 52.22 | 0.00 | 0.00 | 0.00 | 0.00 | 10.68 | 0.00 | 0.00 | 11.95 | 8.64 |
| Movement LOS | D | | D | | | | | B | | | B | A |
| d_A, Approach Delay [s/veh] | 47.10 | | | 0.00 | | | 8.74 | | | 11.86 | | |
| Approach LOS | D | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.86 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.528 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 73.41 | | 172.78 | 291.97 | 7.96 |
| Stops [stops/h] | 349.13 | 482.05 | | 365.72 | 952.39 | 19.73 |
| Fuel consumption [US gal/h] | 12.69 | 17.36 | | 12.86 | 28.09 | 0.64 |
| CO [g/h] | 887.07 | 1213.46 | | 898.58 | 1963.46 | 44.84 |
| NOx [g/h] | 172.59 | 236.09 | | 174.83 | 382.02 | 8.72 |
| VOC [g/h] | 205.59 | 281.23 | | 208.25 | 455.05 | 10.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.782 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.164 | 2.429 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.997 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 47 | 0 | 832 | 0 | 1244 | 963 | 0 | 2121 | 787 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 47 | 0 | 832 | 0 | 1244 | 963 | 0 | 2121 | 787 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 12 | 0 | 217 | 0 | 324 | 251 | 0 | 552 | 205 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 49 | 0 | 867 | 0 | 1296 | 1003 | 0 | 2209 | 820 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 40 | 40 | 76 | 76 | 76 |
| g / C, Green / Cycle | | 0.31 | 0.31 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.01 | 0.30 | 0.19 | 0.65 | 0.33 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1073 | 880 | 3945 | 910 | 3968 |
| d1, Uniform Delay [s] | | 31.45 | 44.55 | 13.73 | 26.82 | 16.46 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.04 | 18.96 | 0.22 | 61.93 | 0.57 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.05 | 0.99 | 0.33 | 1.10 | 0.56 |
| d, Delay for Lane Group [s/veh] | | 31.49 | 63.51 | 13.96 | 88.74 | 17.03 |
| Lane Group LOS | | C | E | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.55 | 16.05 | 4.62 | 40.64 | 9.47 |
| 50th-Percentile Queue Length [ft/ln] | | 13.86 | 401.21 | 115.47 | 1016.02 | 236.73 |
| 95th-Percentile Queue Length [veh/ln] | | 1.00 | 22.62 | 8.14 | 55.36 | 14.52 |
| 95th-Percentile Queue Length [ft/ln] | | 24.94 | 565.46 | 203.58 | 1383.99 | 362.90 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 31.49 | 0.00 | 63.51 | 0.00 | 13.96 | 88.74 | 0.00 | 17.03 | 0.00 |
| Movement LOS | | | | C | | E | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 61.80 | | | 46.59 | | | 12.56 | | |
| Approach LOS | A | | | E | | | D | | | B | | |
| d_I, Intersection Delay [s/veh] | 35.30 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.997 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 7.55 | 133.61 | 125.49 | 97.12 | 347.61 |
| Stops [stops/h] | | 30.73 | 889.80 | 512.16 | 1126.65 | 1050.04 |
| Fuel consumption [US gal/h] | | 0.79 | 21.62 | 14.35 | 35.45 | 32.63 |
| CO [g/h] | | 55.54 | 1511.23 | 1003.12 | 2477.84 | 2280.69 |
| NOx [g/h] | | 10.81 | 294.03 | 195.17 | 482.10 | 443.74 |
| VOC [g/h] | | 12.87 | 350.24 | 232.48 | 574.26 | 528.57 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.221 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1174 | 1174 |
| d_b, Bicycle Delay [s] | 64.93 | 30.95 | 11.09 | 11.09 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.508 | 2.471 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.460 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 52 | 40 | 26 | 24 | 202 | 72 | 25 | 406 | 123 | 66 | 334 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 52 | 40 | 26 | 24 | 202 | 72 | 25 | 406 | 123 | 66 | 334 | 6 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 10 | 7 | 6 | 52 | 18 | 6 | 104 | 31 | 17 | 85 | 2 |
| Total Analysis Volume [veh/h] | 53 | 41 | 27 | 24 | 206 | 73 | 26 | 414 | 126 | 67 | 341 | 6 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 42 | 42 | 42 | 42 | 42 | 42 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 12 | 1 | 18 | 3 | 17 |
| g / C, Green / Cycle | 0.23 | 0.28 | 0.03 | 0.42 | 0.06 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.19 | 0.02 | 0.33 | 0.04 | 0.21 |
| s, saturation flow rate [veh/h] | 1431 | 1622 | 1603 | 1616 | 1603 | 1678 |
| c, Capacity [veh/h] | 448 | 400 | 50 | 686 | 104 | 674 |
| d1, Uniform Delay [s] | 13.65 | 14.99 | 20.18 | 10.54 | 19.31 | 9.56 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.32 | 2.97 | 7.93 | 2.06 | 6.50 | 0.61 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.76 | 0.52 | 0.79 | 0.64 | 0.52 |
| d, Delay for Lane Group [s/veh] | 13.97 | 17.96 | 28.11 | 12.60 | 25.81 | 10.17 |
| Lane Group LOS | B | B | C | B | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.76 | 2.34 | 0.31 | 2.80 | 0.74 | 1.83 |
| 50th-Percentile Queue Length [ft/ln] | 18.98 | 58.56 | 7.78 | 70.02 | 18.44 | 45.78 |
| 95th-Percentile Queue Length [veh/ln] | 1.37 | 4.22 | 0.56 | 5.04 | 1.33 | 3.30 |
| 95th-Percentile Queue Length [ft/ln] | 34.17 | 105.41 | 14.00 | 126.03 | 33.20 | 82.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.97 | 13.97 | 13.97 | 17.96 | 17.96 | 17.96 | 28.11 | 12.60 | 12.60 | 25.81 | 10.17 | 10.17 |
| Movement LOS | B | B | B | B | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 13.97 | | | 17.96 | | | 13.31 | | | 12.70 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 14.19 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.460 | | | | | | | | | | | |

**Emissions**

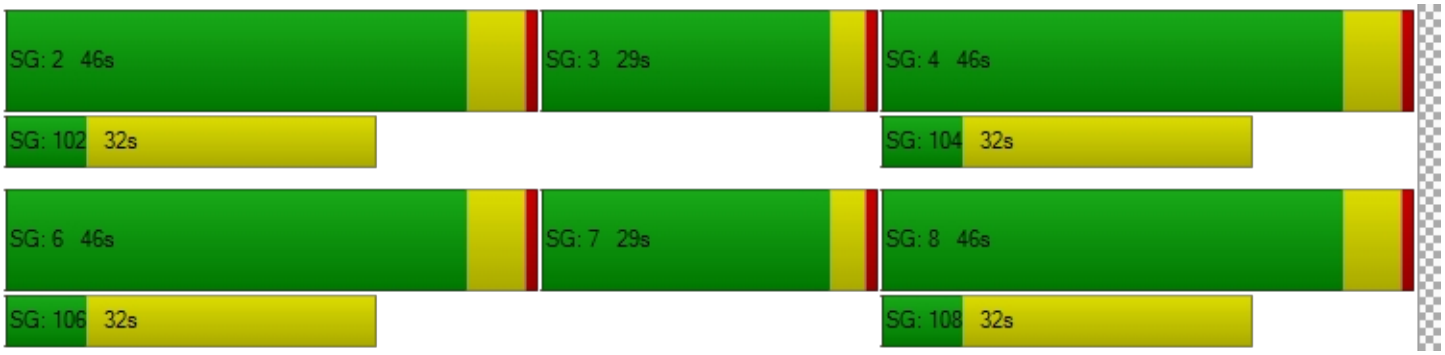
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 121.82 | 303.64 | 13.03 | 270.71 | 33.02 | 171.01 |
| Stops [stops/h] | 64.71 | 199.61 | 26.52 | 238.65 | 62.86 | 156.04 |
| Fuel consumption [US gal/h] | 5.32 | 14.00 | 0.99 | 14.11 | 2.08 | 8.41 |
| CO [g/h] | 372.17 | 978.42 | 69.36 | 986.54 | 145.63 | 587.86 |
| NOx [g/h] | 72.41 | 190.37 | 13.50 | 191.95 | 28.33 | 114.38 |
| VOC [g/h] | 86.25 | 226.76 | 16.08 | 228.64 | 33.75 | 136.24 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.56 | 11.56 | 11.56 | 11.56 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.051 | 1.945 | 2.582 | 2.615 |
| Crosswalk LOS | B | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1894 | 1894 | 1894 | 1894 |
| d_b, Bicycle Delay [s] | 0.06 | 0.06 | 0.06 | 0.06 |
| l_b,int, Bicycle LOS Score for Intersection | 1.759 | 2.060 | 2.494 | 2.243 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 44.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.830 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 127 | 85 | 18 | 36 | 429 | 102 | 17 | 348 | 369 | 38 | 510 | 25 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 127 | 85 | 18 | 36 | 429 | 102 | 17 | 348 | 369 | 38 | 510 | 25 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 22 | 5 | 9 | 113 | 27 | 4 | 92 | 97 | 10 | 134 | 7 |
| Total Analysis Volume [veh/h] | 134 | 89 | 19 | 38 | 452 | 107 | 18 | 366 | 388 | 40 | 537 | 26 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 5 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 10 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lag | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 51 | 51 | 4 | 41 | 2 | 35 | 35 | 7 | 40 | 40 |
| g / C, Green / Cycle | 0.12 | 0.45 | 0.45 | 0.03 | 0.36 | 0.02 | 0.31 | 0.31 | 0.06 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.05 | 0.01 | 0.03 | 0.34 | 0.01 | 0.22 | 0.27 | 0.03 | 0.17 | 0.17 |
| s, saturation flow rate [veh/h] | 1281 | 1645 | 1414 | 1468 | 1654 | 1537 | 1669 | 1416 | 1537 | 1683 | 1656 |
| c, Capacity [veh/h] | 155 | 746 | 642 | 45 | 601 | 29 | 520 | 441 | 97 | 598 | 589 |
| d1, Uniform Delay [s] | 49.05 | 17.94 | 17.20 | 54.81 | 34.79 | 55.34 | 34.53 | 37.13 | 51.22 | 28.40 | 28.41 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.43 | 0.11 | 0.18 | 0.30 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.09 | 0.07 | 0.02 | 31.21 | 20.72 | 18.71 | 2.92 | 14.09 | 2.76 | 0.58 | 0.60 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.86 | 0.12 | 0.03 | 0.84 | 0.93 | 0.61 | 0.70 | 0.88 | 0.41 | 0.47 | 0.47 |
| d, Delay for Lane Group [s/veh] | 62.14 | 18.01 | 17.21 | 86.03 | 55.51 | 74.05 | 37.45 | 51.22 | 53.98 | 28.98 | 29.01 |
| Lane Group LOS | E | B | B | F | E | E | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.18 | 1.30 | 0.27 | 1.45 | 17.40 | 0.65 | 8.93 | 11.43 | 1.14 | 5.81 | 5.73 |
| 50th-Percentile Queue Length [ft/ln] | 104.47 | 32.51 | 6.66 | 36.15 | 434.98 | 16.29 | 223.27 | 285.66 | 28.53 | 145.25 | 143.35 |
| 95th-Percentile Queue Length [veh/ln] | 7.52 | 2.34 | 0.48 | 2.60 | 24.24 | 1.17 | 13.83 | 16.97 | 2.05 | 9.76 | 9.66 |
| 95th-Percentile Queue Length [ft/ln] | 188.05 | 58.52 | 11.99 | 65.07 | 606.00 | 29.32 | 345.80 | 424.25 | 51.36 | 244.08 | 241.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 62.14 | 18.01 | 17.21 | 86.03 | 55.51 | 55.51 | 74.05 | 37.45 | 51.22 | 53.98 | 28.99 | 29.01 |
| Movement LOS | E | B | B | F | E | E | E | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 42.38 | | | 57.45 | | | 45.22 | | | 30.65 | | |
| Approach LOS | D | | | E | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 44.24 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.830 | | | | | | | | | | | |

**Emissions**

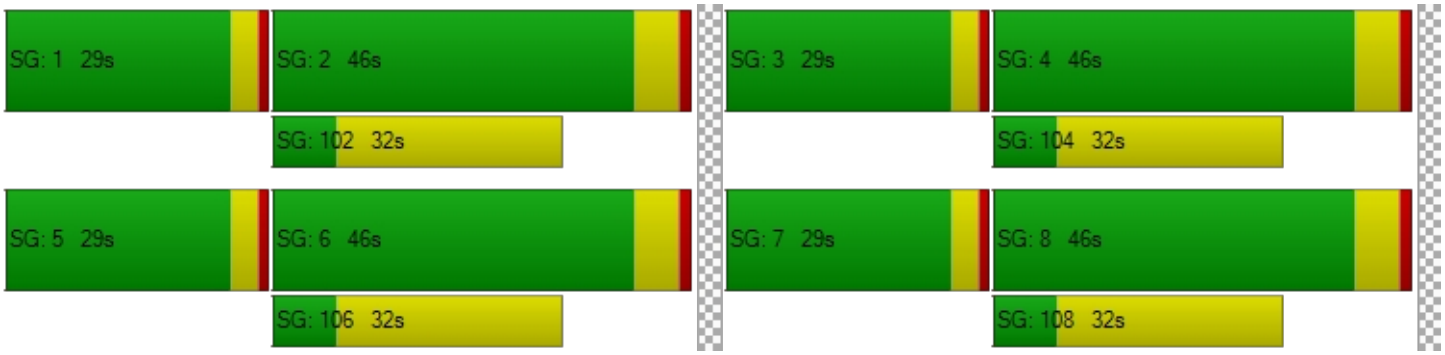
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 66.63 | 44.25 | 9.45 | 38.26 | 562.79 | 10.83 | 220.27 | 233.51 | 19.95 | 141.39 | 139.43 |
| Stops [stops/h] | 132.52 | 41.24 | 8.45 | 45.85 | 551.76 | 20.66 | 283.21 | 362.35 | 36.19 | 184.25 | 181.84 |
| Fuel consumption [US gal/h] | 5.63 | 2.36 | 0.50 | 2.55 | 32.47 | 0.90 | 13.86 | 16.55 | 1.57 | 8.81 | 8.69 |
| CO [g/h] | 393.26 | 164.67 | 34.63 | 178.01 | 2269.35 | 62.87 | 968.85 | 1157.05 | 109.97 | 615.74 | 607.44 |
| NOx [g/h] | 76.51 | 32.04 | 6.74 | 34.63 | 441.53 | 12.23 | 188.50 | 225.12 | 21.40 | 119.80 | 118.19 |
| VOC [g/h] | 91.14 | 38.16 | 8.03 | 41.26 | 525.94 | 14.57 | 224.54 | 268.16 | 25.49 | 142.70 | 140.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.29 | 46.29 | 46.29 | 46.29 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.639 | 2.307 | 2.764 | 2.611 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 705 | 705 | 705 | 705 |
| d_b, Bicycle Delay [s] | 23.81 | 23.81 | 23.81 | 23.81 |
| l_b,int, Bicycle LOS Score for Intersection | 1.959 | 2.545 | 2.197 | 2.057 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 105.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.057 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 12 | 167 | 32 | 136 | 597 | 178 | 126 | 451 | 110 | 77 | 816 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 167 | 32 | 136 | 597 | 178 | 126 | 451 | 110 | 77 | 816 | 79 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 53 | 10 | 43 | 189 | 56 | 40 | 143 | 35 | 24 | 258 | 25 |
| Total Analysis Volume [veh/h] | 15 | 211 | 41 | 172 | 756 | 225 | 159 | 571 | 139 | 97 | 1033 | 100 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 22 | 22 | 11 | 30 | 30 | 10 | 35 | 35 | 9 | 34 | 34 |
| g / C, Green / Cycle | 0.04 | 0.24 | 0.24 | 0.12 | 0.32 | 0.32 | 0.11 | 0.37 | 0.37 | 0.10 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.07 | 0.10 | 0.28 | 0.28 | 0.09 | 0.30 | 0.09 | 0.05 | 0.55 | 0.06 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1742 | 1737 | 1849 | 1698 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 63 | 439 | 411 | 212 | 593 | 545 | 200 | 702 | 564 | 179 | 680 | 569 |
| d1, Uniform Delay [s] | 43.85 | 29.39 | 29.47 | 40.11 | 29.86 | 29.93 | 40.60 | 26.59 | 20.44 | 40.12 | 30.04 | 20.53 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.31 | 0.32 | 0.11 | 0.37 | 0.11 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.91 | 0.36 | 0.41 | 7.25 | 9.97 | 11.27 | 7.05 | 7.55 | 0.23 | 2.55 | 241.58 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.24 | 0.29 | 0.30 | 0.81 | 0.86 | 0.86 | 0.80 | 0.81 | 0.25 | 0.54 | 1.52 | 0.18 |
| d, Delay for Lane Group [s/veh] | 45.76 | 29.75 | 29.88 | 47.36 | 39.83 | 41.20 | 47.65 | 34.14 | 20.67 | 42.67 | 271.62 | 20.67 |
| Lane Group LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.36 | 2.31 | 2.26 | 4.11 | 11.57 | 10.91 | 3.80 | 11.93 | 1.99 | 2.16 | 59.47 | 1.42 |
| 50th-Percentile Queue Length [ft/ln] | 9.05 | 57.80 | 56.50 | 102.66 | 289.21 | 272.70 | 95.03 | 298.24 | 49.81 | 54.02 | 1486.81 | 35.45 |
| 95th-Percentile Queue Length [veh/ln] | 0.65 | 4.16 | 4.07 | 7.39 | 17.15 | 16.32 | 6.84 | 17.59 | 3.59 | 3.89 | 90.67 | 2.55 |
| 95th-Percentile Queue Length [ft/ln] | 16.29 | 104.05 | 101.71 | 184.79 | 428.66 | 408.11 | 171.06 | 439.86 | 89.65 | 97.23 | 2266.67 | 63.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 45.76 | 29.80 | 29.88 | 47.36 | 40.28 | 41.20 | 47.65 | 34.14 | 20.67 | 42.67 | 271.62 | 20.67 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 30.71 | | | 41.51 | | | 34.46 | | | 233.16 | | |
| Approach LOS | C | | | D | | | C | | | F | | |
| d_I, Intersection Delay [s/veh] | 105.94 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.057 | | | | | | | | | | | |

**Emissions**

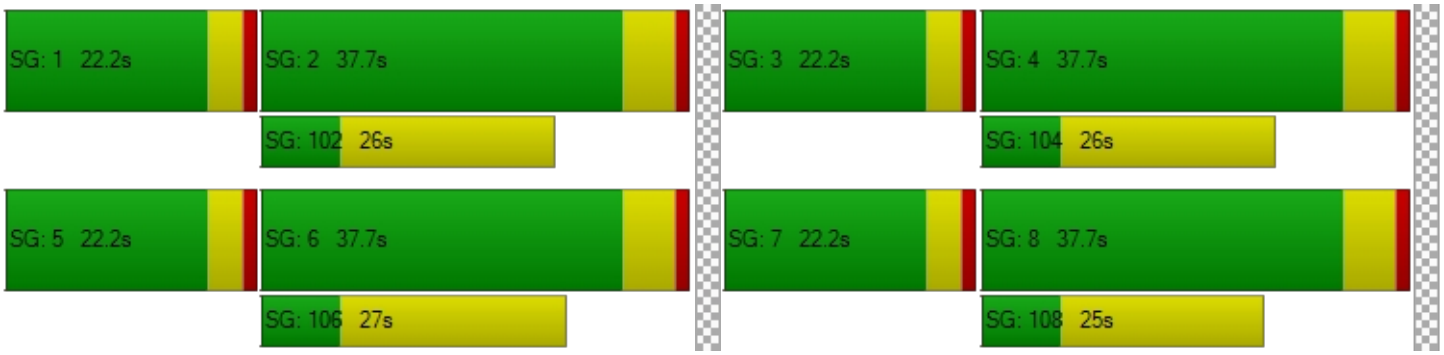
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 8.11 | 69.01 | 67.16 | 85.53 | 253.43 | 234.37 | 75.67 | 271.76 | 66.16 | 47.80 | 509.03 | 49.28 |
| Stops [stops/h] | 13.92 | 88.91 | 86.91 | 157.91 | 444.85 | 419.46 | 146.17 | 458.75 | 76.61 | 83.09 | 2286.95 | 54.53 |
| Fuel consumption [US gal/h] | 0.57 | 4.12 | 4.02 | 6.55 | 18.35 | 17.20 | 5.95 | 18.99 | 3.80 | 3.51 | 102.97 | 2.79 |
| CO [g/h] | 39.61 | 287.90 | 280.67 | 458.03 | 1282.58 | 1202.33 | 416.11 | 1327.14 | 265.96 | 245.61 | 7197.63 | 194.87 |
| NOx [g/h] | 7.71 | 56.01 | 54.61 | 89.12 | 249.54 | 233.93 | 80.96 | 258.21 | 51.75 | 47.79 | 1400.40 | 37.91 |
| VOC [g/h] | 9.18 | 66.72 | 65.05 | 106.15 | 297.25 | 278.65 | 96.44 | 307.58 | 61.64 | 56.92 | 1668.12 | 45.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.46 | 36.46 | 36.46 | 36.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.629 | 2.776 | 2.916 | 2.869 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 684 | 684 | 684 | 684 |
| d_b, Bicycle Delay [s] | 20.29 | 20.28 | 20.28 | 20.28 |
| l_b,int, Bicycle LOS Score for Intersection | 1.780 | 2.511 | 2.993 | 3.589 |
| Bicycle LOS | A | B | C | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.651 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 141 | 101 | 78 | 155 | 372 | 325 | 63 | 848 | 404 | 148 | 1261 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 141 | 101 | 78 | 155 | 372 | 325 | 63 | 848 | 404 | 148 | 1261 | 21 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 27 | 21 | 42 | 100 | 87 | 17 | 228 | 109 | 40 | 339 | 6 |
| Total Analysis Volume [veh/h] | 152 | 109 | 84 | 167 | 400 | 349 | 68 | 912 | 434 | 159 | 1356 | 23 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 30 | 30 | 13 | 30 | 30 | 12 | 48 | 48 | 13 | 49 | 49 |
| g / C, Green / Cycle | 0.11 | 0.25 | 0.25 | 0.11 | 0.25 | 0.25 | 0.10 | 0.40 | 0.40 | 0.11 | 0.41 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.03 | 0.06 | 0.05 | 0.13 | 0.22 | 0.02 | 0.18 | 0.28 | 0.05 | 0.27 | 0.01 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1527 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 363 | 858 | 386 | 359 | 789 | 401 | 348 | 2024 | 626 | 375 | 2080 | 638 |
| d1, Uniform Delay [s] | 50.05 | 34.71 | 35.54 | 50.36 | 38.56 | 43.08 | 49.80 | 26.62 | 30.14 | 50.13 | 28.81 | 21.49 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.19 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.29 | 0.05 | 0.22 | 0.35 | 0.40 | 9.86 | 0.10 | 0.73 | 6.20 | 0.28 | 1.60 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.42 | 0.13 | 0.22 | 0.47 | 0.51 | 0.87 | 0.20 | 0.45 | 0.69 | 0.42 | 0.65 | 0.04 |
| d, Delay for Lane Group [s/veh] | 50.34 | 34.76 | 35.77 | 50.71 | 38.97 | 52.95 | 49.91 | 27.35 | 36.34 | 50.41 | 30.42 | 21.59 |
| Lane Group LOS | D | C | D | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.12 | 1.22 | 1.95 | 2.38 | 5.11 | 10.97 | 0.95 | 6.51 | 11.38 | 2.20 | 10.28 | 0.40 |
| 50th-Percentile Queue Length [ft/ln] | 52.97 | 30.59 | 48.63 | 59.54 | 127.65 | 274.20 | 23.70 | 162.70 | 284.50 | 54.96 | 256.91 | 9.92 |
| 95th-Percentile Queue Length [veh/ln] | 3.81 | 2.20 | 3.50 | 4.29 | 8.81 | 16.40 | 1.71 | 10.69 | 16.91 | 3.96 | 15.53 | 0.71 |
| 95th-Percentile Queue Length [ft/ln] | 95.34 | 55.06 | 87.53 | 107.17 | 220.29 | 409.99 | 42.67 | 267.30 | 422.81 | 98.93 | 388.34 | 17.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.34 | 34.76 | 35.77 | 50.71 | 38.97 | 52.95 | 49.91 | 27.35 | 36.34 | 50.41 | 30.42 | 21.59 |
| Movement LOS | D | C | D | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 41.87 | | | 46.43 | | | 31.19 | | | 32.35 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.80 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.651 | | | | | | | | | | | |

**Emissions**

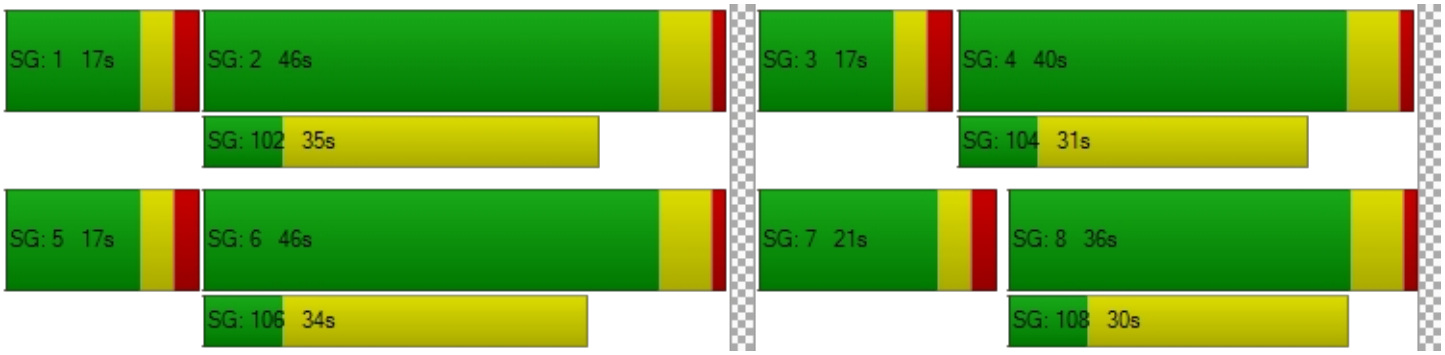
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.91 | 11.41 | 8.79 | 90.24 | 216.15 | 188.59 | 33.94 | 455.15 | 216.60 | 18.33 | 156.29 | 2.65 |
| Stops [stops/h] | 126.95 | 73.31 | 58.28 | 142.70 | 305.94 | 328.60 | 56.81 | 584.94 | 340.94 | 131.73 | 923.62 | 11.89 |
| Fuel consumption [US gal/h] | 3.37 | 1.90 | 1.50 | 6.23 | 13.76 | 13.34 | 2.40 | 27.04 | 14.01 | 3.90 | 25.23 | 0.34 |
| CO [g/h] | 235.83 | 132.80 | 104.76 | 435.23 | 961.82 | 932.41 | 167.86 | 1890.35 | 979.27 | 272.40 | 1763.84 | 23.75 |
| NOx [g/h] | 45.88 | 25.84 | 20.38 | 84.68 | 187.14 | 181.41 | 32.66 | 367.79 | 190.53 | 53.00 | 343.18 | 4.62 |
| VOC [g/h] | 54.66 | 30.78 | 24.28 | 100.87 | 222.91 | 216.10 | 38.90 | 438.11 | 226.96 | 63.13 | 408.79 | 5.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.58 | 49.58 | 49.58 | 49.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.856 | 2.763 | 3.217 | 3.302 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 504 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.68 | 33.60 | 26.54 | 26.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.844 | 2.315 | 2.337 | 2.406 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 52.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.816 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 552 | 140 | 2 | 11 | 64 | 28 | 13 | 16 | 300 | 2 | 148 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 552 | 140 | 2 | 11 | 64 | 28 | 13 | 16 | 300 | 2 | 148 | 5 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 152 | 38 | 1 | 3 | 18 | 8 | 4 | 4 | 82 | 1 | 41 | 1 |
| Total Analysis Volume [veh/h] | 607 | 154 | 2 | 12 | 70 | 31 | 14 | 18 | 330 | 2 | 163 | 5 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 32 | 2 | 9 | 3 | 22 | 0 | 20 |
| g / C, Green / Cycle | 0.35 | 0.44 | 0.03 | 0.12 | 0.04 | 0.30 | 0.01 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.38 | 0.10 | 0.01 | 0.06 | 0.01 | 0.24 | 0.00 | 0.10 |
| s, saturation flow rate [veh/h] | 1605 | 1631 | 1629 | 1579 | 1629 | 1465 | 1629 | 1701 |
| c, Capacity [veh/h] | 555 | 712 | 54 | 196 | 62 | 443 | 10 | 461 |
| d1, Uniform Delay [s] | 23.67 | 12.69 | 34.07 | 29.63 | 33.77 | 23.07 | 35.76 | 21.32 |
| k, delay calibration | 0.50 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 66.37 | 0.17 | 0.77 | 2.96 | 0.69 | 4.67 | 3.46 | 0.79 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.09 | 0.22 | 0.22 | 0.51 | 0.23 | 0.78 | 0.20 | 0.36 |
| d, Delay for Lane Group [s/veh] | 90.04 | 12.85 | 34.83 | 32.59 | 34.46 | 27.73 | 39.23 | 22.12 |
| Lane Group LOS | F | B | C | C | C | C | D | C |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 18.33 | 1.37 | 0.20 | 1.67 | 0.24 | 5.65 | 0.04 | 2.29 |
| 50th-Percentile Queue Length [ft/ln] | 458.34 | 34.14 | 5.07 | 41.83 | 6.09 | 141.25 | 1.10 | 57.31 |
| 95th-Percentile Queue Length [veh/ln] | 26.85 | 2.46 | 0.37 | 3.01 | 0.44 | 9.55 | 0.08 | 4.13 |
| 95th-Percentile Queue Length [ft/ln] | 671.29 | 61.46 | 9.13 | 75.29 | 10.97 | 238.70 | 1.98 | 103.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 90.04 | 12.85 | 12.85 | 34.83 | 32.59 | 32.59 | 34.46 | 27.73 | 27.73 | 39.23 | 22.12 | 22.12 |
| Movement LOS | F | B | B | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 74.26 | | | 32.83 | | | 27.99 | | | 22.32 | | |
| Approach LOS | E | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 52.77 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.816 | | | | | | | | | | | |

**Emissions**

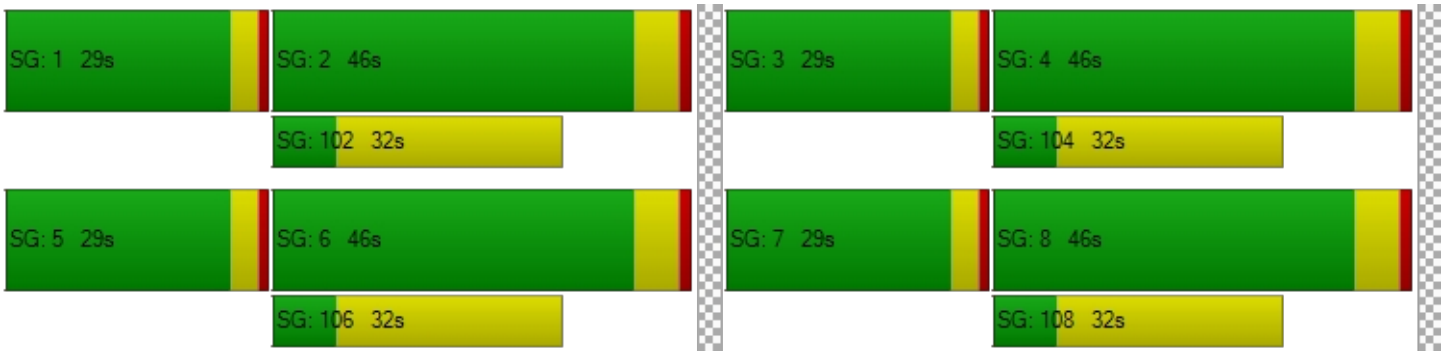
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 304.48 | 78.25 | 0.55 | 4.62 | 7.04 | 175.00 | 0.76 | 63.59 |
| Stops [stops/h] | 913.57 | 68.06 | 10.12 | 83.37 | 12.15 | 281.54 | 2.19 | 114.23 |
| Fuel consumption [US gal/h] | 32.92 | 3.94 | 0.23 | 1.86 | 0.46 | 10.72 | 0.06 | 4.01 |
| CO [g/h] | 2300.89 | 275.16 | 16.05 | 130.34 | 31.81 | 749.57 | 4.14 | 279.95 |
| NOx [g/h] | 447.67 | 53.54 | 3.12 | 25.36 | 6.19 | 145.84 | 0.81 | 54.47 |
| VOC [g/h] | 533.25 | 63.77 | 3.72 | 30.21 | 7.37 | 173.72 | 0.96 | 64.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.96 | 25.96 | 25.96 | 25.96 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.496 | 2.068 | 2.306 | 1.994 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1107 | 1107 | 1107 | 1107 |
| d_b, Bicycle Delay [s] | 7.20 | 7.20 | 7.20 | 7.20 |
| l_b,int, Bicycle LOS Score for Intersection | 2.819 | 1.746 | 2.157 | 1.840 |
| Bicycle LOS | C | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.709 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 525 | 159 | 30 | 355 | 423 | 31 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 525 | 159 | 30 | 355 | 423 | 31 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 131 | 40 | 8 | 89 | 106 | 8 |
| Total Analysis Volume [veh/h] | 525 | 159 | 30 | 355 | 423 | 31 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 0 | 2 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 40 | 0 | 0 | 40 | 40 | 0 |
| Amber [s] | 5.0 | 0.0 | 0.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 14 | 0 | 0 | 14 | 9 | 0 |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 0 | 10 | 5 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | L | C | C |
|---|---|---|---|---|
| C, Cycle Length [s] | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 32 | 36 | 36 | 23 |
| g / C, Green / Cycle | 0.48 | 0.54 | 0.54 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.42 | 0.04 | 0.21 | 0.29 |
| s, saturation flow rate [veh/h] | 1617 | 733 | 1683 | 1590 |
| c, Capacity [veh/h] | 769 | 286 | 901 | 548 |
| d1, Uniform Delay [s] | 15.93 | 13.50 | 9.14 | 20.09 |
| k, delay calibration | 0.24 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.92 | 0.16 | 0.28 | 3.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | |
|---|---|---|---|---|
| X, volume / capacity | 0.89 | 0.10 | 0.39 | 0.83 |
| d, Delay for Lane Group [s/veh] | 23.85 | 13.66 | 9.42 | 23.37 |
| Lane Group LOS | C | B | A | C |
| Critical Lane Group | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 8.99 | 0.18 | 2.34 | 6.39 |
| 50th-Percentile Queue Length [ft/ln] | 224.73 | 4.60 | 58.48 | 159.63 |
| 95th-Percentile Queue Length [veh/ln] | 13.91 | 0.33 | 4.21 | 10.53 |
| 95th-Percentile Queue Length [ft/ln] | 347.65 | 8.27 | 105.26 | 263.23 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.85 | 23.85 | 13.66 | 9.42 | 23.37 | 23.37 |
| Movement LOS | C | C | B | A | C | C |
| d_A, Approach Delay [s/veh] | 23.85 | | 9.75 | | 23.37 | |
| Approach LOS | C | | A | | C | |
| d_I, Intersection Delay [s/veh] | 20.14 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.709 | | | | | |

**Emissions**

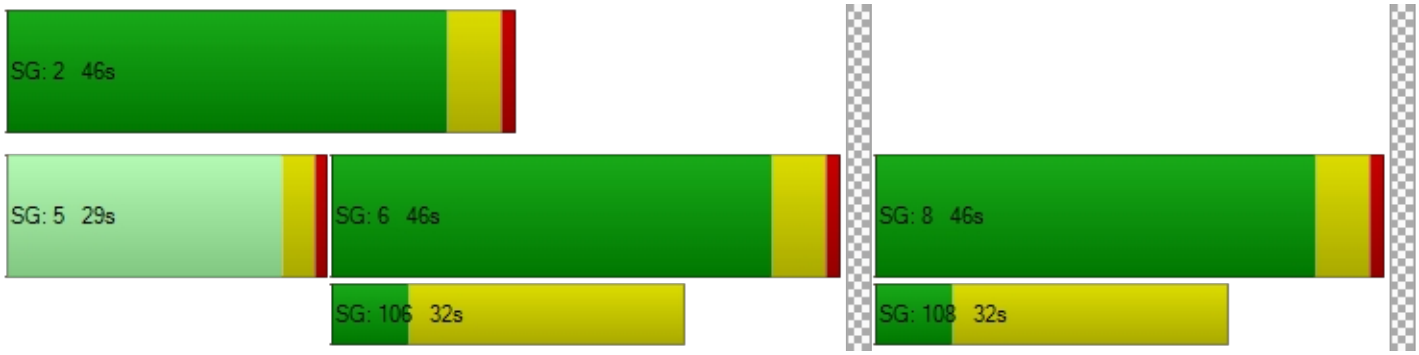
| | | | | |
|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 340.91 | 15.05 | 178.07 | 85.89 |
| Stops [stops/h] | 485.08 | 9.92 | 126.22 | 344.56 |
| Fuel consumption [US gal/h] | 21.04 | 0.72 | 8.35 | 7.60 |
| CO [g/h] | 1470.45 | 50.51 | 583.93 | 531.12 |
| NOx [g/h] | 286.10 | 9.83 | 113.61 | 103.34 |
| VOC [g/h] | 340.79 | 11.71 | 135.33 | 123.09 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.26 | 23.26 | 23.26 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.767 | 2.382 | 2.033 |
| Crosswalk LOS | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1199 | 1199 | 1199 |
| d_b, Bicycle Delay [s] | 5.35 | 5.35 | 5.35 |
| l_b,int, Bicycle LOS Score for Intersection | 2.688 | 2.195 | 2.309 |
| Bicycle LOS | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.776 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 117 | 230 | 48 | 187 | 414 | 142 | 62 | 464 | 51 | 78 | 199 | 382 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 117 | 230 | 48 | 187 | 414 | 142 | 62 | 464 | 51 | 78 | 199 | 382 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 60 | 13 | 49 | 108 | 37 | 16 | 121 | 13 | 20 | 52 | 99 |
| Total Analysis Volume [veh/h] | 122 | 240 | 50 | 195 | 431 | 148 | 65 | 483 | 53 | 81 | 207 | 398 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 31 | 31 | 12 | 35 | 7 | 29 | 29 | 7 | 30 | 30 |
| g / C, Green / Cycle | 0.09 | 0.32 | 0.32 | 0.13 | 0.36 | 0.07 | 0.31 | 0.31 | 0.07 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.13 | 0.03 | 0.11 | 0.32 | 0.04 | 0.15 | 0.15 | 0.05 | 0.11 | 0.25 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1784 | 1810 | 1870 | 1806 | 1782 | 1900 | 1586 |
| c, Capacity [veh/h] | 164 | 604 | 500 | 232 | 644 | 125 | 574 | 555 | 132 | 593 | 495 |
| d1, Uniform Delay [s] | 42.46 | 25.24 | 22.75 | 40.67 | 28.91 | 43.04 | 26.90 | 26.92 | 42.99 | 25.42 | 30.24 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.30 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.53 | 0.42 | 0.09 | 3.12 | 11.66 | 1.25 | 1.13 | 1.18 | 1.72 | 0.65 | 6.78 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.40 | 0.10 | 0.84 | 0.90 | 0.52 | 0.47 | 0.48 | 0.61 | 0.35 | 0.80 |
| d, Delay for Lane Group [s/veh] | 44.99 | 25.67 | 22.83 | 43.79 | 40.57 | 44.29 | 28.03 | 28.10 | 44.72 | 26.07 | 37.02 |
| Lane Group LOS | D | C | C | D | D | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.81 | 4.04 | 0.76 | 4.48 | 13.57 | 1.48 | 4.97 | 4.84 | 1.83 | 3.47 | 8.62 |
| 50th-Percentile Queue Length [ft/ln] | 70.17 | 101.11 | 18.95 | 111.93 | 339.29 | 37.12 | 124.37 | 120.99 | 45.67 | 86.74 | 215.55 |
| 95th-Percentile Queue Length [veh/ln] | 5.05 | 7.28 | 1.36 | 7.95 | 19.61 | 2.67 | 8.63 | 8.45 | 3.29 | 6.25 | 13.44 |
| 95th-Percentile Queue Length [ft/ln] | 126.30 | 182.00 | 34.10 | 198.69 | 490.34 | 66.81 | 215.81 | 211.19 | 82.21 | 156.13 | 335.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 44.99 | 25.67 | 22.83 | 43.79 | 40.57 | 40.57 | 44.29 | 28.06 | 28.10 | 44.72 | 26.07 | 37.02 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 31.04 | | | 41.38 | | | 29.82 | | | 34.62 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.98 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.776 | | | | | | | | | | | |

**Emissions**

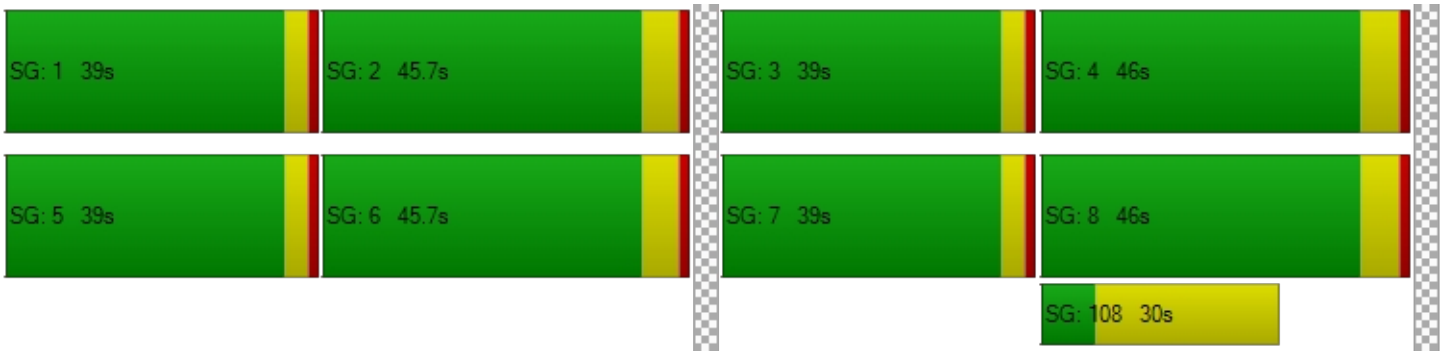
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 61.35 | 120.69 | 25.14 | 97.19 | 288.58 | 32.03 | 134.04 | 130.11 | 21.23 | 54.25 | 104.31 |
| Stops [stops/h] | 105.73 | 152.36 | 28.55 | 168.67 | 511.27 | 55.93 | 187.41 | 182.32 | 68.82 | 130.70 | 324.80 |
| Fuel consumption [US gal/h] | 4.53 | 7.28 | 1.45 | 7.17 | 21.03 | 2.28 | 8.19 | 7.96 | 2.50 | 4.92 | 11.48 |
| CO [g/h] | 316.95 | 509.22 | 101.29 | 500.93 | 1469.92 | 159.56 | 572.75 | 556.50 | 175.06 | 344.01 | 802.26 |
| NOx [g/h] | 61.67 | 99.08 | 19.71 | 97.46 | 285.99 | 31.04 | 111.44 | 108.27 | 34.06 | 66.93 | 156.09 |
| VOC [g/h] | 73.46 | 118.02 | 23.48 | 116.10 | 340.67 | 36.98 | 132.74 | 128.97 | 40.57 | 79.73 | 185.93 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.41 | 40.12 | 39.84 | 39.84 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.588 | 2.666 | 2.487 | 2.764 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 837 | 837 | 837 | 837 |
| d_b, Bicycle Delay [s] | 16.15 | 16.15 | 16.15 | 16.15 |
| l_b,int, Bicycle LOS Score for Intersection | 2.239 | 2.837 | 2.055 | 2.692 |
| Bicycle LOS | B | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 25.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.095 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 288 | 10 | 23 | 337 | 62 | 5 | 44 | 91 | 17 | 8 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 288 | 10 | 23 | 337 | 62 | 5 | 44 | 91 | 17 | 8 | 29 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 79 | 3 | 6 | 93 | 17 | 1 | 12 | 25 | 5 | 2 | 8 |
| Total Analysis Volume [veh/h] | 3 | 316 | 11 | 25 | 370 | 68 | 5 | 48 | 100 | 19 | 9 | 32 |
| Pedestrian Volume [ped/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.15 | 0.15 | 0.09 | 0.03 | 0.05 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.42 | 0.00 | 0.00 | 7.95 | 0.00 | 0.00 | 20.35 | 19.12 | 13.51 | 25.02 | 18.79 | 12.12 |
| Movement LOS | A | A | A | A | A | A | C | C | B | D | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 1.30 | 1.30 | 1.30 | 0.60 | 0.60 | 0.60 |
| 95th-Percentile Queue Length [ft/ln] | 0.21 | 0.00 | 0.00 | 1.54 | 0.00 | 0.00 | 32.57 | 32.57 | 32.57 | 15.03 | 15.03 | 15.03 |
| d_A, Approach Delay [s/veh] | 0.08 | | | 0.43 | | | 15.50 | | | 17.21 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 3.61 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.683 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 174 | 231 | 37 | 3 | 243 | 8 | 49 | 263 | 130 | 260 | 385 | 31 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 174 | 231 | 37 | 3 | 243 | 8 | 49 | 263 | 130 | 260 | 385 | 31 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 47 | 63 | 10 | 1 | 66 | 2 | 13 | 71 | 35 | 71 | 105 | 8 |
| Total Analysis Volume [veh/h] | 189 | 251 | 40 | 3 | 264 | 9 | 53 | 286 | 141 | 283 | 418 | 34 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 19 | 19 | 0 | 11 | 2 | 9 | 9 | 10 | 17 |
| g / C, Green / Cycle | 0.14 | 0.34 | 0.34 | 0.00 | 0.21 | 0.04 | 0.17 | 0.17 | 0.19 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.13 | 0.03 | 0.00 | 0.15 | 0.03 | 0.12 | 0.12 | 0.16 | 0.24 |
| s, saturation flow rate [veh/h] | 1765 | 1859 | 1578 | 1772 | 1876 | 1691 | 1868 | 1666 | 1794 | 1850 |
| c, Capacity [veh/h] | 241 | 639 | 542 | 6 | 394 | 69 | 315 | 281 | 345 | 592 |
| d1, Uniform Delay [s] | 22.83 | 13.62 | 12.09 | 27.22 | 19.97 | 25.99 | 21.48 | 21.56 | 21.20 | 16.75 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.12 | 0.56 | 0.08 | 23.31 | 3.09 | 6.55 | 2.18 | 2.69 | 1.88 | 1.56 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.39 | 0.07 | 0.51 | 0.69 | 0.77 | 0.71 | 0.73 | 0.82 | 0.76 |
| d, Delay for Lane Group [s/veh] | 24.95 | 14.18 | 12.17 | 50.54 | 23.06 | 32.54 | 23.66 | 24.25 | 23.08 | 18.31 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.16 | 1.95 | 0.27 | 0.07 | 3.24 | 0.73 | 2.48 | 2.31 | 3.10 | 4.29 |
| 50th-Percentile Queue Length [ft/ln] | 53.92 | 48.81 | 6.86 | 1.87 | 81.03 | 18.14 | 61.91 | 57.84 | 77.41 | 107.29 |
| 95th-Percentile Queue Length [veh/ln] | 3.88 | 3.51 | 0.49 | 0.13 | 5.83 | 1.31 | 4.46 | 4.16 | 5.57 | 7.69 |
| 95th-Percentile Queue Length [ft/ln] | 97.05 | 87.86 | 12.35 | 3.36 | 145.86 | 32.65 | 111.43 | 104.11 | 139.34 | 192.22 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.95 | 14.18 | 12.17 | 50.54 | 23.06 | 23.06 | 32.54 | 23.79 | 24.25 | 23.08 | 18.31 | 18.31 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | B | B |
| d_A, Approach Delay [s/veh] | 18.25 | | | 23.36 | | | 24.89 | | | 20.14 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.29 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.683 | | | | | | | | | | | |

**Emissions**

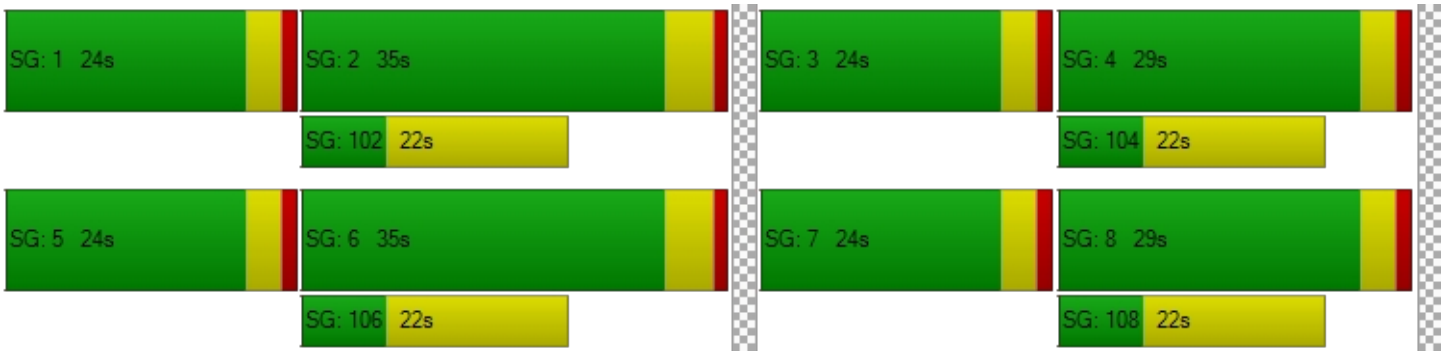
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 94.27 | 125.20 | 19.95 | 1.50 | 136.73 | 26.44 | 111.10 | 101.88 | 283.46 | 452.73 |
| Stops [stops/h] | 142.34 | 128.86 | 18.11 | 4.93 | 213.92 | 47.89 | 163.43 | 152.70 | 204.36 | 283.23 |
| Fuel consumption [US gal/h] | 5.96 | 6.62 | 1.01 | 0.12 | 8.09 | 1.85 | 6.91 | 6.40 | 13.59 | 20.72 |
| CO [g/h] | 416.67 | 462.62 | 70.47 | 8.38 | 565.61 | 129.49 | 483.21 | 447.28 | 949.70 | 1448.61 |
| NOx [g/h] | 81.07 | 90.01 | 13.71 | 1.63 | 110.05 | 25.19 | 94.01 | 87.02 | 184.78 | 281.85 |
| VOC [g/h] | 96.57 | 107.22 | 16.33 | 1.94 | 131.09 | 30.01 | 111.99 | 103.66 | 220.10 | 335.73 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.38 | 17.38 | 17.38 | 17.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.613 | 2.112 | 2.592 | 2.492 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1100 | 1100 | 917 | 917 |
| d_b, Bicycle Delay [s] | 5.52 | 5.52 | 8.00 | 8.00 |
| l_b,int, Bicycle LOS Score for Intersection | 2.352 | 2.015 | 1.956 | 2.772 |
| Bicycle LOS | B | B | A | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 89.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.013 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 497 | 440 | 49 | 43 | 654 | 79 | 36 | 318 | 412 | 77 | 311 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 497 | 440 | 49 | 43 | 654 | 79 | 36 | 318 | 412 | 77 | 311 | 36 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 146 | 129 | 14 | 13 | 192 | 23 | 11 | 94 | 121 | 23 | 91 | 11 |
| Total Analysis Volume [veh/h] | 585 | 518 | 58 | 51 | 769 | 93 | 42 | 374 | 485 | 91 | 366 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 41 | 41 | 7 | 27 | 27 | 6 | 33 | 33 | 8 | 35 | 35 |
| g / C, Green / Cycle | 0.20 | 0.39 | 0.39 | 0.07 | 0.25 | 0.25 | 0.06 | 0.32 | 0.32 | 0.08 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.15 | 0.04 | 0.03 | 0.22 | 0.06 | 0.02 | 0.20 | 0.30 | 0.05 | 0.10 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1561 | 1751 | 3555 | 1580 | 1810 | 1883 | 1596 | 1785 | 3589 | 1612 |
| c, Capacity [veh/h] | 356 | 1355 | 603 | 117 | 904 | 402 | 111 | 594 | 503 | 143 | 1199 | 539 |
| d1, Uniform Delay [s] | 42.30 | 23.33 | 20.64 | 47.35 | 37.46 | 31.19 | 47.65 | 30.88 | 35.54 | 47.10 | 26.07 | 24.04 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.20 | 0.46 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 300.92 | 0.18 | 0.07 | 2.54 | 2.36 | 0.29 | 2.14 | 2.03 | 30.36 | 4.67 | 0.14 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.64 | 0.38 | 0.10 | 0.44 | 0.85 | 0.23 | 0.38 | 0.63 | 0.96 | 0.64 | 0.31 | 0.08 |
| d, Delay for Lane Group [s/veh] | 343.22 | 23.51 | 20.71 | 49.89 | 39.82 | 31.48 | 49.78 | 32.91 | 65.90 | 51.77 | 26.21 | 24.10 |
| Lane Group LOS | F | C | C | D | D | C | D | C | E | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 38.65 | 4.41 | 0.88 | 1.37 | 9.61 | 1.91 | 1.13 | 8.35 | 16.20 | 2.43 | 3.27 | 0.70 |
| 50th-Percentile Queue Length [ft/ln] | 966.35 | 110.35 | 21.99 | 34.20 | 240.22 | 47.69 | 28.13 | 208.73 | 405.12 | 60.74 | 81.79 | 17.41 |
| 95th-Percentile Queue Length [veh/ln] | 59.93 | 7.86 | 1.58 | 2.46 | 14.69 | 3.43 | 2.03 | 13.09 | 22.81 | 4.37 | 5.89 | 1.25 |
| 95th-Percentile Queue Length [ft/ln] | 1498.20 | 196.49 | 39.58 | 61.56 | 367.31 | 85.85 | 50.63 | 327.20 | 570.16 | 109.33 | 147.23 | 31.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 343.22 | 23.51 | 20.71 | 49.89 | 39.82 | 31.48 | 49.78 | 32.91 | 65.90 | 51.77 | 26.21 | 24.10 |
| Movement LOS | F | C | C | D | D | C | D | C | E | D | C | C |
| d_A, Approach Delay [s/veh] | 184.46 | | | 39.54 | | | 51.46 | | | 30.69 | | |
| Approach LOS | F | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 89.79 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.013 | | | | | | | | | | | |

**Emissions**

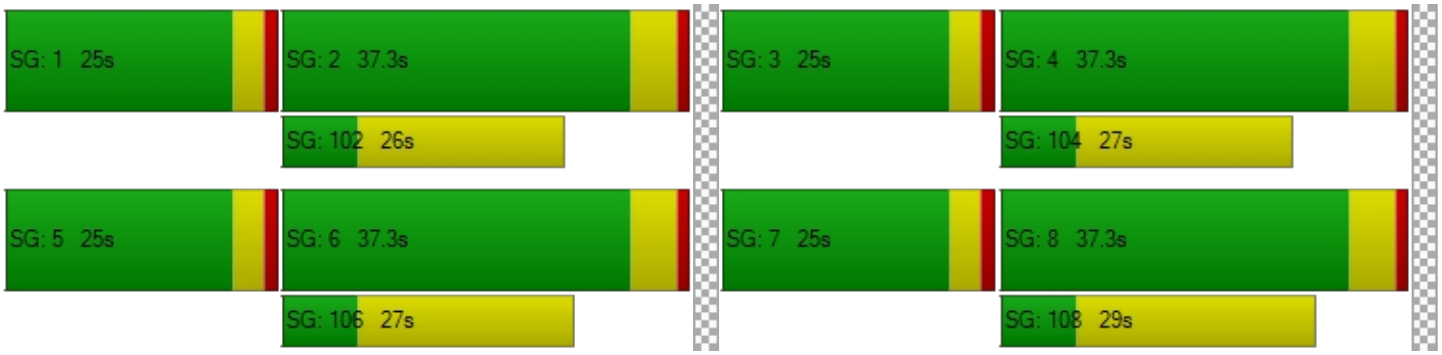
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 116.94 | 103.54 | 11.59 | 25.44 | 383.58 | 46.39 | 20.70 | 184.30 | 238.99 | 9.40 | 37.79 | 4.34 |
| Stops [stops/h] | 1318.91 | 301.23 | 30.01 | 46.68 | 655.72 | 65.10 | 38.39 | 284.89 | 552.92 | 82.90 | 223.27 | 23.76 |
| Fuel consumption [US gal/h] | 61.26 | 9.77 | 1.02 | 1.82 | 25.65 | 2.87 | 1.49 | 11.67 | 19.40 | 2.31 | 6.02 | 0.65 |
| CO [g/h] | 4281.91 | 683.09 | 70.95 | 127.42 | 1792.60 | 200.27 | 104.12 | 815.42 | 1355.84 | 161.56 | 421.04 | 45.44 |
| NOx [g/h] | 833.10 | 132.90 | 13.80 | 24.79 | 348.77 | 38.96 | 20.26 | 158.65 | 263.80 | 31.43 | 81.92 | 8.84 |
| VOC [g/h] | 992.37 | 158.31 | 16.44 | 29.53 | 415.45 | 46.41 | 24.13 | 188.98 | 314.23 | 37.44 | 97.58 | 10.53 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 42.33 | 42.33 | 42.33 | 42.33 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.071 | 2.707 | 2.687 | 2.595 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 607 | 607 | 607 | 607 |
| d_b, Bicycle Delay [s] | 25.61 | 25.61 | 25.61 | 25.61 |
| l_b,int, Bicycle LOS Score for Intersection | 2.517 | 2.313 | 3.046 | 1.971 |
| Bicycle LOS | B | B | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.868 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 470 | 953 | 0 | 0 | 521 | 652 | 0 | 0 | 0 | 168 | 0 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 470 | 953 | 0 | 0 | 521 | 652 | 0 | 0 | 0 | 168 | 0 | 17 |
| Peak Hour Factor | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 1.0000 | 0.8600 | 1.0000 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 137 | 277 | 0 | 0 | 151 | 190 | 0 | 0 | 0 | 49 | 0 | 5 |
| Total Analysis Volume [veh/h] | 547 | 1108 | 0 | 0 | 606 | 758 | 0 | 0 | 0 | 195 | 0 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 99 | 99 | 99 | 99 | | 99 | 99 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 22 | 72 | 45 | 45 | | 14 | 14 |
| g / C, Green / Cycle | 0.22 | 0.73 | 0.45 | 0.45 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.31 | 0.32 | 0.48 | | 0.11 | 0.01 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 606 | 2604 | 849 | 712 | | 248 | 217 |
| d1, Uniform Delay [s] | 37.74 | 5.26 | 21.95 | 27.15 | | 41.36 | 37.34 |
| k, delay calibration | 0.04 | 0.20 | 0.29 | 0.48 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.11 | 0.21 | 2.98 | 51.31 | | 11.07 | 0.39 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.90 | 0.43 | 0.71 | 1.06 | | 0.79 | 0.09 |
| d, Delay for Lane Group [s/veh] | 39.85 | 5.47 | 24.94 | 78.46 | | 52.43 | 37.73 |
| Lane Group LOS | D | A | C | F | | D | D |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 6.30 | 3.19 | 10.99 | 25.12 | | 5.08 | 0.42 |
| 50th-Percentile Queue Length [ft/ln] | 157.53 | 79.71 | 274.86 | 627.93 | | 126.99 | 10.58 |
| 95th-Percentile Queue Length [veh/ln] | 10.42 | 5.74 | 16.43 | 34.91 | | 8.78 | 0.76 |
| 95th-Percentile Queue Length [ft/ln] | 260.44 | 143.48 | 410.81 | 872.70 | | 219.39 | 19.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.85 | 5.47 | 0.00 | 0.00 | 24.94 | 78.46 | 0.00 | 0.00 | 0.00 | 52.43 | 0.00 | 37.73 |
| Movement LOS | D | A | | | C | F | | | | D | | D |
| d_A, Approach Delay [s/veh] | 16.83 | | | 54.68 | | | 0.00 | | | 51.06 | | |
| Approach LOS | B | | | D | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.07 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.868 | | | | | | | | | | | |

**Emissions**

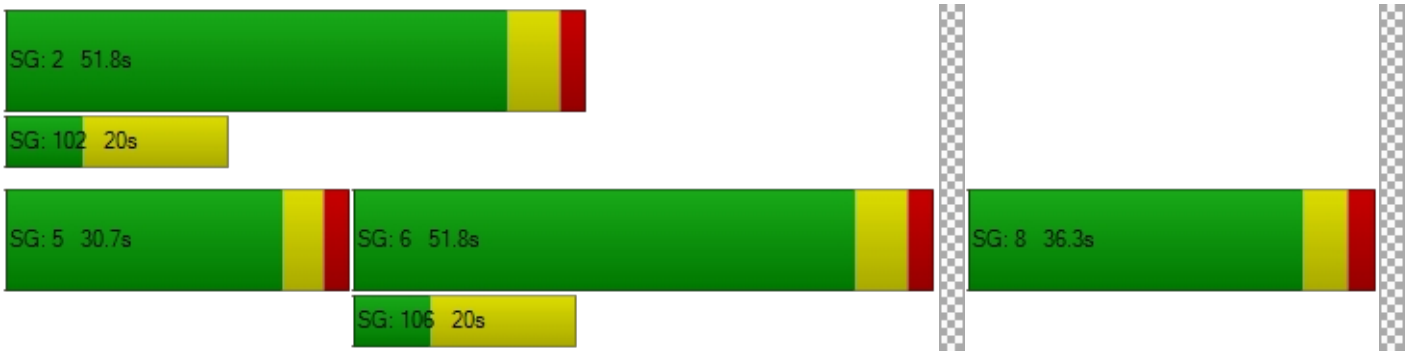
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 59.13 | 119.77 | 121.13 | 151.52 | | 16.76 | 1.72 |
| Stops [stops/h] | 457.38 | 231.44 | 399.04 | 911.62 | | 184.36 | 15.36 |
| Fuel consumption [US gal/h] | 12.15 | 8.22 | 12.19 | 28.63 | | 6.07 | 0.50 |
| CO [g/h] | 849.25 | 574.31 | 852.00 | 2001.24 | | 423.97 | 34.69 |
| NOx [g/h] | 165.23 | 111.74 | 165.77 | 389.37 | | 82.49 | 6.75 |
| VOC [g/h] | 196.82 | 133.10 | 197.46 | 463.81 | | 98.26 | 8.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.93 | 46.93 | 39.20 | 39.20 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.063 | 3.054 | 2.355 | 1.911 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 907 | 907 | 0 | 605 |
| d_b, Bicycle Delay [s] | 14.80 | 14.81 | 49.59 | 24.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.925 | 2.685 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.714 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1173 | 101 | 14 | 708 | 0 | 228 | 0 | 374 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1173 | 101 | 14 | 708 | 0 | 228 | 0 | 374 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 322 | 28 | 4 | 195 | 0 | 63 | 0 | 103 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1289 | 111 | 15 | 778 | 0 | 251 | 0 | 411 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 51 | 51 | 2 | 59 | 28 | 28 | |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.02 | 0.59 | 0.28 | 0.28 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.22 | 0.07 | 0.26 | |
| s, saturation flow rate [veh/h] | 1877 | 1825 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 958 | 932 | 37 | 2107 | 971 | 450 | |
| d1, Uniform Delay [s] | 19.09 | 19.42 | 48.26 | 10.79 | 27.78 | 34.69 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.37 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.89 | 5.56 | 2.68 | 0.50 | 0.30 | 20.44 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.75 | 0.41 | 0.37 | 0.26 | 0.91 | |
| d, Delay for Lane Group [s/veh] | 23.98 | 24.98 | 50.94 | 11.29 | 28.08 | 55.13 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.74 | 13.07 | 0.38 | 4.05 | 2.19 | 11.36 | |
| 50th-Percentile Queue Length [ft/ln] | 318.45 | 326.83 | 9.62 | 101.27 | 54.84 | 284.03 | |
| 95th-Percentile Queue Length [veh/ln] | 18.59 | 19.00 | 0.69 | 7.29 | 3.95 | 16.89 | |
| 95th-Percentile Queue Length [ft/ln] | 464.78 | 475.07 | 17.31 | 182.29 | 98.71 | 422.23 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 24.43 | 24.98 | 50.94 | 11.29 | 0.00 | 28.08 | 0.00 | 55.13 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 24.48 | | | 12.04 | | | 44.88 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 25.75 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.714 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 46.45 | 46.45 | 1.62 | 84.10 | 29.83 | 48.85 | |
| Stops [stops/h] | 458.77 | 470.84 | 13.86 | 291.79 | 158.01 | 409.19 | |
| Fuel consumption [US gal/h] | 9.59 | 9.85 | 0.38 | 8.30 | 5.37 | 13.85 | |
| CO [g/h] | 670.07 | 688.31 | 26.80 | 580.01 | 375.16 | 967.80 | |
| NOx [g/h] | 130.37 | 133.92 | 5.21 | 112.85 | 72.99 | 188.30 | |
| VOC [g/h] | 155.30 | 159.52 | 6.21 | 134.42 | 86.95 | 224.30 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.958 | 2.968 | 2.339 | 1.781 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.715 | 2.214 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.077 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 168 | 8 | 4 | 434 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 168 | 8 | 4 | 434 |
| Peak Hour Factor | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 72 | 3 | 2 | 187 |
| Total Analysis Volume [veh/h] | 19 | 0 | 290 | 14 | 7 | 748 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.08 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 20.85 | 11.07 | 0.00 | 0.00 | 7.87 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 6.22 | 6.22 | 0.00 | 0.00 | 0.29 | 0.29 |
| d_A, Approach Delay [s/veh] | 20.85 | | 0.00 | | 0.07 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.42 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.022 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 21 | 14 | 430 | 542 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 21 | 14 | 430 | 542 | 13 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 6 | 4 | 121 | 152 | 4 |
| Total Analysis Volume [veh/h] | 6 | 24 | 16 | 483 | 609 | 15 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.04 | 0.02 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 18.38 | 10.69 | 8.84 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.18 | 0.05 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.50 | 4.50 | 1.28 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.23 | | 0.28 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.44 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 29.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.427 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 81 | 20 | 469 | 37 | 5 | 504 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 81 | 20 | 469 | 37 | 5 | 504 |
| Peak Hour Factor | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 7 | 154 | 12 | 2 | 166 |
| Total Analysis Volume [veh/h] | 107 | 26 | 617 | 49 | 7 | 663 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.43 | 0.04 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 29.85 | 20.72 | 0.00 | 0.00 | 8.98 | 0.00 |
| Movement LOS | D | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.32 | 2.32 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 58.11 | 58.11 | 0.00 | 0.00 | 0.58 | 0.00 |
| d_A, Approach Delay [s/veh] | 28.07 | | 0.00 | | 0.09 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.58 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.767 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 248 | 43 | 2 | 349 | 65 | 92 | 266 | 142 | 194 | 325 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 248 | 43 | 2 | 349 | 65 | 92 | 266 | 142 | 194 | 325 | 30 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 81 | 14 | 1 | 113 | 21 | 30 | 86 | 46 | 63 | 106 | 10 |
| Total Analysis Volume [veh/h] | 48 | 322 | 56 | 3 | 453 | 84 | 119 | 345 | 184 | 252 | 422 | 39 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 5 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lag | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 |
| L, Total Lost Time per Cycle [s] | 2.00 | 0.00 | 0.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 0 | 0 | 44 | 32 | 17 | 21 | 21 | 31 | 35 | 35 |
| g / C, Green / Cycle | 0.11 | 0.00 | 0.00 | 0.41 | 0.30 | 0.16 | 0.19 | 0.19 | 0.28 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.17 | 0.04 | 0.00 | 0.29 | 0.12 | 0.10 | 0.11 | 0.24 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1409 | 1900 | 1519 | 1021 | 1849 | 1032 | 3520 | 1602 | 1041 | 3566 | 1615 |
| c, Capacity [veh/h] | 149 | 0 | 0 | 468 | 548 | 209 | 682 | 310 | 341 | 1143 | 518 |
| d1, Uniform Delay [s] | 44.68 | 0.00 | 0.00 | 19.94 | 37.61 | 45.35 | 38.89 | 39.62 | 38.57 | 28.24 | 25.52 |
| k, delay calibration | 0.04 | 0.50 | 0.50 | 0.04 | 0.49 | 0.04 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.46 | 0.00 | 0.00 | 0.00 | 33.07 | 0.91 | 1.25 | 3.83 | 6.48 | 0.43 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.32 | 10000.0 | 10000.0 | 0.01 | 0.98 | 0.57 | 0.51 | 0.59 | 0.74 | 0.37 | 0.08 |
| d, Delay for Lane Group [s/veh] | 45.14 | 0.00 | 0.00 | 19.94 | 70.68 | 46.26 | 40.13 | 43.45 | 45.05 | 28.67 | 25.65 |
| Lane Group LOS | D | F | F | B | E | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.21 | 0.00 | 0.00 | 0.05 | 18.83 | 3.02 | 4.02 | 4.57 | 6.69 | 4.03 | 0.68 |
| 50th-Percentile Queue Length [ft/ln] | 30.23 | 0.00 | 0.00 | 1.16 | 470.69 | 75.55 | 100.45 | 114.22 | 167.25 | 100.83 | 17.03 |
| 95th-Percentile Queue Length [veh/ln] | 2.18 | 0.00 | 0.00 | 0.08 | 25.94 | 5.44 | 7.23 | 8.07 | 10.93 | 7.26 | 1.23 |
| 95th-Percentile Queue Length [ft/ln] | 54.41 | 0.00 | 0.00 | 2.09 | 648.59 | 136.00 | 180.81 | 201.85 | 273.30 | 181.50 | 30.65 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 45.14 | 0.00 | 0.00 | 19.94 | 70.68 | 70.68 | 46.26 | 40.13 | 43.45 | 45.05 | 28.67 | 25.65 |
| Movement LOS | D | A | A | B | E | E | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 5.09 | | | 70.40 | | | 42.20 | | | 34.29 | | |
| Approach LOS | A | | | E | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 39.53 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.767 | | | | | | | | | | | |

**Emissions**

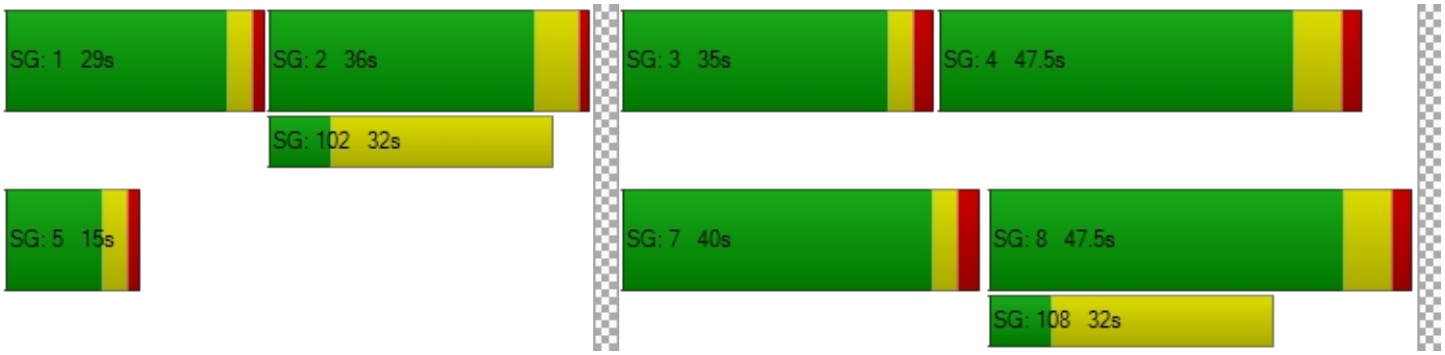
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 47.83 | 320.85 | 55.80 | 0.08 | 15.11 | 43.88 | 127.22 | 67.85 | 127.32 | 213.20 | 19.70 |
| Stops [stops/h] | 40.31 | 0.00 | 0.00 | 1.55 | 627.72 | 100.76 | 267.93 | 152.32 | 223.06 | 268.95 | 22.71 |
| Fuel consumption [US gal/h] | 2.63 | 13.21 | 2.30 | 0.02 | 11.81 | 4.14 | 11.19 | 6.24 | 10.00 | 13.73 | 1.21 |
| CO [g/h] | 184.02 | 923.26 | 160.57 | 1.69 | 825.75 | 289.13 | 782.23 | 435.99 | 698.82 | 959.73 | 84.72 |
| NOx [g/h] | 35.80 | 179.63 | 31.24 | 0.33 | 160.66 | 56.26 | 152.19 | 84.83 | 135.97 | 186.73 | 16.48 |
| VOC [g/h] | 42.65 | 213.98 | 37.21 | 0.39 | 191.38 | 67.01 | 181.29 | 101.04 | 161.96 | 222.43 | 19.63 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.55 | 47.68 | 43.55 | 43.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.923 | 2.453 | 2.787 | 2.768 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 556 | 741 | 741 |
| d_b, Bicycle Delay [s] | 53.99 | 28.16 | 21.40 | 21.40 |
| l_b,int, Bicycle LOS Score for Intersection | 2.263 | 2.451 | 2.094 | 2.148 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.667 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 335 | 63 | 2 | 726 | 236 | 81 | 85 | 75 | 238 | 307 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 335 | 63 | 2 | 726 | 236 | 81 | 85 | 75 | 238 | 307 | 9 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 102 | 19 | 1 | 221 | 72 | 25 | 26 | 23 | 73 | 94 | 3 |
| Total Analysis Volume [veh/h] | 109 | 409 | 77 | 2 | 885 | 288 | 99 | 104 | 91 | 290 | 374 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 33 | 33 | 0 | 25 | 25 | 8 | 13 | 13 | 14 | 19 | 19 |
| g / C, Green / Cycle | 0.11 | 0.43 | 0.43 | 0.00 | 0.33 | 0.33 | 0.10 | 0.17 | 0.17 | 0.19 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.12 | 0.05 | 0.00 | 0.25 | 0.18 | 0.06 | 0.06 | 0.06 | 0.16 | 0.20 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1609 | 1810 | 3592 | 1593 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 188 | 1526 | 697 | 9 | 1189 | 528 | 186 | 302 | 263 | 335 | 467 | 347 |
| d1, Uniform Delay [s] | 32.37 | 13.85 | 12.86 | 37.73 | 22.61 | 20.79 | 32.35 | 28.13 | 28.13 | 30.04 | 26.86 | 21.70 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.07 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.04 | 0.12 | 0.09 | 4.43 | 1.25 | 1.17 | 0.88 | 0.84 | 0.97 | 4.67 | 4.00 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.27 | 0.11 | 0.22 | 0.74 | 0.55 | 0.53 | 0.34 | 0.35 | 0.87 | 0.80 | 0.03 |
| d, Delay for Lane Group [s/veh] | 33.42 | 13.98 | 12.95 | 42.16 | 23.86 | 21.96 | 33.23 | 28.97 | 29.10 | 34.71 | 30.86 | 21.75 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.80 | 1.92 | 0.68 | 0.05 | 6.27 | 3.80 | 1.72 | 1.70 | 1.49 | 5.14 | 6.26 | 0.14 |
| 50th-Percentile Queue Length [ft/ln] | 45.09 | 47.96 | 16.98 | 1.14 | 156.79 | 95.04 | 43.11 | 42.38 | 37.31 | 128.53 | 156.60 | 3.52 |
| 95th-Percentile Queue Length [veh/ln] | 3.25 | 3.45 | 1.22 | 0.08 | 10.38 | 6.84 | 3.10 | 3.05 | 2.69 | 8.86 | 10.37 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 81.17 | 86.32 | 30.56 | 2.05 | 259.47 | 171.08 | 77.59 | 76.28 | 67.16 | 221.50 | 259.21 | 6.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.42 | 13.98 | 12.95 | 42.16 | 23.86 | 21.96 | 33.23 | 28.97 | 29.10 | 34.71 | 30.86 | 21.75 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 17.41 | | | 23.43 | | | 30.44 | | | 32.37 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.08 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.667 | | | | | | | | | | | |

**Emissions**

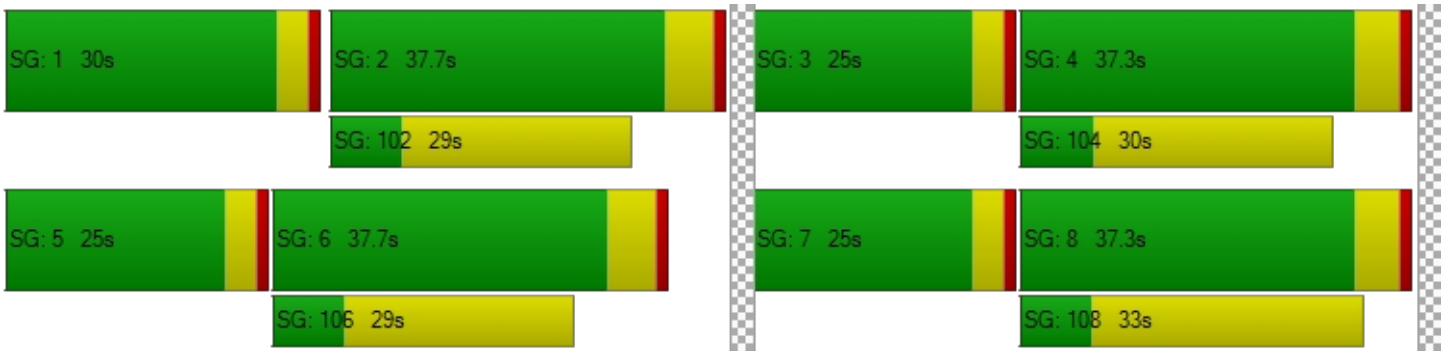
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 49.89 | 187.22 | 35.25 | 1.99 | 881.85 | 286.97 | 99.16 | 104.17 | 91.15 | 145.46 | 187.60 | 5.52 |
| Stops [stops/h] | 85.47 | 181.81 | 32.18 | 2.16 | 594.40 | 180.15 | 81.71 | 80.32 | 70.72 | 243.63 | 296.83 | 6.68 |
| Fuel consumption [US gal/h] | 3.72 | 10.22 | 1.88 | 0.12 | 42.95 | 13.66 | 5.20 | 5.35 | 4.68 | 10.06 | 12.47 | 0.32 |
| CO [g/h] | 260.32 | 714.66 | 131.23 | 8.18 | 3002.42 | 955.03 | 363.68 | 373.63 | 327.26 | 703.46 | 871.64 | 22.43 |
| NOx [g/h] | 50.65 | 139.05 | 25.53 | 1.59 | 584.16 | 185.81 | 70.76 | 72.69 | 63.67 | 136.87 | 169.59 | 4.36 |
| VOC [g/h] | 60.33 | 165.63 | 30.41 | 1.90 | 695.84 | 221.34 | 84.29 | 86.59 | 75.85 | 163.03 | 202.01 | 5.20 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.78 | 27.78 | 27.78 | 27.78 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.948 | 2.902 | 2.381 | 2.435 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 842 | 842 | 842 | 842 |
| d_b, Bicycle Delay [s] | 12.72 | 12.72 | 12.72 | 12.72 |
| l_b,int, Bicycle LOS Score for Intersection | 2.050 | 2.529 | 2.045 | 2.673 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 14.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 182 | 409 | 269 | 89 | 946 | 54 | 33 | 35 | 299 | 231 | 37 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 182 | 409 | 269 | 89 | 946 | 54 | 33 | 35 | 299 | 231 | 37 | 79 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 50 | 112 | 74 | 24 | 260 | 15 | 9 | 10 | 82 | 63 | 10 | 22 |
| Total Analysis Volume [veh/h] | 200 | 449 | 296 | 98 | 1040 | 59 | 36 | 38 | 329 | 254 | 41 | 87 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 178 | | | 508 | | | 1419 | | | 716 | | |
| Exiting Flow Rate [veh/h] | 1649 | | | 599 | | | 304 | | | 442 | | |
| Demand Flow Rate [veh/h] | 182 | 409 | 269 | 89 | 946 | 54 | 33 | 35 | 299 | 231 | 37 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 200 | 449 | 296 | 98 | 1040 | 59 | 36 | 38 | 329 | 254 | 41 | 87 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.96 | 0.98 | 0.99 | 0.96 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 465 | 522 | 572 | 643 | 77 | 332 | 210 | 184 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1208 | 1208 | 847 | 923 | 366 | 426 | 699 | 773 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1154 | 1159 | 833 | 911 | 353 | 422 | 675 | 755 |
| X, volume / capacity | 0.38 | 0.43 | 0.68 | 0.70 | 0.21 | 0.78 | 0.30 | 0.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | C | C | B | E | A | A |
| 95th-Percentile Queue Length [veh] | 1.84 | 2.23 | 5.38 | 5.90 | 0.78 | 6.75 | 1.26 | 0.92 |
| 95th-Percentile Queue Length [ft] | 45.98 | 55.65 | 134.60 | 147.38 | 19.51 | 168.63 | 31.48 | 23.10 |
| Approach Delay [s/veh] | 7.32 | | 16.09 | | 32.65 | | 8.32 | |
| Approach LOS | A | | C | | D | | A | |
| Intersection Delay [s/veh] | 14.53 | | | | | | | |
| Intersection LOS | B | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.647 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 690 | 603 | 0 | 777 | 687 | 0 | 0 | 0 | 67 | 0 | 140 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 690 | 603 | 0 | 777 | 687 | 0 | 0 | 0 | 67 | 0 | 140 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 192 | 168 | 0 | 216 | 191 | 0 | 0 | 0 | 19 | 0 | 39 |
| Total Analysis Volume [veh/h] | 0 | 767 | 670 | 0 | 863 | 763 | 0 | 0 | 0 | 74 | 0 | 156 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 31 | 31 | 31 | | 8 | 8 |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.60 | | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.24 | 0.47 | | 0.04 | 0.10 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2133 | 2129 | 969 | | 267 | 241 |
| d1, Uniform Delay [s] | 5.21 | 5.39 | 7.75 | | 19.26 | 20.46 |
| k, delay calibration | 0.20 | 0.20 | 0.27 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.23 | 3.54 | | 1.19 | 6.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.41 | 0.79 | | 0.28 | 0.65 |
| d, Delay for Lane Group [s/veh] | 5.40 | 5.63 | 11.29 | | 20.45 | 26.59 |
| Lane Group LOS | A | A | B | | C | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.09 | 1.27 | 4.01 | | 0.71 | 1.80 |
| 50th-Percentile Queue Length [ft/ln] | 27.19 | 31.77 | 100.14 | | 17.73 | 45.01 |
| 95th-Percentile Queue Length [veh/ln] | 1.96 | 2.29 | 7.21 | | 1.28 | 3.24 |
| 95th-Percentile Queue Length [ft/ln] | 48.95 | 57.19 | 180.25 | | 31.91 | 81.02 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.40 | 0.00 | 0.00 | 5.63 | 11.29 | 0.00 | 0.00 | 0.00 | 20.45 | 0.00 | 26.59 |
| Movement LOS | | A | | | A | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | | 3.02 | | | 8.28 | | | 0.00 | | | 24.61 | |
| Approach LOS | | A | | | A | | | A | | | C | |
| d_I, Intersection Delay [s/veh] | 8.18 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.647 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 87.74 | 85.14 | 75.28 | | 5.24 | 11.04 |
| Stops [stops/h] | 153.12 | 178.91 | 281.95 | | 49.92 | 126.74 |
| Fuel consumption [US gal/h] | 5.75 | 6.13 | 7.84 | | 1.41 | 3.57 |
| CO [g/h] | 402.18 | 428.57 | 547.91 | | 98.58 | 249.36 |
| NOx [g/h] | 78.25 | 83.38 | 106.60 | | 19.18 | 48.52 |
| VOC [g/h] | 93.21 | 99.32 | 126.98 | | 22.85 | 57.79 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.57 | 22.57 | 15.75 | 15.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.781 | 3.028 | 2.055 | 2.045 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1369 | 1369 | 0 | 782 |
| d_b, Bicycle Delay [s] | 2.55 | 2.55 | 25.57 | 9.48 |
| l_b,int, Bicycle LOS Score for Intersection | 2.192 | 2.901 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.571 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1001 | 23 | 27 | 823 | 0 | 269 | 0 | 899 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1001 | 23 | 27 | 823 | 0 | 269 | 0 | 899 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 272 | 6 | 7 | 224 | 0 | 73 | 0 | 244 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1088 | 25 | 29 | 895 | 0 | 292 | 0 | 977 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | |
| g_i, Effective Green Time [s] | 25 | 25 | 2 | 33 | 13 | |
| g / C, Green / Cycle | 0.43 | 0.43 | 0.04 | 0.56 | 0.22 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.30 | 0.30 | 0.02 | 0.25 | 0.17 | |
| s, saturation flow rate [veh/h] | 1873 | 1858 | 1758 | 3580 | 1749 | |
| c, Capacity [veh/h] | 802 | 795 | 68 | 2021 | 388 | |
| d1, Uniform Delay [s] | 13.61 | 13.66 | 27.46 | 7.40 | 21.25 | |
| k, delay calibration | 0.19 | 0.19 | 0.04 | 0.19 | 0.23 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 1.94 | 2.01 | 1.55 | 0.27 | 6.16 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.69 | 0.70 | 0.42 | 0.44 | 0.75 | |
| d, Delay for Lane Group [s/veh] | 15.56 | 15.67 | 29.01 | 7.67 | 27.41 | |
| Lane Group LOS | B | B | C | A | C | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 4.96 | 4.98 | 0.38 | 2.16 | 3.68 | |
| 50th-Percentile Queue Length [ft/ln] | 123.88 | 124.54 | 9.59 | 54.12 | 91.97 | |
| 95th-Percentile Queue Length [veh/ln] | 8.61 | 8.64 | 0.69 | 3.90 | 6.62 | |
| 95th-Percentile Queue Length [ft/ln] | 215.15 | 216.05 | 17.27 | 97.42 | 165.55 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.61 | 15.67 | 29.01 | 7.67 | 0.00 | 27.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | C | A | | C | | | | | |
| d_A, Approach Delay [s/veh] | 15.61 | | | 8.34 | | | 27.41 | | | 0.00 | | |
| Approach LOS | B | | | A | | | C | | | A | | |
| d_I, Intersection Delay [s/veh] | 14.21 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.571 | | | | | | | | | | | |

**Emissions**

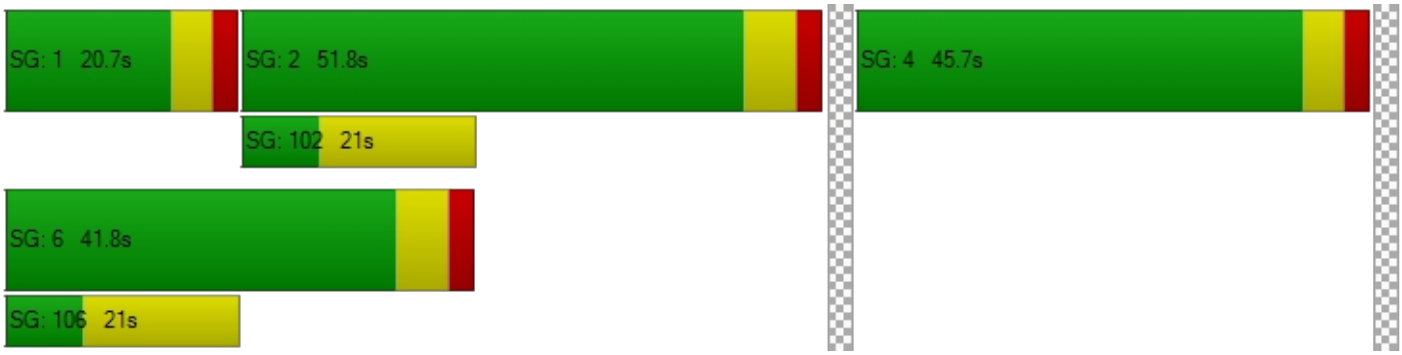
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.08 | 45.08 | 3.32 | 102.38 | 22.83 | |
| Stops [stops/h] | 305.64 | 307.26 | 23.67 | 267.07 | 226.91 | |
| Fuel consumption [US gal/h] | 7.11 | 7.14 | 0.58 | 8.23 | 6.61 | |
| CO [g/h] | 496.78 | 499.08 | 40.49 | 575.11 | 461.87 | |
| NOx [g/h] | 96.66 | 97.10 | 7.88 | 111.90 | 89.86 | |
| VOC [g/h] | 115.13 | 115.67 | 9.38 | 133.29 | 107.04 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.18 | 29.18 | 19.22 | 19.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.858 | 3.007 | 1.952 | 1.717 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1542 | 1199 | 1371 | 0 |
| d_b, Bicycle Delay [s] | 1.53 | 4.68 | 2.89 | 29.18 |
| l_b,int, Bicycle LOS Score for Intersection | 2.478 | 2.322 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.305 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 8 | 31 | 124 | 14 | 69 | 10 | 268 | 37 | 15 | 279 | 43 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 61 | 8 | 31 | 124 | 14 | 69 | 10 | 268 | 37 | 15 | 279 | 43 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 3 | 10 | 41 | 5 | 23 | 3 | 89 | 12 | 5 | 93 | 14 |
| Total Analysis Volume [veh/h] | 81 | 11 | 41 | 165 | 19 | 92 | 13 | 357 | 49 | 20 | 372 | 57 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 10 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 23 | 12 | 8 | 13 | 1 | 12 | 12 | 1 | 12 | 12 |
| g / C, Green / Cycle | 0.48 | 0.24 | 0.16 | 0.27 | 0.02 | 0.25 | 0.25 | 0.02 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.03 | 0.13 | 0.07 | 0.01 | 0.11 | 0.04 | 0.01 | 0.12 | 0.04 |
| s, saturation flow rate [veh/h] | 1234 | 1333 | 1283 | 1492 | 1629 | 3120 | 1343 | 1629 | 3217 | 1454 |
| c, Capacity [veh/h] | 534 | 316 | 149 | 397 | 27 | 778 | 335 | 40 | 828 | 374 |
| d1, Uniform Delay [s] | 10.70 | 14.57 | 19.74 | 14.12 | 23.67 | 15.45 | 14.19 | 23.39 | 15.15 | 13.94 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.15 | 0.18 | 68.21 | 0.38 | 12.47 | 0.42 | 0.20 | 9.39 | 0.38 | 0.19 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.17 | 0.13 | 1.11 | 0.28 | 0.48 | 0.46 | 0.15 | 0.50 | 0.45 | 0.15 |
| d, Delay for Lane Group [s/veh] | 10.85 | 14.75 | 87.95 | 14.49 | 36.14 | 15.87 | 14.39 | 32.78 | 15.53 | 14.13 |
| Lane Group LOS | B | B | F | B | D | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.54 | 0.30 | 4.27 | 0.88 | 0.22 | 1.32 | 0.34 | 0.29 | 1.35 | 0.39 |
| 50th-Percentile Queue Length [ft/ln] | 13.56 | 7.49 | 106.63 | 22.08 | 5.45 | 32.96 | 8.49 | 7.34 | 33.75 | 9.70 |
| 95th-Percentile Queue Length [veh/ln] | 0.98 | 0.54 | 7.68 | 1.59 | 0.39 | 2.37 | 0.61 | 0.53 | 2.43 | 0.70 |
| 95th-Percentile Queue Length [ft/ln] | 24.42 | 13.49 | 191.93 | 39.74 | 9.81 | 59.34 | 15.28 | 13.21 | 60.75 | 17.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 10.85 | 10.85 | 14.75 | 87.95 | 14.49 | 14.49 | 36.14 | 15.87 | 14.39 | 32.78 | 15.53 | 14.13 |
| Movement LOS | B | B | B | F | B | B | D | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 12.05 | | | 58.41 | | | 16.32 | | | 16.12 | | |
| Approach LOS | B | | | E | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 24.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.305 | | | | | | | | | | | |

**Emissions**

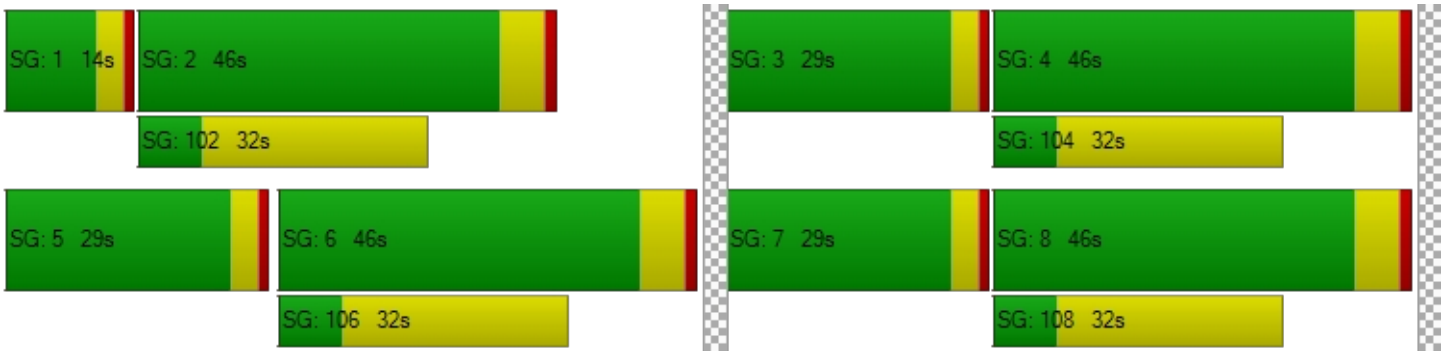
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.79 | 2.13 | 4.12 | 2.77 | 6.57 | 180.36 | 24.76 | 10.01 | 186.12 | 28.52 |
| Stops [stops/h] | 40.27 | 22.25 | 316.59 | 65.56 | 16.18 | 195.75 | 25.21 | 21.78 | 200.42 | 28.79 |
| Fuel consumption [US gal/h] | 0.87 | 0.47 | 4.87 | 0.80 | 0.56 | 10.20 | 1.36 | 0.80 | 10.48 | 1.56 |
| CO [g/h] | 60.68 | 33.05 | 340.53 | 56.18 | 39.42 | 712.83 | 95.03 | 56.12 | 732.90 | 109.10 |
| NOx [g/h] | 11.81 | 6.43 | 66.25 | 10.93 | 7.67 | 138.69 | 18.49 | 10.92 | 142.59 | 21.23 |
| VOC [g/h] | 14.06 | 7.66 | 78.92 | 13.02 | 9.14 | 165.21 | 22.02 | 13.01 | 169.86 | 25.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 14.50 | 14.50 | 14.50 | 14.50 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.012 | 2.021 | 2.778 | 2.926 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2845 | 1650 | 1650 | 1650 |
| d_b, Bicycle Delay [s] | 4.33 | 0.74 | 0.74 | 0.74 |
| l_b,int, Bicycle LOS Score for Intersection | 1.779 | 2.015 | 1.905 | 1.930 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.679 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 6 | 1 | 1 | 5 | 510 | 126 | 2 | 2 | 0 | 4 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 6 | 1 | 1 | 5 | 510 | 126 | 2 | 2 | 0 | 4 | 1 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 2 | 0 | 0 | 2 | 157 | 39 | 1 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 7 | 1 | 1 | 6 | 630 | 156 | 2 | 2 | 0 | 5 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 705 | 938 | 657 | 661 |
| Degree of Utilization, x | 0.02 | 0.68 | 0.24 | 0.01 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.07 | 5.54 | 0.95 | 0.03 |
| 95th-Percentile Queue Length [ft] | 1.63 | 138.55 | 23.76 | 0.69 |
| Approach Delay [s/veh] | 8.22 | 14.57 | 10.23 | 8.50 |
| Approach LOS | A | B | B | A |
| Intersection Delay [s/veh] | 13.56 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.354 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 124 | 16 | 0 | 278 | 141 | 4 | 211 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 124 | 16 | 0 | 278 | 141 | 4 | 211 |
| Peak Hour Factor | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 5 | 0 | 95 | 48 | 1 | 72 |
| Total Analysis Volume [veh/h] | 170 | 22 | 0 | 381 | 193 | 5 | 289 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.00 | 0.33 | 0.33 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.01 | 0.00 | 0.11 | 0.12 | 0.00 | 0.15 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 1900 |
| c, Capacity [veh/h] | 457 | 418 | 1 | 1151 | 517 | 22 | 652 |
| d1, Uniform Delay [s] | 9.18 | 8.41 | 0.00 | 7.58 | 7.70 | 14.77 | 7.69 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.02 | 0.00 | 0.23 | 0.61 | 1.87 | 0.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.05 | 0.00 | 0.33 | 0.37 | 0.22 | 0.44 |
| d, Delay for Lane Group [s/veh] | 9.36 | 8.43 | 0.00 | 7.81 | 8.32 | 16.64 | 8.34 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.65 | 0.08 | 0.00 | 0.42 | 0.48 | 0.04 | 1.01 |
| 50th-Percentile Queue Length [ft/ln] | 16.19 | 1.91 | 0.00 | 10.52 | 12.09 | 0.96 | 25.18 |
| 95th-Percentile Queue Length [veh/ln] | 1.17 | 0.14 | 0.00 | 0.76 | 0.87 | 0.07 | 1.81 |
| 95th-Percentile Queue Length [ft/ln] | 29.14 | 3.43 | 0.00 | 18.93 | 21.76 | 1.73 | 45.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.36 | 8.43 | 0.00 | 7.81 | 8.32 | 16.64 | 8.34 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.26 | | 7.98 | | | 8.48 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.35 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.354 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 127.23 | 16.46 | 0.00 | 190.62 | 96.56 | 6.49 | 375.17 |
| Stops [stops/h] | 77.49 | 9.12 | 0.00 | 100.67 | 57.85 | 4.61 | 120.51 |
| Fuel consumption [US gal/h] | 5.99 | 0.77 | 0.00 | 8.53 | 4.45 | 0.31 | 16.60 |
| CO [g/h] | 418.67 | 53.54 | 0.00 | 596.58 | 310.95 | 21.64 | 1160.40 |
| NOx [g/h] | 81.46 | 10.42 | 0.00 | 116.07 | 60.50 | 4.21 | 225.77 |
| VOC [g/h] | 97.03 | 12.41 | 0.00 | 138.26 | 72.07 | 5.02 | 268.93 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.05 | 11.57 | 11.57 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.156 | 2.688 | 2.256 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1463 | 2127 | 2127 |
| d_b, Bicycle Delay [s] | 1.09 | 0.06 | 0.06 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 2.033 | 2.045 |
| Bicycle LOS | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 10.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 729 | 8 | 12 | 51 | 11 | 140 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 729 | 8 | 12 | 51 | 11 | 140 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 225 | 2 | 4 | 16 | 3 | 43 |
| Total Analysis Volume [veh/h] | 900 | 10 | 15 | 63 | 14 | 173 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 17 | | 910 | | 16 | |
| Exiting Flow Rate [veh/h] | 195 | | 27 | | 974 | |
| Demand Flow Rate [veh/h] | 729 | 8 | 12 | 51 | 11 | 140 |
| Adjusted Demand Flow Rate [veh/h] | 900 | 10 | 15 | 63 | 14 | 173 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 0.99 | 1.00 | 0.97 | 0.98 | 0.85 | 0.96 |
| Entry Flow Rate [veh/h] | 910 | 10 | 38 | 43 | 17 | 181 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1330 | 1401 | 621 | 621 | 1400 | 1400 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1316 | 1401 | 602 | 609 | 1184 | 1345 |
| X, volume / capacity | 0.68 | 0.01 | 0.06 | 0.07 | 0.01 | 0.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 5.85 | 0.02 | 0.19 | 0.22 | 0.04 | 0.44 |
| 95th-Percentile Queue Length [ft] | 146.14 | 0.54 | 4.85 | 5.45 | 0.90 | 11.04 |
| Approach Delay [s/veh] | 11.76 | | 6.68 | | 3.67 | |
| Approach LOS | B | | A | | A | |
| Intersection Delay [s/veh] | 10.14 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 50.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.669 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 116 | 33 | 13 | 2 | 88 | 678 | 134 | 215 | 51 | 47 | 521 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 339 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 116 | 33 | 13 | 2 | 88 | 339 | 134 | 215 | 51 | 47 | 521 | 13 |
| Peak Hour Factor | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 11 | 4 | 1 | 28 | 109 | 43 | 69 | 16 | 15 | 167 | 4 |
| Total Analysis Volume [veh/h] | 149 | 42 | 17 | 3 | 113 | 435 | 172 | 276 | 65 | 60 | 668 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 11 | 40 | 40 | 1 | 30 | 30 | 10 | 31 | 31 | 8 | 30 | 30 |
| g / C, Green / Cycle | 0.10 | 0.36 | 0.36 | 0.01 | 0.27 | 0.27 | 0.09 | 0.28 | 0.28 | 0.08 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.01 | 0.01 | 0.00 | 0.06 | 0.27 | 0.05 | 0.08 | 0.04 | 0.04 | 0.19 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 180 | 1132 | 577 | 15 | 494 | 433 | 292 | 925 | 443 | 129 | 959 | 429 |
| d1, Uniform Delay [s] | 48.97 | 22.86 | 22.80 | 54.69 | 31.54 | 40.54 | 48.59 | 31.18 | 29.78 | 49.13 | 36.48 | 29.94 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.45 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.34 | 0.03 | 0.05 | 5.97 | 0.68 | 42.23 | 1.90 | 1.14 | 0.97 | 2.59 | 5.74 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.04 | 0.03 | 0.19 | 0.23 | 1.01 | 0.59 | 0.30 | 0.15 | 0.46 | 0.70 | 0.04 |
| d, Delay for Lane Group [s/veh] | 58.31 | 22.89 | 22.85 | 60.66 | 32.22 | 82.77 | 50.49 | 32.32 | 30.75 | 51.71 | 42.22 | 30.18 |
| Lane Group LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.50 | 0.36 | 0.30 | 0.11 | 2.45 | 16.70 | 2.36 | 3.04 | 1.42 | 1.68 | 8.84 | 0.37 |
| 50th-Percentile Queue Length [ft/ln] | 112.61 | 9.05 | 7.41 | 2.72 | 61.36 | 417.43 | 59.07 | 76.09 | 35.55 | 42.11 | 220.99 | 9.15 |
| 95th-Percentile Queue Length [veh/ln] | 7.98 | 0.65 | 0.53 | 0.20 | 4.42 | 23.48 | 4.25 | 5.48 | 2.56 | 3.03 | 13.72 | 0.66 |
| 95th-Percentile Queue Length [ft/ln] | 199.62 | 16.29 | 13.34 | 4.90 | 110.45 | 586.90 | 106.32 | 136.96 | 63.99 | 75.81 | 342.89 | 16.47 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.31 | 22.89 | 22.85 | 60.66 | 32.22 | 82.77 | 50.49 | 32.32 | 30.75 | 51.71 | 42.22 | 30.18 |
| Movement LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 48.26 | | | 72.28 | | | 38.21 | | | 42.71 | | |
| Approach LOS | D | | | E | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 50.22 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.669 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.79 | 3.60 | 1.46 | 0.82 | 30.98 | 119.28 | 23.77 | 38.14 | 8.98 | 74.83 | 833.14 | 21.20 |
| Stops [stops/h] | 146.14 | 23.49 | 9.62 | 3.53 | 79.63 | 541.73 | 153.31 | 197.49 | 46.14 | 54.66 | 573.59 | 11.87 |
| Fuel consumption [US gal/h] | 3.10 | 0.47 | 0.19 | 0.09 | 2.46 | 15.23 | 3.59 | 4.48 | 1.03 | 4.01 | 43.20 | 1.04 |
| CO [g/h] | 216.80 | 33.12 | 13.44 | 6.32 | 171.70 | 1064.53 | 251.12 | 312.92 | 72.09 | 280.57 | 3020.02 | 72.90 |
| NOx [g/h] | 42.18 | 6.44 | 2.61 | 1.23 | 33.41 | 207.12 | 48.86 | 60.88 | 14.03 | 54.59 | 587.59 | 14.18 |
| VOC [g/h] | 50.24 | 7.68 | 3.11 | 1.46 | 39.79 | 246.72 | 58.20 | 72.52 | 16.71 | 65.03 | 699.92 | 16.89 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.03 | 45.03 | 45.03 | 45.03 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.397 | 3.127 | 2.897 | 2.632 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 360 | 541 | 721 | 721 |
| d_b, Bicycle Delay [s] | 37.28 | 29.54 | 22.69 | 22.69 |
| l_b,int, Bicycle LOS Score for Intersection | 1.731 | 3.028 | 1.983 | 2.174 |
| Bicycle LOS | A | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.347 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 58 | 2 | 112 | 140 | 198 | 47 | 177 | 13 | 1 | 315 | 87 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 58 | 2 | 112 | 140 | 198 | 47 | 177 | 13 | 1 | 315 | 87 |
| Peak Hour Factor | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 17 | 1 | 33 | 42 | 59 | 14 | 53 | 4 | 0 | 94 | 26 |
| Total Analysis Volume [veh/h] | 36 | 69 | 2 | 133 | 167 | 236 | 56 | 211 | 15 | 1 | 375 | 104 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 14 | 9 | 18 | 18 | 7 | 18 | 18 | 0 | 12 | 12 |
| g / C, Green / Cycle | 0.07 | 0.19 | 0.13 | 0.25 | 0.25 | 0.09 | 0.26 | 0.26 | 0.00 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.04 | 0.04 | 0.09 | 0.15 | 0.02 | 0.06 | 0.01 | 0.00 | 0.10 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1762 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 128 | 340 | 449 | 468 | 403 | 320 | 897 | 417 | 6 | 610 | 479 |
| d1, Uniform Delay [s] | 31.58 | 24.39 | 28.31 | 22.17 | 23.66 | 29.96 | 21.08 | 19.98 | 35.74 | 27.63 | 25.68 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.44 | 1.03 | 0.14 | 2.62 | 7.51 | 0.10 | 0.29 | 0.07 | 5.13 | 2.15 | 0.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.28 | 0.21 | 0.30 | 0.36 | 0.59 | 0.17 | 0.24 | 0.04 | 0.17 | 0.62 | 0.22 |
| d, Delay for Lane Group [s/veh] | 32.02 | 25.42 | 28.44 | 24.79 | 31.17 | 30.05 | 21.36 | 20.06 | 40.87 | 29.78 | 26.16 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.59 | 1.07 | 0.95 | 2.38 | 3.92 | 0.44 | 1.37 | 0.19 | 0.02 | 2.71 | 0.68 |
| 50th-Percentile Queue Length [ft/ln] | 14.74 | 26.85 | 23.64 | 59.58 | 98.02 | 10.90 | 34.35 | 4.73 | 0.59 | 67.73 | 17.08 |
| 95th-Percentile Queue Length [veh/ln] | 1.06 | 1.93 | 1.70 | 4.29 | 7.06 | 0.78 | 2.47 | 0.34 | 0.04 | 4.88 | 1.23 |
| 95th-Percentile Queue Length [ft/ln] | 26.52 | 48.33 | 42.54 | 107.24 | 176.44 | 19.62 | 61.83 | 8.51 | 1.06 | 121.92 | 30.75 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.02 | 25.42 | 25.42 | 28.44 | 24.79 | 31.17 | 30.05 | 21.36 | 20.06 | 40.87 | 29.78 | 26.16 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.64 | | | 28.51 | | | 23.02 | | | 29.02 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.52 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.347 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.67 | 5.26 | 172.66 | 216.80 | 306.37 | 69.84 | 263.16 | 18.71 | 0.17 | 64.86 | 17.99 |
| Stops [stops/h] | 29.57 | 53.89 | 94.88 | 119.58 | 196.74 | 43.75 | 137.90 | 9.49 | 1.19 | 271.89 | 68.58 |
| Fuel consumption [US gal/h] | 0.51 | 0.88 | 8.01 | 9.94 | 14.78 | 3.46 | 12.51 | 0.88 | 0.05 | 11.64 | 2.97 |
| CO [g/h] | 35.49 | 61.61 | 559.77 | 694.69 | 1032.90 | 241.82 | 874.63 | 61.78 | 3.16 | 813.52 | 207.89 |
| NOx [g/h] | 6.91 | 11.99 | 108.91 | 135.16 | 200.96 | 47.05 | 170.17 | 12.02 | 0.62 | 158.28 | 40.45 |
| VOC [g/h] | 8.23 | 14.28 | 129.73 | 161.00 | 239.38 | 56.04 | 202.70 | 14.32 | 0.73 | 188.54 | 48.18 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.72 | 25.72 | 25.72 | 25.72 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.022 | 2.648 | 2.711 | 2.831 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 558 | 558 | 836 | 836 |
| d_b, Bicycle Delay [s] | 18.66 | 18.66 | 12.15 | 12.15 |
| l_b,int, Bicycle LOS Score for Intersection | 1.736 | 2.444 | 1.792 | 1.956 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.174 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 131 | 0 | 274 | 477 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 131 | 0 | 274 | 477 | 15 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 33 | 0 | 69 | 119 | 4 |
| Total Analysis Volume [veh/h] | 0 | 131 | 0 | 274 | 477 | 15 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.59 | 10.77 | 8.37 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.63 | 0.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.64 | 15.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.77 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.57 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.144 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 145 | 0 | 0 | 26 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 145 | 0 | 0 | 26 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 0 | 0 | 7 | 0 | 0 |
| Total Analysis Volume [veh/h] | 145 | 0 | 0 | 26 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.18 | 8.97 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.50 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 12.57 | 12.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.18 | | 0.00 | | 3.63 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.78 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Near Term MP1 Improved PM.pdf

Scenario 18 Near Term PM MP1 Improved
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.575 | 24.6 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.482 | 24.1 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.604 | 29.9 | C |
| 4 | Minnewawa Ave & International Ave | All-way stop | HCM 7th Edition | NB Thru | 0.728 | 16.9 | C |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.690 | 24.1 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.698 | 29.8 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.713 | 37.6 | D |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | EB Thru | 0.813 | 48.9 | D |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.709 | 34.6 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | WB Left | 0.876 | 48.4 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.820 | 54.2 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.604 | 12.9 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.477 | 13.4 | B |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.778 | 29.9 | C |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Left | 0.602 | 24.8 | C |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.807 | 55.3 | E |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.783 | 77.9 | E |
| 21 | Fowler Ave & Perrin Ave | Signalized | HCM 7th Edition | SB Left | 0.714 | 24.5 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.633 | 21.9 | C |
| 23 | Fowler Ave & Teague Ave | Two-way stop | HCM 7th Edition | EB Left | 0.107 | 32.9 | D |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.784 | 25.7 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.608 | 19.2 | B |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.572 | 14.6 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.752 | 32.2 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.032 | 20.0 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.002 | 12.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.086 | 12.0 | B |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.784 | 48.5 | D |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.600 | 20.0 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 10.0 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.452 | 4.7 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | NB Right | 0.887 | 56.8 | E |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 2.615 | 14.9 | B |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | EB Left | 0.581 | 12.2 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.450 | 8.9 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | WB Right | | 6.6 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | EB Left | 0.541 | 38.7 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.215 | 24.2 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.162 | 10.4 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.117 | 9.3 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.575 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 299 | 545 | 24 | 183 | 283 | 92 | 9 | 116 | 256 | 9 | 92 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 299 | 545 | 24 | 183 | 283 | 92 | 9 | 116 | 256 | 9 | 92 | 65 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 85 | 155 | 7 | 52 | 80 | 26 | 3 | 33 | 73 | 3 | 26 | 18 |
| Total Analysis Volume [veh/h] | 340 | 619 | 27 | 208 | 322 | 105 | 10 | 132 | 291 | 10 | 105 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 9 | 20 | 20 | 10 | 19 | 19 | 1 | 16 | 16 | 1 | 16 | 16 |
| g / C, Green / Cycle | 0.13 | 0.29 | 0.29 | 0.14 | 0.29 | 0.29 | 0.02 | 0.24 | 0.24 | 0.02 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.17 | 0.02 | 0.11 | 0.06 | 0.07 | 0.01 | 0.07 | 0.18 | 0.01 | 0.06 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 3618 | 1615 | 1810 | 5159 | 1615 | 1810 | 1900 | 1604 | 1810 | 1864 | 1615 |
| c, Capacity [veh/h] | 454 | 1046 | 467 | 256 | 1481 | 463 | 37 | 461 | 389 | 37 | 436 | 377 |
| d1, Uniform Delay [s] | 28.53 | 20.71 | 17.46 | 28.29 | 18.43 | 18.48 | 32.78 | 20.95 | 23.82 | 32.78 | 21.15 | 20.91 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.94 | 1.74 | 0.17 | 2.36 | 0.24 | 0.80 | 1.42 | 0.80 | 6.63 | 1.42 | 0.49 | 0.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.59 | 0.06 | 0.81 | 0.22 | 0.23 | 0.27 | 0.29 | 0.75 | 0.27 | 0.24 | 0.20 |
| d, Delay for Lane Group [s/veh] | 29.47 | 22.45 | 17.63 | 30.65 | 18.66 | 19.28 | 34.20 | 21.75 | 30.45 | 34.20 | 21.63 | 21.34 |
| Lane Group LOS | C | C | B | C | B | B | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.43 | 3.83 | 0.28 | 3.08 | 1.14 | 1.18 | 0.16 | 1.62 | 4.52 | 0.17 | 1.34 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 60.80 | 95.83 | 7.12 | 76.90 | 28.39 | 29.62 | 4.11 | 40.50 | 113.01 | 4.28 | 33.59 | 23.52 |
| 95th-Percentile Queue Length [veh/ln] | 4.38 | 6.90 | 0.51 | 5.54 | 2.04 | 2.13 | 0.30 | 2.92 | 8.01 | 0.31 | 2.42 | 1.69 |
| 95th-Percentile Queue Length [ft/ln] | 109.43 | 172.49 | 12.82 | 138.41 | 51.10 | 53.32 | 7.39 | 72.90 | 200.19 | 7.70 | 60.46 | 42.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.47 | 22.45 | 17.63 | 30.65 | 18.66 | 19.28 | 34.20 | 21.75 | 30.45 | 34.20 | 21.63 | 21.34 |
| Movement LOS | C | C | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 24.74 | | | 22.69 | | | 27.89 | | | 22.18 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.55 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.575 | | | | | | | | | | | |

**Emissions**

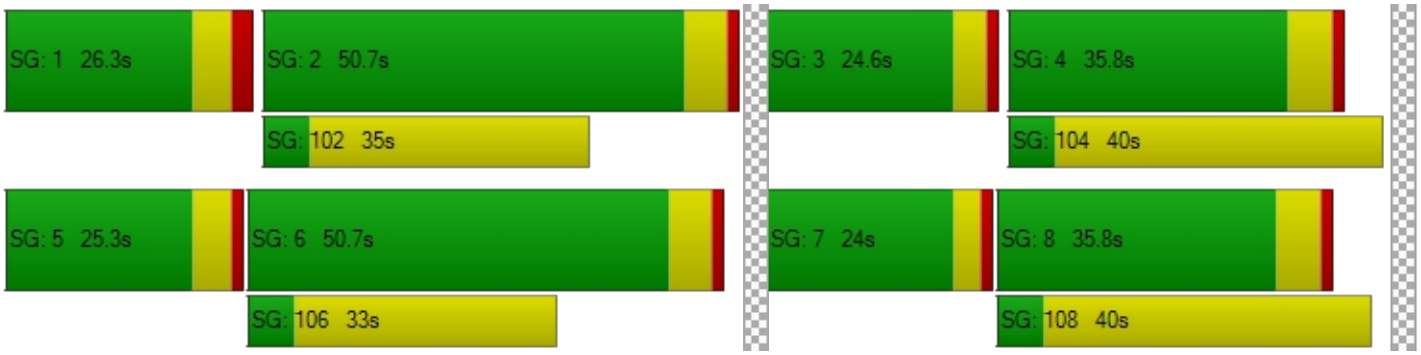
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 171.63 | 312.47 | 13.63 | 20.49 | 31.72 | 10.34 | 1.00 | 13.15 | 28.99 | 10.38 | 108.94 | 76.78 |
| Stops [stops/h] | 258.35 | 407.23 | 15.13 | 163.39 | 180.97 | 62.94 | 8.73 | 86.06 | 240.13 | 9.09 | 71.37 | 49.97 |
| Fuel consumption [US gal/h] | 11.75 | 19.54 | 0.79 | 4.49 | 5.06 | 1.72 | 0.21 | 2.10 | 5.78 | 0.55 | 5.34 | 3.76 |
| CO [g/h] | 821.50 | 1366.05 | 54.91 | 313.95 | 353.91 | 120.53 | 14.84 | 147.14 | 404.21 | 38.23 | 373.36 | 262.70 |
| NOx [g/h] | 159.83 | 265.78 | 10.68 | 61.08 | 68.86 | 23.45 | 2.89 | 28.63 | 78.64 | 7.44 | 72.64 | 51.11 |
| VOC [g/h] | 190.39 | 316.60 | 12.73 | 72.76 | 82.02 | 27.93 | 3.44 | 34.10 | 93.68 | 8.86 | 86.53 | 60.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.48 | 25.48 | 25.48 | 25.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.039 | 2.892 | 2.575 | 2.254 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1328 | 1328 | 885 | 885 |
| d_b, Bicycle Delay [s] | 3.83 | 3.83 | 10.53 | 10.53 |
| l_b,int, Bicycle LOS Score for Intersection | 2.373 | 1.909 | 2.274 | 1.871 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.482 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 818 | 97 | 105 | 476 | 49 | 18 | 95 | 154 | 59 | 155 | 104 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 818 | 97 | 105 | 476 | 49 | 18 | 95 | 154 | 59 | 155 | 104 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 30 | 222 | 26 | 29 | 129 | 13 | 5 | 26 | 42 | 16 | 42 | 28 |
| Total Analysis Volume [veh/h] | 121 | 889 | 105 | 114 | 517 | 53 | 20 | 103 | 167 | 64 | 168 | 113 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 26 | 26 | 7 | 26 | 26 | 3 | 13 | 13 | 6 | 15 |
| g / C, Green / Cycle | 0.10 | 0.34 | 0.34 | 0.10 | 0.34 | 0.34 | 0.04 | 0.18 | 0.18 | 0.08 | 0.20 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.17 | 0.07 | 0.06 | 0.10 | 0.03 | 0.01 | 0.05 | 0.10 | 0.04 | 0.16 |
| s, saturation flow rate [veh/h] | 1781 | 5176 | 1615 | 1810 | 5135 | 1615 | 1810 | 1882 | 1605 | 1810 | 1774 |
| c, Capacity [veh/h] | 176 | 1785 | 557 | 177 | 1764 | 555 | 67 | 342 | 292 | 144 | 360 |
| d1, Uniform Delay [s] | 32.49 | 19.33 | 17.12 | 32.42 | 17.87 | 16.62 | 34.98 | 26.41 | 27.87 | 32.77 | 28.16 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.77 | 0.70 | 0.53 | 1.48 | 0.30 | 0.24 | 0.92 | 0.59 | 2.13 | 0.80 | 8.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.69 | 0.50 | 0.19 | 0.65 | 0.29 | 0.10 | 0.30 | 0.30 | 0.57 | 0.45 | 0.78 |
| d, Delay for Lane Group [s/veh] | 34.27 | 20.03 | 17.65 | 33.89 | 18.17 | 16.86 | 35.90 | 27.00 | 30.00 | 33.57 | 36.16 |
| Lane Group LOS | C | C | B | C | B | B | D | C | C | C | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.01 | 3.61 | 1.18 | 1.88 | 1.92 | 0.57 | 0.35 | 1.54 | 2.70 | 1.10 | 5.34 |
| 50th-Percentile Queue Length [ft/ln] | 50.32 | 90.13 | 29.42 | 47.02 | 48.07 | 14.33 | 8.81 | 38.41 | 67.62 | 27.59 | 133.55 |
| 95th-Percentile Queue Length [veh/ln] | 3.62 | 6.49 | 2.12 | 3.39 | 3.46 | 1.03 | 0.63 | 2.77 | 4.87 | 1.99 | 9.13 |
| 95th-Percentile Queue Length [ft/ln] | 90.57 | 162.23 | 52.95 | 84.63 | 86.52 | 25.79 | 15.85 | 69.14 | 121.72 | 49.66 | 228.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.27 | 20.03 | 17.65 | 33.89 | 18.17 | 16.86 | 35.90 | 27.00 | 30.00 | 33.57 | 36.16 | 36.16 |
| Movement LOS | C | C | B | C | B | B | D | C | C | C | D | D |
| d_A, Approach Delay [s/veh] | 21.35 | | | 20.69 | | | 29.34 | | | 35.68 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 24.15 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.482 | | | | | | | | | | | |

**Emissions**

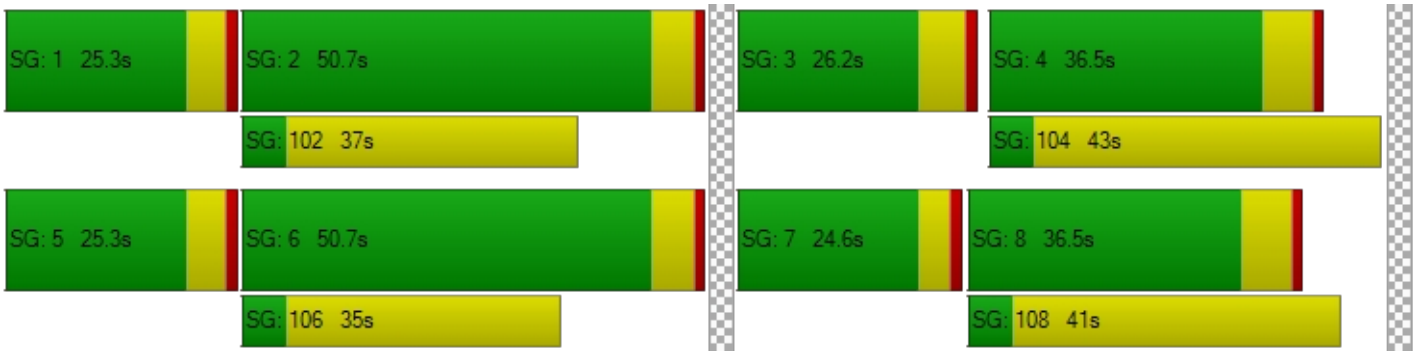
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 122.58 | 900.62 | 106.37 | 57.55 | 260.98 | 26.75 | 2.18 | 11.21 | 18.17 | 66.40 | 291.52 |
| Stops [stops/h] | 97.35 | 523.16 | 56.92 | 90.97 | 279.02 | 27.72 | 17.04 | 74.32 | 130.84 | 53.38 | 258.41 |
| Fuel consumption [US gal/h] | 6.44 | 41.81 | 4.81 | 4.11 | 14.93 | 1.50 | 0.39 | 1.70 | 2.96 | 3.47 | 15.50 |
| CO [g/h] | 450.38 | 2922.82 | 336.43 | 287.28 | 1043.94 | 105.08 | 27.36 | 118.66 | 206.60 | 242.24 | 1083.19 |
| NOx [g/h] | 87.63 | 568.67 | 65.46 | 55.89 | 203.11 | 20.45 | 5.32 | 23.09 | 40.20 | 47.13 | 210.75 |
| VOC [g/h] | 104.38 | 677.39 | 77.97 | 66.58 | 241.94 | 24.35 | 6.34 | 27.50 | 47.88 | 56.14 | 251.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.76 | 28.76 | 28.76 | 28.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.096 | 3.064 | 2.328 | 2.149 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1209 | 1209 | 806 | 806 |
| d_b, Bicycle Delay [s] | 5.82 | 5.82 | 13.26 | 13.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.173 | 1.936 | 2.038 | 2.129 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.604 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 211 | 941 | 455 | 98 | 953 | 143 | 222 | 315 | 163 | 198 | 246 | 37 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 211 | 941 | 455 | 98 | 953 | 143 | 222 | 315 | 163 | 198 | 246 | 37 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 59 | 261 | 126 | 27 | 265 | 40 | 62 | 88 | 45 | 55 | 68 | 10 |
| Total Analysis Volume [veh/h] | 234 | 1046 | 506 | 109 | 1059 | 159 | 247 | 350 | 181 | 220 | 273 | 41 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 34 | 34 | 7 | 33 | 33 | 9 | 15 | 15 | 8 | 15 | 15 |
| g / C, Green / Cycle | 0.09 | 0.38 | 0.38 | 0.08 | 0.37 | 0.37 | 0.10 | 0.17 | 0.17 | 0.09 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.20 | 0.31 | 0.03 | 0.21 | 0.10 | 0.07 | 0.10 | 0.11 | 0.06 | 0.08 | 0.03 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1592 | 3514 | 3600 | 1583 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 323 | 1967 | 612 | 294 | 1910 | 594 | 337 | 596 | 262 | 315 | 626 | 279 |
| d1, Uniform Delay [s] | 39.47 | 21.48 | 25.00 | 38.69 | 22.16 | 19.52 | 39.30 | 34.47 | 35.04 | 39.51 | 33.07 | 31.37 |
| k, delay calibration | 0.04 | 0.35 | 0.42 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.17 | 0.73 | 10.36 | 0.29 | 0.82 | 0.78 | 1.17 | 2.16 | 7.43 | 1.05 | 0.66 | 0.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.53 | 0.83 | 0.37 | 0.55 | 0.27 | 0.73 | 0.59 | 0.69 | 0.70 | 0.44 | 0.15 |
| d, Delay for Lane Group [s/veh] | 40.65 | 22.21 | 35.36 | 38.98 | 22.98 | 20.30 | 40.47 | 36.63 | 42.47 | 40.56 | 33.73 | 31.70 |
| Lane Group LOS | D | C | D | D | C | C | D | D | D | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.40 | 5.18 | 10.29 | 1.08 | 5.37 | 2.20 | 2.53 | 3.45 | 3.99 | 2.25 | 2.52 | 0.73 |
| 50th-Percentile Queue Length [ft/ln] | 59.98 | 129.54 | 257.24 | 26.89 | 134.23 | 55.04 | 63.23 | 86.36 | 99.63 | 56.22 | 63.10 | 18.21 |
| 95th-Percentile Queue Length [veh/ln] | 4.32 | 8.91 | 15.55 | 1.94 | 9.17 | 3.96 | 4.55 | 6.22 | 7.17 | 4.05 | 4.54 | 1.31 |
| 95th-Percentile Queue Length [ft/ln] | 107.97 | 222.87 | 388.76 | 48.40 | 229.24 | 99.07 | 113.81 | 155.45 | 179.33 | 101.19 | 113.59 | 32.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.65 | 22.21 | 35.36 | 38.98 | 22.98 | 20.30 | 40.47 | 36.63 | 42.47 | 40.56 | 33.73 | 31.70 |
| Movement LOS | D | C | D | D | C | C | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 28.35 | | | 23.97 | | | 39.21 | | | 36.38 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.92 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.604 | | | | | | | | | | | |

**Emissions**

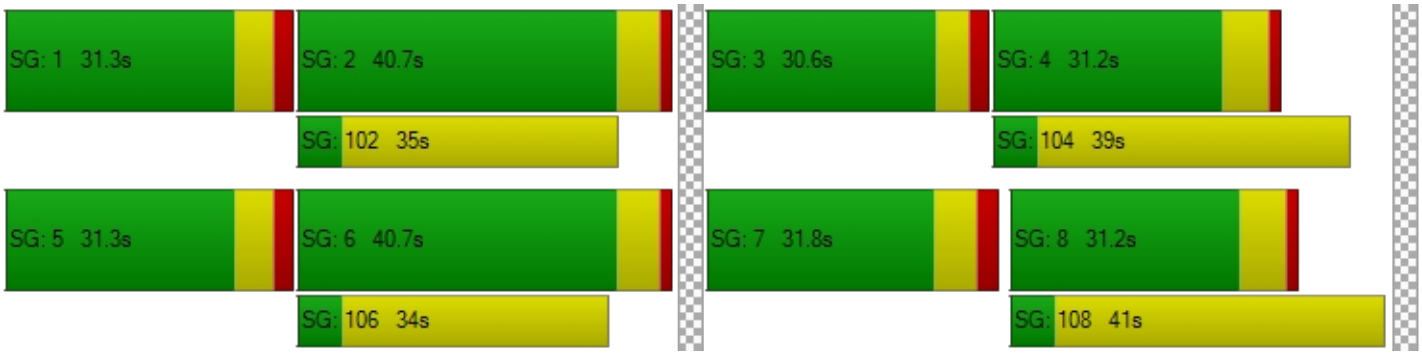
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.18 | 170.67 | 82.56 | 110.42 | 1072.84 | 161.08 | 32.27 | 45.73 | 23.65 | 227.94 | 282.85 | 42.48 |
| Stops [stops/h] | 193.62 | 627.23 | 415.17 | 86.80 | 649.94 | 88.83 | 204.10 | 278.77 | 160.79 | 181.47 | 203.69 | 29.39 |
| Fuel consumption [US gal/h] | 6.19 | 20.07 | 12.78 | 5.89 | 50.86 | 7.41 | 6.25 | 8.42 | 4.82 | 12.23 | 14.47 | 2.14 |
| CO [g/h] | 432.42 | 1403.00 | 893.26 | 412.06 | 3554.85 | 518.28 | 436.74 | 588.54 | 337.24 | 855.18 | 1011.62 | 149.46 |
| NOx [g/h] | 84.13 | 272.97 | 173.80 | 80.17 | 691.65 | 100.84 | 84.97 | 114.51 | 65.61 | 166.39 | 196.82 | 29.08 |
| VOC [g/h] | 100.22 | 325.16 | 207.02 | 95.50 | 823.87 | 120.12 | 101.22 | 136.40 | 78.16 | 198.20 | 234.45 | 34.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2463.38 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.06 | 36.06 | 36.06 | 36.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.436 | 3.331 | 2.930 | 3.031 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 785 | 785 | 560 | 560 |
| d_b, Bicycle Delay [s] | 16.48 | 16.48 | 23.18 | 23.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.542 | 2.289 | 2.201 | 2.000 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 16.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.728 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 179 | 264 | 2 | 1 | 267 | 8 | 13 | 0 | 284 | 2 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 179 | 264 | 2 | 1 | 267 | 8 | 13 | 0 | 284 | 2 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 72 | 1 | 0 | 73 | 2 | 4 | 0 | 77 | 1 | 0 | 0 |
| Total Analysis Volume [veh/h] | 195 | 287 | 2 | 1 | 290 | 9 | 14 | 0 | 309 | 2 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 665 | 644 | 664 | 515 |
| Degree of Utilization, x | 0.73 | 0.47 | 0.49 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 6.28 | 2.47 | 2.67 | 0.01 |
| 95th-Percentile Queue Length [ft] | 156.90 | 61.77 | 66.81 | 0.29 |
| Approach Delay [s/veh] | 21.48 | 13.36 | 13.44 | 10.02 |
| Approach LOS | C | B | B | B |
| Intersection Delay [s/veh] | 16.92 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.690 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 73 | 208 | 52 | 201 | 345 | 5 | 4 | 248 | 42 | 18 | 274 | 258 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 73 | 208 | 52 | 201 | 345 | 5 | 4 | 248 | 42 | 18 | 274 | 258 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 57 | 14 | 55 | 94 | 1 | 1 | 67 | 11 | 5 | 74 | 70 |
| Total Analysis Volume [veh/h] | 79 | 226 | 57 | 218 | 375 | 5 | 4 | 270 | 46 | 20 | 298 | 280 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 0 | 8 | 0 | 0 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | | No | |
| Maximum Recall | No | No | | No | No | | | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 70 | 70 | 70 | 70 | 70 | 70 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 16 | 11 | 23 | 30 | 30 |
| g / C, Green / Cycle | 0.06 | 0.23 | 0.16 | 0.33 | 0.44 | 0.44 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.17 | 0.13 | 0.22 | 0.19 | 0.38 |
| s, saturation flow rate [veh/h] | 1629 | 1642 | 1629 | 1693 | 1660 | 1558 |
| c, Capacity [veh/h] | 101 | 377 | 267 | 560 | 775 | 732 |
| d1, Uniform Delay [s] | 32.40 | 25.13 | 28.31 | 20.22 | 13.84 | 18.03 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.22 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 12.11 | 3.02 | 6.10 | 1.45 | 0.35 | 4.55 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.75 | 0.82 | 0.68 | 0.41 | 0.82 |
| d, Delay for Lane Group [s/veh] | 44.51 | 28.15 | 34.41 | 21.67 | 14.19 | 22.58 |
| Lane Group LOS | D | C | C | C | B | C |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.61 | 4.45 | 3.82 | 5.18 | 3.28 | 8.73 |
| 50th-Percentile Queue Length [ft/ln] | 40.35 | 111.20 | 95.41 | 129.53 | 82.04 | 218.16 |
| 95th-Percentile Queue Length [veh/ln] | 2.91 | 7.91 | 6.87 | 8.91 | 5.91 | 13.57 |
| 95th-Percentile Queue Length [ft/ln] | 72.64 | 197.67 | 171.73 | 222.86 | 147.67 | 339.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 44.51 | 28.15 | 28.15 | 34.41 | 21.67 | 21.67 | 14.19 | 14.19 | 14.19 | 22.58 | 22.58 | 22.58 |
| Movement LOS | D | C | C | C | C | C | B | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 31.72 | | | 26.32 | | | 14.19 | | | 22.58 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.10 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.690 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 79.37 | 284.33 | 109.74 | 191.29 | 331.98 | 367.07 |
| Stops [stops/h] | 83.08 | 228.94 | 196.42 | 266.68 | 168.90 | 449.14 |
| Fuel consumption [US gal/h] | 4.44 | 14.59 | 7.13 | 11.02 | 15.52 | 20.34 |
| CO [g/h] | 310.49 | 1019.92 | 498.34 | 770.57 | 1085.11 | 1421.79 |
| NOx [g/h] | 60.41 | 198.44 | 96.96 | 149.92 | 211.12 | 276.63 |
| VOC [g/h] | 71.96 | 236.38 | 115.49 | 178.59 | 251.48 | 329.51 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | F | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1144 | 1144 | 1144 | 1144 |
| d_b, Bicycle Delay [s] | 6.41 | 6.41 | 6.41 | 6.41 |
| l_b,int, Bicycle LOS Score for Intersection | 2.157 | 2.546 | 2.088 | 2.546 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.698 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 405 | 329 | 74 | 107 | 251 | 41 | 95 | 373 | 131 | 31 | 218 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 405 | 329 | 74 | 107 | 251 | 41 | 95 | 373 | 131 | 31 | 218 | 36 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 109 | 88 | 20 | 29 | 67 | 11 | 26 | 100 | 35 | 8 | 59 | 10 |
| Total Analysis Volume [veh/h] | 435 | 354 | 80 | 115 | 270 | 44 | 102 | 401 | 141 | 33 | 234 | 39 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 28 | 28 | 10 | 17 | 10 | 18 | 18 | 6 | 14 | 14 |
| g / C, Green / Cycle | 0.27 | 0.36 | 0.36 | 0.13 | 0.22 | 0.13 | 0.23 | 0.23 | 0.07 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.19 | 0.05 | 0.06 | 0.17 | 0.06 | 0.11 | 0.09 | 0.02 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1886 | 1615 | 1810 | 1845 | 1810 | 3618 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 484 | 679 | 581 | 236 | 411 | 229 | 834 | 373 | 131 | 336 | 286 |
| d1, Uniform Delay [s] | 27.37 | 19.53 | 16.69 | 31.30 | 28.20 | 31.33 | 25.79 | 25.13 | 33.94 | 29.94 | 26.91 |
| k, delay calibration | 0.26 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.17 | 0.62 | 0.11 | 1.56 | 2.97 | 1.36 | 0.43 | 0.63 | 0.99 | 2.61 | 0.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.90 | 0.52 | 0.14 | 0.49 | 0.76 | 0.45 | 0.48 | 0.38 | 0.25 | 0.70 | 0.14 |
| d, Delay for Lane Group [s/veh] | 40.54 | 20.15 | 16.80 | 32.86 | 31.17 | 32.69 | 26.22 | 25.76 | 34.94 | 32.55 | 27.12 |
| Lane Group LOS | D | C | B | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 8.75 | 4.56 | 0.88 | 1.96 | 5.31 | 1.71 | 2.92 | 2.03 | 0.58 | 3.95 | 0.57 |
| 50th-Percentile Queue Length [ft/ln] | 218.63 | 114.00 | 21.88 | 48.98 | 132.75 | 42.63 | 73.05 | 50.83 | 14.46 | 98.80 | 14.31 |
| 95th-Percentile Queue Length [veh/ln] | 13.60 | 8.06 | 1.58 | 3.53 | 9.09 | 3.07 | 5.26 | 3.66 | 1.04 | 7.11 | 1.03 |
| 95th-Percentile Queue Length [ft/ln] | 339.88 | 201.55 | 39.39 | 88.16 | 227.23 | 76.73 | 131.49 | 91.50 | 26.03 | 177.84 | 25.76 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.54 | 20.15 | 16.80 | 32.86 | 31.17 | 31.17 | 32.69 | 26.22 | 25.76 | 34.94 | 32.55 | 27.12 |
| Movement LOS | D | C | B | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 30.05 | | | 31.62 | | | 27.15 | | | 32.12 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.698 | | | | | | | | | | | |

**Emissions**

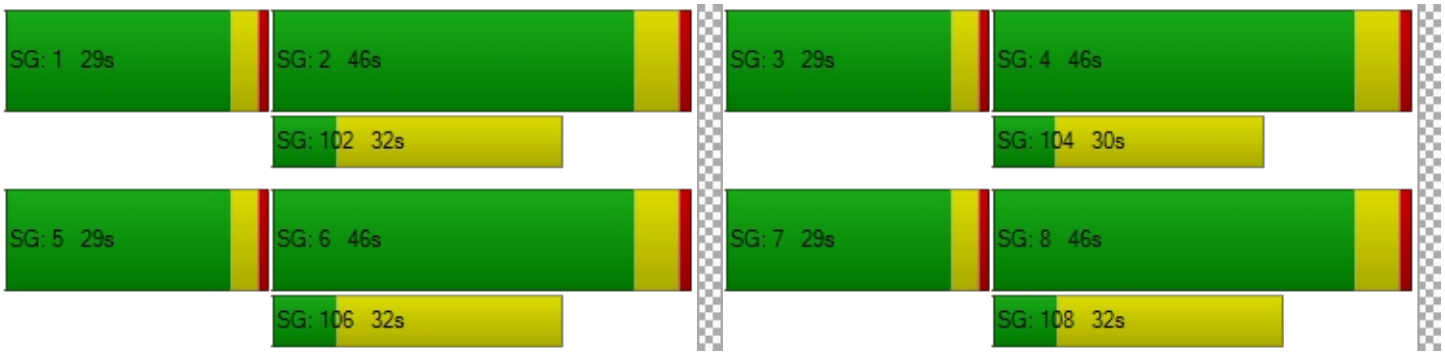
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 52.08 | 42.38 | 9.58 | 115.54 | 315.48 | 105.68 | 415.46 | 146.09 | 16.53 | 117.18 | 19.53 |
| Stops [stops/h] | 407.01 | 212.23 | 40.74 | 91.18 | 247.13 | 79.36 | 271.98 | 94.63 | 26.93 | 183.93 | 26.64 |
| Fuel consumption [US gal/h] | 10.43 | 5.54 | 1.11 | 5.86 | 15.88 | 5.44 | 20.23 | 7.08 | 1.20 | 8.30 | 1.28 |
| CO [g/h] | 729.37 | 387.48 | 77.47 | 409.84 | 1109.90 | 379.97 | 1413.93 | 495.17 | 83.97 | 580.00 | 89.35 |
| NOx [g/h] | 141.91 | 75.39 | 15.07 | 79.74 | 215.95 | 73.93 | 275.10 | 96.34 | 16.34 | 112.85 | 17.38 |
| VOC [g/h] | 169.04 | 89.80 | 17.96 | 94.98 | 257.23 | 88.06 | 327.69 | 114.76 | 19.46 | 134.42 | 20.71 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.46 | 28.46 | 28.46 | 28.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.603 | 2.382 | 2.812 | 2.585 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1034 | 1034 | 1034 | 1034 |
| d_b, Bicycle Delay [s] | 9.02 | 9.02 | 9.02 | 9.02 |
| l_b,int, Bicycle LOS Score for Intersection | 2.993 | 2.267 | 2.091 | 2.065 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 124 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 124 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 31 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 124 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.713 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 554 | 43 | 145 | 10 | 24 | 26 | 33 | 309 | 295 | 277 | 128 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 554 | 43 | 145 | 10 | 24 | 26 | 33 | 309 | 295 | 277 | 128 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 146 | 11 | 38 | 3 | 6 | 7 | 9 | 81 | 78 | 73 | 34 | 2 |
| Total Analysis Volume [veh/h] | 583 | 45 | 153 | 11 | 25 | 27 | 35 | 325 | 311 | 292 | 135 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 32 | 37 | 37 | 4 | 9 | 9 | 8 | 24 | 24 | 12 | 28 | 28 |
| g / C, Green / Cycle | 0.34 | 0.40 | 0.40 | 0.04 | 0.10 | 0.10 | 0.08 | 0.26 | 0.26 | 0.13 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.32 | 0.02 | 0.10 | 0.00 | 0.01 | 0.02 | 0.01 | 0.09 | 0.19 | 0.09 | 0.04 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1879 | 1595 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1612 |
| c, Capacity [veh/h] | 617 | 743 | 631 | 156 | 357 | 159 | 288 | 932 | 415 | 428 | 1106 | 493 |
| d1, Uniform Delay [s] | 29.66 | 17.34 | 18.72 | 42.43 | 37.89 | 38.27 | 39.43 | 28.05 | 31.64 | 38.46 | 23.20 | 22.43 |
| k, delay calibration | 0.44 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 22.72 | 0.08 | 0.44 | 0.07 | 0.42 | 2.54 | 0.07 | 0.33 | 4.01 | 0.72 | 0.07 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.94 | 0.06 | 0.24 | 0.07 | 0.07 | 0.17 | 0.12 | 0.35 | 0.75 | 0.68 | 0.12 | 0.01 |
| d, Delay for Lane Group [s/veh] | 52.37 | 17.42 | 19.17 | 42.50 | 38.31 | 40.81 | 39.50 | 28.38 | 35.66 | 39.18 | 23.27 | 22.44 |
| Lane Group LOS | D | B | B | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 15.38 | 0.57 | 2.10 | 0.12 | 0.28 | 0.67 | 0.35 | 2.77 | 6.36 | 3.16 | 1.06 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 384.42 | 14.17 | 52.52 | 3.03 | 6.90 | 16.73 | 8.82 | 69.32 | 158.92 | 79.06 | 26.51 | 2.69 |
| 95th-Percentile Queue Length [veh/ln] | 21.81 | 1.02 | 3.78 | 0.22 | 0.50 | 1.20 | 0.63 | 4.99 | 10.49 | 5.69 | 1.91 | 0.19 |
| 95th-Percentile Queue Length [ft/ln] | 545.19 | 25.50 | 94.53 | 5.45 | 12.42 | 30.11 | 15.87 | 124.78 | 262.29 | 142.32 | 47.72 | 4.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 52.37 | 17.42 | 19.17 | 42.50 | 38.31 | 40.81 | 39.50 | 28.38 | 35.66 | 39.18 | 23.27 | 22.44 |
| Movement LOS | D | B | B | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 43.85 | | | 40.12 | | | 32.33 | | | 33.96 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 37.56 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.713 | | | | | | | | | | | |

**Emissions**

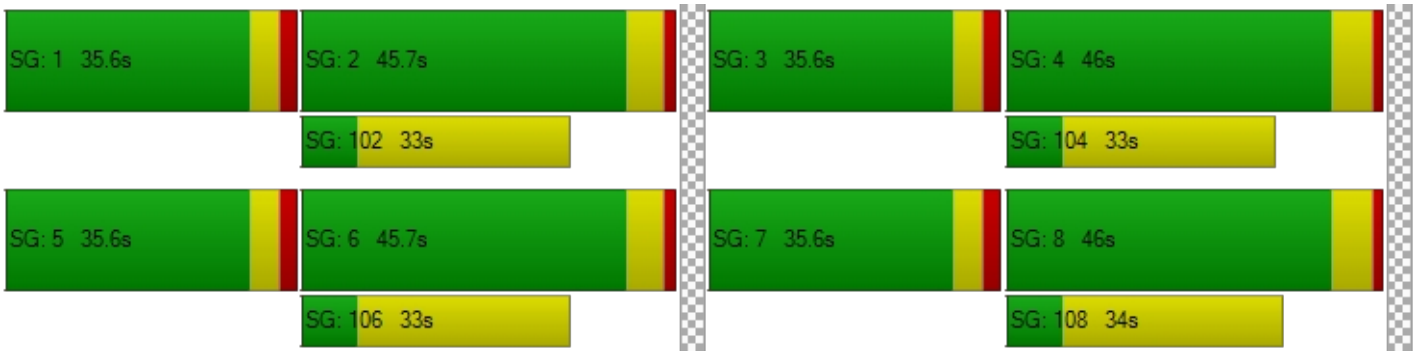
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 593.57 | 45.82 | 155.77 | 11.37 | 25.84 | 27.91 | 17.53 | 162.75 | 155.74 | 146.38 | 67.68 | 3.51 |
| Stops [stops/h] | 598.53 | 22.06 | 81.77 | 9.43 | 21.49 | 26.04 | 27.46 | 215.86 | 247.43 | 246.20 | 82.56 | 4.19 |
| Fuel consumption [US gal/h] | 34.00 | 2.00 | 6.95 | 0.62 | 1.38 | 1.52 | 1.29 | 10.64 | 11.27 | 9.71 | 3.88 | 0.20 |
| CO [g/h] | 2376.69 | 140.10 | 486.01 | 43.01 | 96.28 | 106.04 | 90.15 | 743.79 | 787.79 | 679.04 | 271.31 | 13.95 |
| NOx [g/h] | 462.42 | 27.26 | 94.56 | 8.37 | 18.73 | 20.63 | 17.54 | 144.71 | 153.28 | 132.12 | 52.79 | 2.71 |
| VOC [g/h] | 550.82 | 32.47 | 112.64 | 9.97 | 22.31 | 24.58 | 20.89 | 172.38 | 182.58 | 157.37 | 62.88 | 3.23 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5317.82 | 0.00 | 4540.79 |
| d_p, Pedestrian Delay [s] | 35.90 | 35.90 | 35.90 | 35.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.713 | 2.616 | 2.924 | 2.723 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 865 | 865 | 865 | 865 |
| d_b, Bicycle Delay [s] | 14.89 | 14.89 | 14.89 | 14.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.204 | 1.612 | 2.113 | 1.918 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.813 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 94 | 901 | 47 | 72 | 423 | 27 | 30 | 715 | 130 | 37 | 685 | 151 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 94 | 901 | 47 | 72 | 423 | 27 | 30 | 715 | 130 | 37 | 685 | 151 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 237 | 12 | 19 | 111 | 7 | 8 | 188 | 34 | 10 | 180 | 40 |
| Total Analysis Volume [veh/h] | 99 | 948 | 49 | 76 | 445 | 28 | 32 | 753 | 137 | 39 | 721 | 159 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 35 | 35 | 9 | 35 | 35 | 6 | 42 | 42 | 7 | 43 | 43 |
| g / C, Green / Cycle | 0.09 | 0.32 | 0.32 | 0.08 | 0.32 | 0.32 | 0.06 | 0.38 | 0.38 | 0.06 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.26 | 0.03 | 0.04 | 0.13 | 0.13 | 0.02 | 0.40 | 0.09 | 0.02 | 0.38 | 0.10 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1564 | 1801 | 1888 | 1849 | 1810 | 1897 | 1606 | 1810 | 1883 | 1615 |
| c, Capacity [veh/h] | 158 | 1166 | 506 | 149 | 602 | 590 | 104 | 728 | 616 | 116 | 735 | 630 |
| d1, Uniform Delay [s] | 48.24 | 33.99 | 25.86 | 48.08 | 29.06 | 29.08 | 49.50 | 33.73 | 22.72 | 49.01 | 32.96 | 22.57 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.50 | 0.17 | 0.04 | 0.50 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.53 | 2.16 | 0.13 | 1.01 | 0.65 | 0.66 | 0.62 | 42.53 | 0.28 | 0.63 | 28.77 | 0.31 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.81 | 0.10 | 0.51 | 0.40 | 0.40 | 0.31 | 1.03 | 0.22 | 0.34 | 0.98 | 0.25 |
| d, Delay for Lane Group [s/veh] | 49.77 | 36.15 | 25.99 | 49.09 | 29.71 | 29.74 | 50.12 | 76.26 | 23.00 | 49.64 | 61.74 | 22.87 |
| Lane Group LOS | D | D | C | D | C | C | D | F | C | D | E | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.60 | 11.28 | 0.88 | 1.97 | 4.78 | 4.71 | 0.83 | 26.48 | 2.31 | 1.01 | 23.33 | 2.69 |
| 50th-Percentile Queue Length [ft/ln] | 64.93 | 281.90 | 21.93 | 49.24 | 119.61 | 117.73 | 20.86 | 662.06 | 57.86 | 25.29 | 583.13 | 67.20 |
| 95th-Percentile Queue Length [veh/ln] | 4.67 | 16.78 | 1.58 | 3.55 | 8.37 | 8.27 | 1.50 | 35.79 | 4.17 | 1.82 | 31.25 | 4.84 |
| 95th-Percentile Queue Length [ft/ln] | 116.87 | 419.58 | 39.47 | 88.63 | 209.29 | 206.71 | 37.55 | 894.73 | 104.15 | 45.52 | 781.15 | 120.97 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.77 | 36.15 | 25.99 | 49.09 | 29.72 | 29.74 | 50.12 | 76.26 | 23.00 | 49.64 | 61.74 | 22.87 |
| Movement LOS | D | D | C | D | C | C | D | F | C | D | E | C |
| d_A, Approach Delay [s/veh] | 36.92 | | | 32.40 | | | 67.44 | | | 54.50 | | |
| Approach LOS | D | | | C | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 48.91 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.813 | | | | | | | | | | | |

**Emissions**

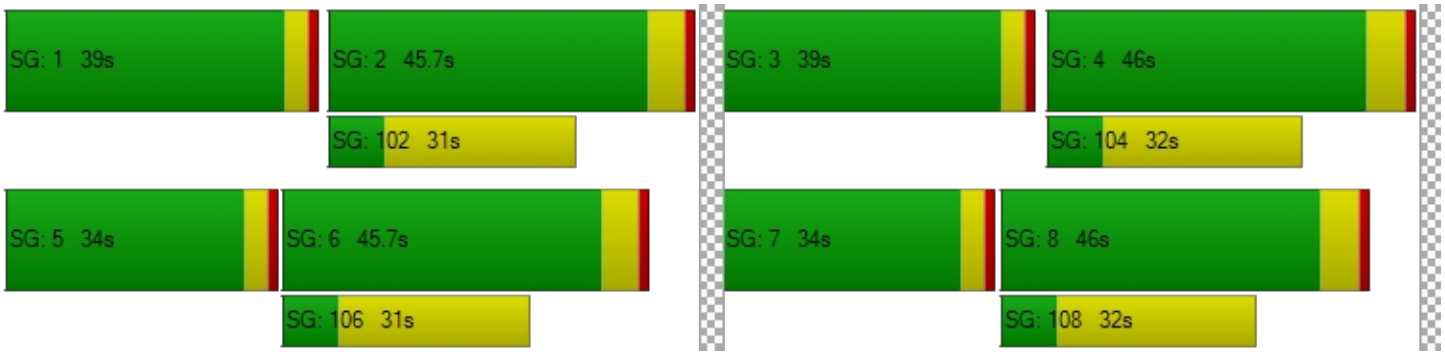
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 51.98 | 497.73 | 25.73 | 77.38 | 242.83 | 238.75 | 2.77 | 65.13 | 11.85 | 23.47 | 433.91 | 95.69 |
| Stops [stops/h] | 85.51 | 742.58 | 28.88 | 64.85 | 157.53 | 155.06 | 27.48 | 871.99 | 76.21 | 33.31 | 768.03 | 88.51 |
| Fuel consumption [US gal/h] | 3.85 | 33.27 | 1.50 | 4.22 | 11.72 | 11.53 | 0.76 | 24.76 | 1.99 | 1.61 | 33.48 | 5.12 |
| CO [g/h] | 268.94 | 2325.34 | 104.86 | 294.83 | 819.50 | 806.02 | 53.32 | 1730.61 | 139.44 | 112.72 | 2340.25 | 357.93 |
| NOx [g/h] | 52.33 | 452.43 | 20.40 | 57.36 | 159.45 | 156.82 | 10.37 | 336.71 | 27.13 | 21.93 | 455.33 | 69.64 |
| VOC [g/h] | 62.33 | 538.92 | 24.30 | 68.33 | 189.93 | 186.80 | 12.36 | 401.08 | 32.32 | 26.12 | 542.38 | 82.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.22 | 44.22 | 44.22 | 44.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.881 | 2.803 | 2.827 | 2.835 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 732 | 732 | 732 | 732 |
| d_b, Bicycle Delay [s] | 21.98 | 21.98 | 21.98 | 21.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.464 | 2.013 | 3.081 | 3.076 |
| Bicycle LOS | B | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.709 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 123 | 1000 | 36 | 96 | 434 | 13 | 16 | 421 | 320 | 23 | 403 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 123 | 1000 | 36 | 96 | 434 | 13 | 16 | 421 | 320 | 23 | 403 | 33 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 272 | 10 | 26 | 118 | 4 | 4 | 114 | 87 | 6 | 110 | 9 |
| Total Analysis Volume [veh/h] | 134 | 1087 | 39 | 104 | 472 | 14 | 17 | 458 | 348 | 25 | 438 | 36 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 31 | 31 | 11 | 31 | 31 | 4 | 28 | 28 | 5 | 30 | 30 |
| g / C, Green / Cycle | 0.13 | 0.34 | 0.34 | 0.12 | 0.34 | 0.34 | 0.04 | 0.31 | 0.31 | 0.05 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.30 | 0.30 | 0.06 | 0.13 | 0.13 | 0.01 | 0.24 | 0.22 | 0.01 | 0.23 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1866 | 1810 | 1874 | 1854 | 1810 | 1874 | 1580 | 1761 | 1876 | 1583 |
| c, Capacity [veh/h] | 229 | 646 | 637 | 220 | 631 | 624 | 74 | 579 | 488 | 95 | 604 | 510 |
| d1, Uniform Delay [s] | 37.91 | 28.46 | 28.50 | 37.67 | 23.27 | 23.28 | 42.72 | 29.06 | 28.04 | 41.77 | 27.58 | 21.62 |
| k, delay calibration | 0.11 | 0.37 | 0.37 | 0.11 | 0.11 | 0.11 | 0.11 | 0.25 | 0.20 | 0.11 | 0.23 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.37 | 11.97 | 12.40 | 1.58 | 0.39 | 0.39 | 1.56 | 5.54 | 3.52 | 1.46 | 3.45 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.59 | 0.88 | 0.88 | 0.47 | 0.39 | 0.39 | 0.23 | 0.79 | 0.71 | 0.26 | 0.72 | 0.07 |
| d, Delay for Lane Group [s/veh] | 40.29 | 40.43 | 40.90 | 39.24 | 23.66 | 23.68 | 44.28 | 34.60 | 31.56 | 43.22 | 31.03 | 21.68 |
| Lane Group LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.86 | 12.84 | 12.78 | 2.18 | 3.82 | 3.79 | 0.39 | 9.42 | 6.73 | 0.56 | 8.43 | 0.51 |
| 50th-Percentile Queue Length [ft/ln] | 71.49 | 321.02 | 319.53 | 54.38 | 95.41 | 94.65 | 9.77 | 235.41 | 168.17 | 14.00 | 210.67 | 12.85 |
| 95th-Percentile Queue Length [veh/ln] | 5.15 | 18.72 | 18.64 | 3.92 | 6.87 | 6.81 | 0.70 | 14.45 | 10.98 | 1.01 | 13.19 | 0.92 |
| 95th-Percentile Queue Length [ft/ln] | 128.68 | 467.94 | 466.10 | 97.89 | 171.74 | 170.36 | 17.59 | 361.22 | 274.51 | 25.21 | 329.68 | 23.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.29 | 40.66 | 40.90 | 39.24 | 23.67 | 23.68 | 44.28 | 34.60 | 31.56 | 43.22 | 31.03 | 21.68 |
| Movement LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 40.62 | | | 26.41 | | | 33.51 | | | 30.97 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.62 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.709 | | | | | | | | | | | |

**Emissions**

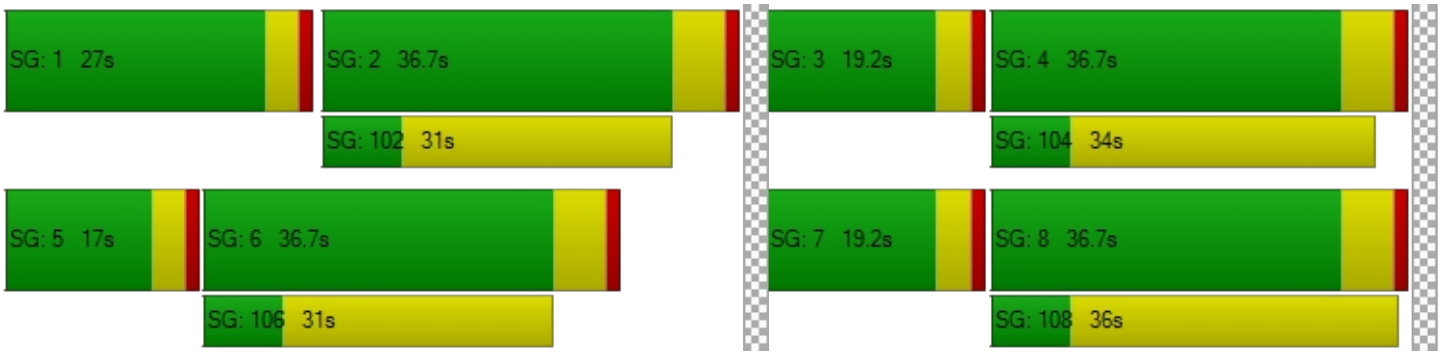
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 71.19 | 300.79 | 297.45 | 54.60 | 128.13 | 127.03 | 1.70 | 45.92 | 34.89 | 11.90 | 208.46 | 17.13 |
| Stops [stops/h] | 112.09 | 503.36 | 501.02 | 85.28 | 149.61 | 148.40 | 15.32 | 369.11 | 263.70 | 21.96 | 330.32 | 20.14 |
| Fuel consumption [US gal/h] | 4.93 | 21.23 | 21.08 | 3.76 | 7.43 | 7.37 | 0.40 | 9.39 | 6.71 | 0.90 | 14.02 | 1.00 |
| CO [g/h] | 344.79 | 1483.79 | 1473.83 | 262.99 | 519.17 | 514.84 | 28.11 | 656.21 | 468.97 | 62.96 | 979.88 | 69.66 |
| NOx [g/h] | 67.08 | 288.69 | 286.75 | 51.17 | 101.01 | 100.17 | 5.47 | 127.67 | 91.25 | 12.25 | 190.65 | 13.55 |
| VOC [g/h] | 79.91 | 343.88 | 341.57 | 60.95 | 120.32 | 119.32 | 6.51 | 152.08 | 108.69 | 14.59 | 227.10 | 16.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.58 | 35.58 | 35.58 | 35.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.966 | 2.806 | 2.647 | 2.534 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 675 | 675 | 675 | 675 |
| d_b, Bicycle Delay [s] | 20.15 | 20.15 | 20.15 | 20.17 |
| l_b,int, Bicycle LOS Score for Intersection | 2.599 | 2.046 | 2.918 | 2.383 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.876 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 536 | 548 | 280 | 310 | 323 | 337 | 637 | 1683 | 428 | 351 | 1459 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 319 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 536 | 548 | 280 | 310 | 323 | 18 | 637 | 1683 | 428 | 351 | 1459 | 236 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 141 | 144 | 74 | 82 | 85 | 5 | 168 | 443 | 113 | 92 | 384 | 62 |
| Total Analysis Volume [veh/h] | 564 | 577 | 295 | 326 | 340 | 19 | 671 | 1772 | 451 | 369 | 1536 | 248 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Overlap | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 7 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | 6,7 | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 35 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 3.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 39 | 45 | 0 | 18 | 36 | 0 | 24 | 51 | 39 | 19 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 14 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 2.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | No | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | No | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 | 134 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 34 | 33 | 33 | 15 | 14 | 14 | 28 | 55 | 93 | 15 | 42 | 42 |
| g / C, Green / Cycle | 0.26 | 0.25 | 0.25 | 0.11 | 0.10 | 0.10 | 0.21 | 0.41 | 0.70 | 0.11 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.16 | 0.18 | 0.09 | 0.07 | 0.01 | 0.19 | 0.34 | 0.28 | 0.11 | 0.30 | 0.15 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2763 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 600 | 883 | 394 | 389 | 530 | 284 | 726 | 2109 | 1116 | 392 | 1613 | 502 |
| d1, Uniform Delay [s] | 48.89 | 45.40 | 46.71 | 58.34 | 57.78 | 54.33 | 52.01 | 35.63 | 8.66 | 59.09 | 45.08 | 37.41 |
| k, delay calibration | 0.04 | 0.04 | 0.12 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.32 | 0.31 | 3.23 | 1.88 | 1.47 | 0.11 | 2.26 | 4.24 | 1.09 | 4.92 | 13.60 | 3.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.94 | 0.65 | 0.75 | 0.84 | 0.64 | 0.07 | 0.92 | 0.84 | 0.40 | 0.94 | 0.95 | 0.49 |
| d, Delay for Lane Group [s/veh] | 52.21 | 45.70 | 49.95 | 60.21 | 59.25 | 54.44 | 54.28 | 39.87 | 9.75 | 64.01 | 58.67 | 40.85 |
| Lane Group LOS | D | D | D | E | E | D | D | D | A | E | E | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 9.31 | 8.53 | 9.29 | 5.40 | 3.69 | 0.29 | 10.98 | 17.38 | 5.21 | 6.34 | 18.05 | 6.92 |
| 50th-Percentile Queue Length [ft/ln] | 232.87 | 213.22 | 232.19 | 135.08 | 92.23 | 7.24 | 274.58 | 434.57 | 130.20 | 158.59 | 451.31 | 173.00 |
| 95th-Percentile Queue Length [veh/ln] | 14.32 | 13.32 | 14.29 | 9.22 | 6.64 | 0.52 | 16.42 | 24.22 | 8.95 | 10.47 | 25.02 | 11.23 |
| 95th-Percentile Queue Length [ft/ln] | 358.01 | 332.96 | 357.14 | 230.39 | 166.01 | 13.03 | 410.46 | 605.52 | 223.76 | 261.86 | 625.52 | 280.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 52.21 | 45.70 | 49.95 | 60.21 | 59.25 | 54.44 | 54.28 | 39.87 | 9.75 | 64.01 | 58.67 | 40.85 |
| Movement LOS | D | D | D | E | E | D | D | D | A | E | E | D |
| d_A, Approach Delay [s/veh] | 49.13 | | | 59.58 | | | 38.51 | | | 57.53 | | |
| Approach LOS | D | | | E | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 48.37 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.876 | | | | | | | | | | | |

**Emissions**

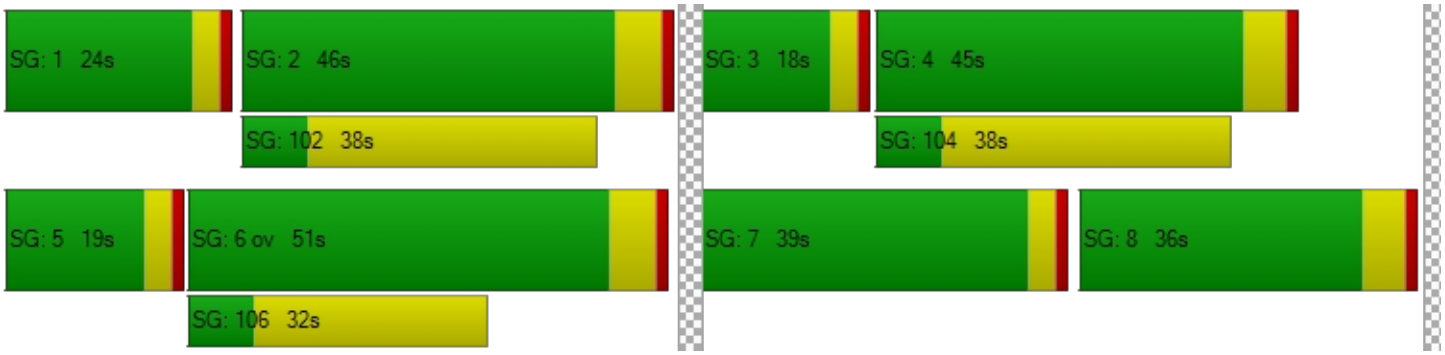
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 41.23 | 42.18 | 21.57 | 173.21 | 180.64 | 10.09 | 76.35 | 201.63 | 51.32 | 184.16 | 766.58 | 123.77 |
| Stops [stops/h] | 500.88 | 458.61 | 249.71 | 290.55 | 297.56 | 15.56 | 590.59 | 1402.08 | 140.02 | 341.12 | 1456.08 | 186.05 |
| Fuel consumption [US gal/h] | 12.39 | 11.38 | 6.22 | 13.54 | 13.99 | 0.75 | 17.37 | 38.72 | 4.39 | 15.36 | 62.72 | 8.62 |
| CO [g/h] | 866.01 | 795.62 | 435.03 | 946.71 | 977.96 | 52.43 | 1214.20 | 2706.50 | 307.20 | 1073.64 | 4383.99 | 602.33 |
| NOx [g/h] | 168.49 | 154.80 | 84.64 | 184.20 | 190.27 | 10.20 | 236.24 | 526.59 | 59.77 | 208.89 | 852.97 | 117.19 |
| VOC [g/h] | 200.71 | 184.39 | 100.82 | 219.41 | 226.65 | 12.15 | 281.40 | 627.26 | 71.20 | 248.83 | 1016.03 | 139.60 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 56.40 | 56.40 | 40.08 | 56.40 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.166 | 3.883 | 3.840 | 3.607 |
| Crosswalk LOS | C | D | D | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 587 | 453 | 672 | 597 |
| d_b, Bicycle Delay [s] | 33.42 | 40.12 | 29.51 | 32.92 |
| l_b,int, Bicycle LOS Score for Intersection | 2.349 | 2.112 | 3.151 | 2.744 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 54.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.820 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 578 | 0 | 1276 | 0 | 0 | 0 | 0 | 1479 | 489 | 0 | 1978 | 247 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 578 | 0 | 1276 | 0 | 0 | 0 | 0 | 1479 | 489 | 0 | 1978 | 247 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 154 | 0 | 339 | 0 | 0 | 0 | 0 | 393 | 130 | 0 | 526 | 66 |
| Total Analysis Volume [veh/h] | 615 | 0 | 1357 | 0 | 0 | 0 | 0 | 1573 | 520 | 0 | 2104 | 263 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.48 | | 0.31 | 0.24 | 0.16 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4442 | 828 |
| d1, Uniform Delay [s] | 29.97 | 41.07 | | 22.16 | 20.38 | 18.41 |
| k, delay calibration | 0.27 | 0.30 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 124.93 | | 0.97 | 0.36 | 1.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.39 | 1.27 | | 0.59 | 0.47 | 0.32 |
| d, Delay for Lane Group [s/veh] | 30.35 | 166.00 | | 23.13 | 20.74 | 19.42 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.57 | 34.73 | | 10.91 | 7.97 | 4.68 |
| 50th-Percentile Queue Length [ft/ln] | 114.26 | 868.34 | | 272.82 | 199.18 | 117.03 |
| 95th-Percentile Queue Length [veh/ln] | 8.08 | 51.44 | | 16.33 | 12.60 | 8.23 |
| 95th-Percentile Queue Length [ft/ln] | 201.91 | 1285.98 | | 408.26 | 314.91 | 205.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.35 | 0.00 | 166.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23.13 | 0.00 | 0.00 | 20.74 | 19.42 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 123.70 | | | 0.00 | | | 17.64 | | | 20.59 | | |
| Approach LOS | F | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 54.20 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.820 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 80.62 | 177.88 | | 247.53 | 239.40 | 29.93 |
| Stops [stops/h] | 374.34 | 1896.61 | | 893.83 | 1087.61 | 127.80 |
| Fuel consumption [US gal/h] | 13.45 | 87.01 | | 27.00 | 30.61 | 3.65 |
| CO [g/h] | 940.05 | 6082.05 | | 1887.40 | 2139.57 | 255.43 |
| NOx [g/h] | 182.90 | 1183.35 | | 367.22 | 416.28 | 49.70 |
| VOC [g/h] | 217.86 | 1409.57 | | 437.42 | 495.87 | 59.20 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.059 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.425 | 2.341 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.604 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 70 | 0 | 420 | 0 | 1910 | 628 | 0 | 1902 | 716 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 70 | 0 | 420 | 0 | 1910 | 628 | 0 | 1902 | 716 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 112 | 0 | 508 | 167 | 0 | 506 | 190 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 74 | 0 | 447 | 0 | 2032 | 668 | 0 | 2023 | 762 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 26 | 26 | 90 | 90 | 90 |
| g / C, Green / Cycle | | 0.20 | 0.20 | 0.70 | 0.70 | 0.70 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.16 | 0.30 | 0.42 | 0.29 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 700 | 568 | 4762 | 1108 | 4792 |
| d1, Uniform Delay [s] | | 42.54 | 49.38 | 8.53 | 10.33 | 8.49 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.16 | 5.92 | 0.28 | 2.43 | 0.27 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.11 | 0.79 | 0.43 | 0.60 | 0.42 |
| d, Delay for Lane Group [s/veh] | | 42.70 | 55.30 | 8.81 | 12.76 | 8.77 |
| Lane Group LOS | | D | E | A | B | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.00 | 7.36 | 5.45 | 9.28 | 5.40 |
| 50th-Percentile Queue Length [ft/ln] | | 24.97 | 184.01 | 136.24 | 231.98 | 135.00 |
| 95th-Percentile Queue Length [veh/ln] | | 1.80 | 11.81 | 9.28 | 14.28 | 9.21 |
| 95th-Percentile Queue Length [ft/ln] | | 44.95 | 295.24 | 231.95 | 356.88 | 230.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 42.70 | 0.00 | 55.30 | 0.00 | 8.81 | 12.76 | 0.00 | 8.77 | 0.00 |
| Movement LOS | | | | D | | E | | A | B | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 53.51 | | | 9.79 | | | 6.47 | | |
| Approach LOS | A | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 12.85 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.604 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.40 | 68.88 | 196.76 | 64.68 | 318.34 |
| Stops [stops/h] | | 55.35 | 407.87 | 603.95 | 257.10 | 598.46 |
| Fuel consumption [US gal/h] | | 1.42 | 10.12 | 17.90 | 7.15 | 21.96 |
| CO [g/h] | | 99.13 | 707.33 | 1251.06 | 499.71 | 1535.14 |
| NOx [g/h] | | 19.29 | 137.62 | 243.41 | 97.23 | 298.68 |
| VOC [g/h] | | 22.98 | 163.93 | 289.94 | 115.81 | 355.78 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.058 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1142 | 1142 |
| d_b, Bicycle Delay [s] | 64.97 | 29.62 | 11.95 | 11.95 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.673 | 2.394 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.477 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 39 | 176 | 78 | 0 | 77 | 50 | 58 | 298 | 71 | 54 | 161 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 39 | 176 | 78 | 0 | 77 | 50 | 58 | 298 | 71 | 54 | 161 | 7 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 47 | 21 | 0 | 20 | 13 | 15 | 79 | 19 | 14 | 43 | 2 |
| Total Analysis Volume [veh/h] | 41 | 187 | 83 | 0 | 82 | 53 | 62 | 317 | 76 | 57 | 171 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 39 | 39 | 39 | 39 | 39 | 39 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 12 | 2 | 13 | 2 | 13 |
| g / C, Green / Cycle | 0.30 | 0.30 | 0.06 | 0.34 | 0.06 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.09 | 0.04 | 0.24 | 0.04 | 0.11 |
| s, saturation flow rate [veh/h] | 1553 | 1574 | 1603 | 1627 | 1603 | 1671 |
| c, Capacity [veh/h] | 564 | 558 | 102 | 553 | 96 | 562 |
| d1, Uniform Delay [s] | 12.13 | 10.69 | 18.03 | 11.36 | 18.11 | 9.75 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.84 | 0.22 | 5.78 | 1.71 | 5.76 | 0.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.24 | 0.61 | 0.71 | 0.59 | 0.32 |
| d, Delay for Lane Group [s/veh] | 12.97 | 10.91 | 23.81 | 13.06 | 23.87 | 10.07 |
| Lane Group LOS | B | B | C | B | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.72 | 0.64 | 0.58 | 2.05 | 0.58 | 0.88 |
| 50th-Percentile Queue Length [ft/ln] | 43.11 | 16.10 | 14.50 | 51.14 | 14.45 | 21.99 |
| 95th-Percentile Queue Length [veh/ln] | 3.10 | 1.16 | 1.04 | 3.68 | 1.04 | 1.58 |
| 95th-Percentile Queue Length [ft/ln] | 77.59 | 28.99 | 26.10 | 92.06 | 26.01 | 39.58 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.97 | 12.97 | 12.97 | 10.91 | 10.91 | 10.91 | 23.81 | 13.06 | 13.06 | 23.87 | 10.07 | 10.07 |
| Movement LOS | B | B | B | B | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 12.97 | | | 10.91 | | | 14.53 | | | 13.42 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.44 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.477 | | | | | | | | | | | |

**Emissions**

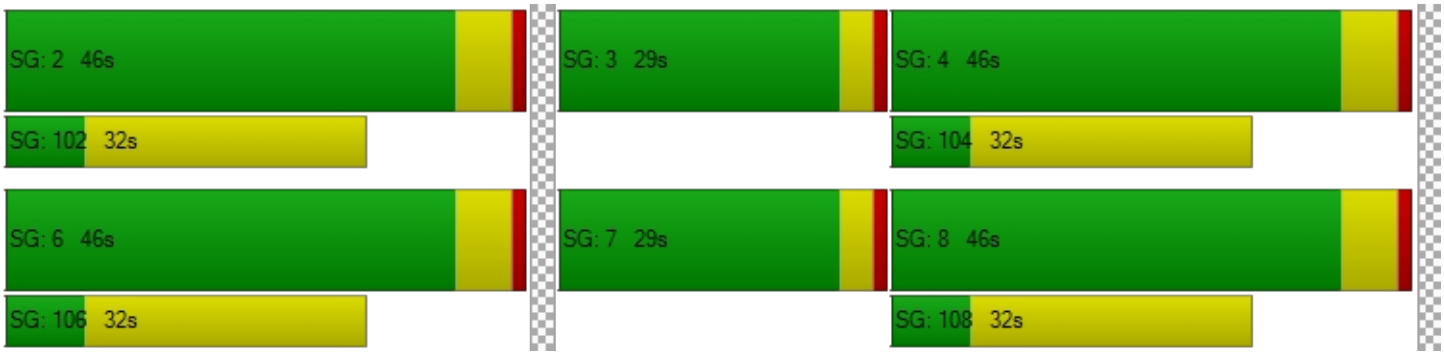
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 313.11 | 135.29 | 31.08 | 197.01 | 28.09 | 87.72 |
| Stops [stops/h] | 157.55 | 58.85 | 52.99 | 186.92 | 52.81 | 80.38 |
| Fuel consumption [US gal/h] | 13.51 | 5.67 | 2.15 | 10.51 | 1.74 | 4.31 |
| CO [g/h] | 944.53 | 396.25 | 150.61 | 734.78 | 121.97 | 301.48 |
| NOx [g/h] | 183.77 | 77.10 | 29.30 | 142.96 | 23.73 | 58.66 |
| VOC [g/h] | 218.90 | 91.84 | 34.90 | 170.29 | 28.27 | 69.87 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.24 | 10.24 | 10.24 | 10.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.050 | 1.951 | 2.432 | 2.132 |
| Crosswalk LOS | B | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2030 | 2030 | 2030 | 2030 |
| d_b, Bicycle Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_b,int, Bicycle LOS Score for Intersection | 2.073 | 1.782 | 2.310 | 1.947 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.778 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 276 | 374 | 107 | 14 | 196 | 40 | 76 | 370 | 339 | 45 | 547 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 276 | 374 | 107 | 14 | 196 | 40 | 76 | 370 | 339 | 45 | 547 | 30 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 79 | 107 | 31 | 4 | 56 | 11 | 22 | 106 | 97 | 13 | 157 | 9 |
| Total Analysis Volume [veh/h] | 317 | 430 | 123 | 16 | 225 | 46 | 87 | 425 | 390 | 52 | 629 | 34 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 2 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 0 | | | 3 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 19 | 35 | 35 | 2 | 18 | 6 | 28 | 28 | 4 | 25 | 25 |
| g / C, Green / Cycle | 0.22 | 0.42 | 0.42 | 0.02 | 0.21 | 0.07 | 0.33 | 0.33 | 0.04 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.25 | 0.08 | 0.01 | 0.16 | 0.05 | 0.25 | 0.27 | 0.03 | 0.20 | 0.20 |
| s, saturation flow rate [veh/h] | 1586 | 1710 | 1454 | 1629 | 1660 | 1629 | 1703 | 1441 | 1577 | 1710 | 1679 |
| c, Capacity [veh/h] | 356 | 713 | 606 | 30 | 350 | 111 | 564 | 477 | 66 | 521 | 512 |
| d1, Uniform Delay [s] | 31.45 | 19.01 | 15.55 | 40.72 | 31.16 | 38.38 | 24.95 | 25.67 | 39.73 | 25.15 | 25.16 |
| k, delay calibration | 0.20 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.14 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 12.99 | 0.83 | 0.16 | 13.40 | 3.67 | 11.14 | 2.07 | 4.44 | 18.00 | 1.32 | 1.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.89 | 0.60 | 0.20 | 0.53 | 0.77 | 0.78 | 0.75 | 0.82 | 0.78 | 0.64 | 0.64 |
| d, Delay for Lane Group [s/veh] | 44.44 | 19.85 | 15.71 | 54.12 | 34.83 | 49.52 | 27.02 | 30.11 | 57.73 | 26.47 | 26.51 |
| Lane Group LOS | D | B | B | D | C | D | C | C | E | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 7.01 | 5.90 | 1.37 | 0.42 | 5.14 | 2.01 | 7.10 | 6.99 | 1.34 | 5.42 | 5.33 |
| 50th-Percentile Queue Length [ft/ln] | 175.18 | 147.42 | 34.21 | 10.59 | 128.44 | 50.14 | 177.49 | 174.65 | 33.40 | 135.43 | 133.31 |
| 95th-Percentile Queue Length [veh/ln] | 11.35 | 9.88 | 2.46 | 0.76 | 8.85 | 3.61 | 11.47 | 11.32 | 2.40 | 9.23 | 9.12 |
| 95th-Percentile Queue Length [ft/ln] | 283.71 | 246.98 | 61.57 | 19.07 | 221.37 | 90.25 | 286.74 | 283.02 | 60.11 | 230.86 | 227.99 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 44.44 | 19.85 | 15.71 | 54.12 | 34.83 | 34.83 | 49.52 | 27.02 | 30.11 | 57.73 | 26.49 | 26.51 |
| Movement LOS | D | B | B | D | C | C | D | C | C | E | C | C |
| d_A, Approach Delay [s/veh] | 28.22 | | | 35.91 | | | 30.52 | | | 28.76 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.778 | | | | | | | | | | | |

**Emissions**

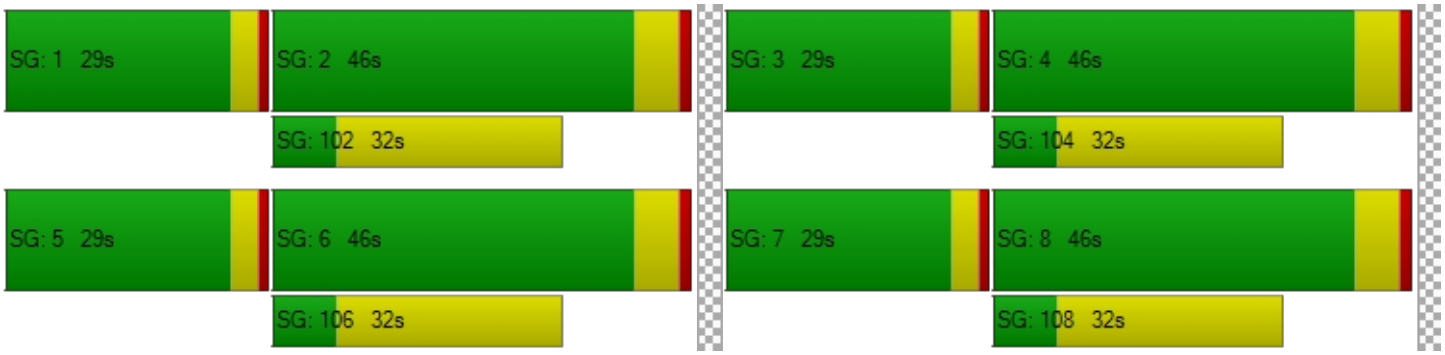
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 157.63 | 213.82 | 61.16 | 16.11 | 272.84 | 52.36 | 255.77 | 234.71 | 25.94 | 166.74 | 163.95 |
| Stops [stops/h] | 301.78 | 253.95 | 58.92 | 18.25 | 221.25 | 86.37 | 305.76 | 300.87 | 57.53 | 233.31 | 229.65 |
| Fuel consumption [US gal/h] | 12.02 | 12.22 | 3.22 | 0.96 | 14.02 | 3.75 | 14.91 | 14.18 | 2.22 | 10.42 | 10.25 |
| CO [g/h] | 840.34 | 854.41 | 225.24 | 66.77 | 980.28 | 261.80 | 1041.89 | 990.88 | 154.84 | 728.15 | 716.37 |
| NOx [g/h] | 163.50 | 166.24 | 43.82 | 12.99 | 190.73 | 50.94 | 202.71 | 192.79 | 30.13 | 141.67 | 139.38 |
| VOC [g/h] | 194.76 | 198.02 | 52.20 | 15.48 | 227.19 | 60.67 | 241.47 | 229.65 | 35.89 | 168.76 | 166.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.52 | 31.52 | 31.52 | 31.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.745 | 2.344 | 2.850 | 2.670 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 957 | 957 | 957 | 957 |
| d_b, Bicycle Delay [s] | 11.37 | 11.37 | 11.37 | 11.37 |
| l_b,int, Bicycle LOS Score for Intersection | 2.995 | 2.033 | 2.304 | 2.149 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.602 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 614 | 98 | 124 | 422 | 24 | 71 | 297 | 273 | 37 | 318 | 113 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 614 | 98 | 124 | 422 | 24 | 71 | 297 | 273 | 37 | 318 | 113 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 162 | 26 | 33 | 111 | 6 | 19 | 78 | 72 | 10 | 84 | 30 |
| Total Analysis Volume [veh/h] | 117 | 646 | 103 | 131 | 444 | 25 | 75 | 313 | 287 | 39 | 335 | 119 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 19 | 19 | 9 | 20 | 20 | 8 | 20 | 20 | 6 | 17 | 17 |
| g / C, Green / Cycle | 0.13 | 0.28 | 0.28 | 0.13 | 0.28 | 0.28 | 0.11 | 0.28 | 0.28 | 0.08 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.21 | 0.21 | 0.07 | 0.13 | 0.13 | 0.04 | 0.17 | 0.19 | 0.02 | 0.18 | 0.08 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1775 | 1810 | 1868 | 1828 | 1810 | 1892 | 1549 | 1810 | 1874 | 1579 |
| c, Capacity [veh/h] | 234 | 514 | 490 | 244 | 522 | 510 | 205 | 534 | 437 | 144 | 466 | 392 |
| d1, Uniform Delay [s] | 28.34 | 23.17 | 23.18 | 28.33 | 20.88 | 20.89 | 28.80 | 21.68 | 22.15 | 30.39 | 24.14 | 21.40 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.64 | 2.17 | 2.30 | 1.84 | 0.62 | 0.64 | 1.09 | 1.03 | 1.69 | 1.00 | 2.11 | 0.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.50 | 0.75 | 0.75 | 0.54 | 0.45 | 0.46 | 0.37 | 0.59 | 0.66 | 0.27 | 0.72 | 0.30 |
| d, Delay for Lane Group [s/veh] | 29.98 | 25.34 | 25.48 | 30.17 | 21.49 | 21.53 | 29.89 | 22.71 | 23.84 | 31.38 | 26.25 | 21.84 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.80 | 5.50 | 5.26 | 2.00 | 2.92 | 2.88 | 1.13 | 4.05 | 3.86 | 0.61 | 4.78 | 1.47 |
| 50th-Percentile Queue Length [ft/ln] | 45.07 | 137.45 | 131.48 | 49.89 | 72.95 | 71.91 | 28.30 | 101.30 | 96.42 | 15.28 | 119.51 | 36.67 |
| 95th-Percentile Queue Length [veh/ln] | 3.24 | 9.34 | 9.02 | 3.59 | 5.25 | 5.18 | 2.04 | 7.29 | 6.94 | 1.10 | 8.37 | 2.64 |
| 95th-Percentile Queue Length [ft/ln] | 81.12 | 233.59 | 225.50 | 89.80 | 131.31 | 129.44 | 50.95 | 182.33 | 173.56 | 27.50 | 209.16 | 66.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.98 | 25.40 | 25.48 | 30.17 | 21.51 | 21.53 | 29.89 | 22.71 | 23.84 | 31.38 | 26.25 | 21.84 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.03 | | | 23.40 | | | 23.99 | | | 25.59 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.82 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.602 | | | | | | | | | | | |

**Emissions**

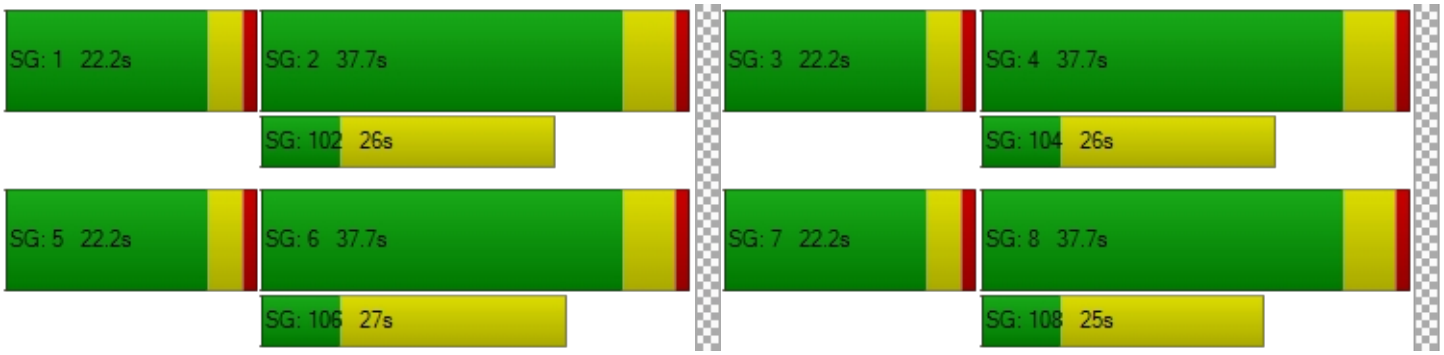
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.22 | 207.22 | 197.52 | 65.14 | 117.54 | 115.67 | 35.70 | 148.97 | 136.59 | 19.22 | 165.08 | 58.64 |
| Stops [stops/h] | 92.74 | 282.87 | 270.57 | 102.67 | 150.13 | 147.98 | 58.25 | 208.46 | 198.43 | 31.44 | 245.94 | 75.46 |
| Fuel consumption [US gal/h] | 3.89 | 12.18 | 11.63 | 4.31 | 6.93 | 6.82 | 2.40 | 9.14 | 8.54 | 1.30 | 10.51 | 3.48 |
| CO [g/h] | 271.89 | 851.33 | 812.82 | 301.51 | 484.37 | 477.00 | 168.04 | 639.23 | 597.06 | 90.78 | 734.36 | 243.05 |
| NOx [g/h] | 52.90 | 165.64 | 158.14 | 58.66 | 94.24 | 92.81 | 32.69 | 124.37 | 116.17 | 17.66 | 142.88 | 47.29 |
| VOC [g/h] | 63.01 | 197.30 | 188.38 | 69.88 | 112.26 | 110.55 | 38.94 | 148.15 | 138.37 | 21.04 | 170.19 | 56.33 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.85 | 24.85 | 24.85 | 24.85 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.711 | 2.707 | 2.538 | 2.497 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 915 | 915 | 915 | 915 |
| d_b, Bicycle Delay [s] | 10.30 | 10.31 | 10.31 | 10.31 |
| l_b,int, Bicycle LOS Score for Intersection | 2.274 | 2.055 | 2.673 | 2.373 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 55.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 355 | 331 | 161 | 396 | 275 | 192 | 355 | 1311 | 581 | 168 | 1268 | 159 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 175 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 355 | 331 | 161 | 396 | 275 | 17 | 355 | 1311 | 581 | 168 | 1268 | 159 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 92 | 86 | 42 | 103 | 72 | 4 | 92 | 341 | 151 | 44 | 330 | 41 |
| Total Analysis Volume [veh/h] | 370 | 345 | 168 | 413 | 286 | 18 | 370 | 1366 | 605 | 175 | 1321 | 166 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 21 | 21 | 14 | 14 | 14 | 13 | 68 | 68 | 13 | 68 | 68 |
| g / C, Green / Cycle | 0.16 | 0.16 | 0.16 | 0.11 | 0.11 | 0.11 | 0.10 | 0.51 | 0.51 | 0.10 | 0.51 | 0.51 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.10 | 0.11 | 0.12 | 0.08 | 0.01 | 0.11 | 0.26 | 0.38 | 0.05 | 0.26 | 0.10 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 259 | 577 | 259 | 372 | 396 | 177 | 347 | 2644 | 821 | 344 | 2633 | 825 |
| d1, Uniform Delay [s] | 55.53 | 51.31 | 51.79 | 59.03 | 56.88 | 52.97 | 59.53 | 21.44 | 25.31 | 56.50 | 21.23 | 17.59 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 194.13 | 0.80 | 2.20 | 53.04 | 2.01 | 0.20 | 35.29 | 0.72 | 5.84 | 0.43 | 0.69 | 0.55 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.43 | 0.60 | 0.65 | 1.11 | 0.72 | 0.10 | 1.07 | 0.52 | 0.74 | 0.51 | 0.50 | 0.20 |
| d, Delay for Lane Group [s/veh] | 249.66 | 52.10 | 53.99 | 112.08 | 58.89 | 53.17 | 94.83 | 22.16 | 31.15 | 56.94 | 21.91 | 18.14 |
| Lane Group LOS | F | D | D | F | E | D | F | C | C | E | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 11.23 | 5.30 | 5.30 | 8.97 | 4.74 | 0.55 | 7.51 | 9.47 | 15.91 | 2.74 | 8.66 | 2.78 |
| 50th-Percentile Queue Length [ft/ln] | 280.76 | 132.45 | 132.60 | 224.20 | 118.42 | 13.80 | 187.85 | 236.77 | 397.78 | 68.47 | 216.54 | 69.49 |
| 95th-Percentile Queue Length [veh/ln] | 19.10 | 9.07 | 9.08 | 14.45 | 8.31 | 0.99 | 12.30 | 14.52 | 22.45 | 4.93 | 13.49 | 5.00 |
| 95th-Percentile Queue Length [ft/ln] | 477.59 | 226.81 | 227.02 | 361.22 | 207.65 | 24.85 | 307.54 | 362.95 | 561.32 | 123.24 | 337.20 | 125.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 249.66 | 52.10 | 53.99 | 112.08 | 58.89 | 53.17 | 94.83 | 22.16 | 31.15 | 56.94 | 21.91 | 18.14 |
| Movement LOS | F | D | D | F | E | D | F | C | C | E | C | B |
| d_A, Approach Delay [s/veh] | 135.24 | | | 89.38 | | | 35.97 | | | 25.22 | | |
| Approach LOS | F | | | F | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 55.26 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.807 | | | | | | | | | | | |

**Emissions**

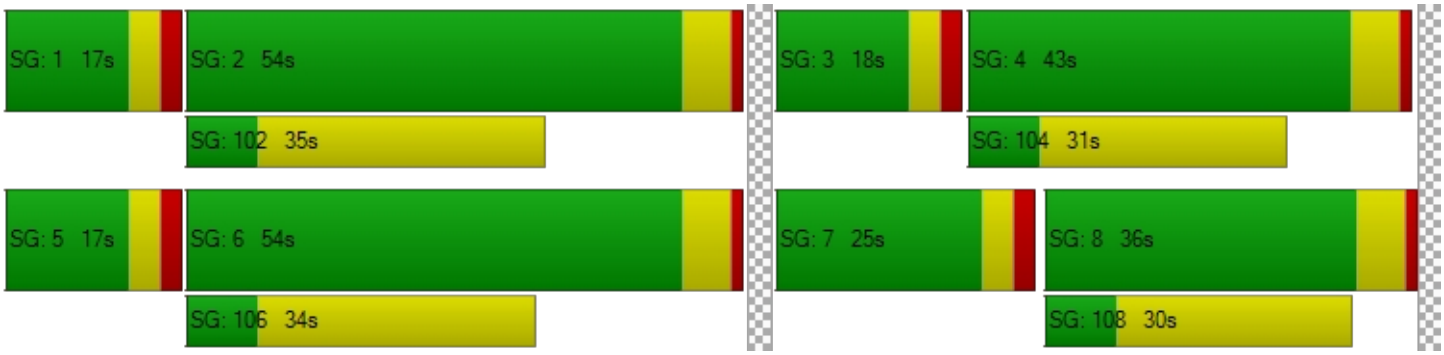
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.73 | 36.11 | 17.58 | 223.17 | 154.55 | 9.73 | 184.66 | 681.73 | 301.94 | 20.17 | 152.26 | 19.13 |
| Stops [stops/h] | 612.30 | 288.85 | 144.59 | 488.95 | 258.26 | 15.05 | 409.69 | 774.56 | 433.75 | 149.32 | 708.36 | 75.77 |
| Fuel consumption [US gal/h] | 26.20 | 7.79 | 3.90 | 21.31 | 11.22 | 0.68 | 17.00 | 38.50 | 18.66 | 4.58 | 19.92 | 2.21 |
| CO [g/h] | 1831.11 | 544.43 | 272.33 | 1489.33 | 783.98 | 47.41 | 1188.57 | 2691.42 | 1304.41 | 319.81 | 1392.19 | 154.53 |
| NOx [g/h] | 356.27 | 105.93 | 52.99 | 289.77 | 152.53 | 9.23 | 231.25 | 523.65 | 253.79 | 62.22 | 270.87 | 30.07 |
| VOC [g/h] | 424.38 | 126.18 | 63.11 | 345.17 | 181.70 | 10.99 | 275.46 | 623.76 | 302.31 | 74.12 | 322.65 | 35.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.49 | 55.49 | 55.49 | 55.49 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.974 | 3.108 | 3.325 | 3.454 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.00 | 39.20 | 26.56 | 26.56 |
| l_b,int, Bicycle LOS Score for Intersection | 2.288 | 2.296 | 2.847 | 2.474 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 77.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.783 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 450 | 79 | 6 | 2 | 83 | 27 | 30 | 118 | 326 | 0 | 90 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 450 | 79 | 6 | 2 | 83 | 27 | 30 | 118 | 326 | 0 | 90 | 23 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 131 | 23 | 2 | 1 | 24 | 8 | 9 | 34 | 95 | 0 | 26 | 7 |
| Total Analysis Volume [veh/h] | 523 | 92 | 7 | 2 | 97 | 31 | 35 | 137 | 379 | 0 | 105 | 27 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 36 | 0 | 12 | 3 | 33 | 0 | 30 |
| g / C, Green / Cycle | 0.29 | 0.43 | 0.00 | 0.14 | 0.03 | 0.38 | 0.00 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.06 | 0.00 | 0.08 | 0.02 | 0.34 | 0.00 | 0.08 |
| s, saturation flow rate [veh/h] | 1436 | 1672 | 1629 | 1640 | 1629 | 1514 | 1629 | 1650 |
| c, Capacity [veh/h] | 420 | 711 | 5 | 222 | 54 | 582 | 0 | 579 |
| d1, Uniform Delay [s] | 30.18 | 14.98 | 42.48 | 34.61 | 40.75 | 24.55 | 0.00 | 19.54 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.26 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 128.36 | 0.09 | 51.35 | 2.36 | 12.05 | 10.46 | 0.00 | 0.20 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.24 | 0.14 | 0.43 | 0.58 | 0.64 | 0.89 | 0.00 | 0.23 |
| d, Delay for Lane Group [s/veh] | 158.54 | 15.07 | 93.84 | 36.97 | 52.80 | 35.02 | 0.00 | 19.74 |
| Lane Group LOS | F | B | F | D | D | D | A | B |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 22.83 | 1.07 | 0.11 | 2.49 | 0.90 | 10.86 | 0.00 | 1.82 |
| 50th-Percentile Queue Length [ft/ln] | 570.68 | 26.84 | 2.68 | 62.35 | 22.44 | 271.44 | 0.00 | 45.62 |
| 95th-Percentile Queue Length [veh/ln] | 34.63 | 1.93 | 0.19 | 4.49 | 1.62 | 16.26 | 0.00 | 3.28 |
| 95th-Percentile Queue Length [ft/ln] | 865.82 | 48.31 | 4.82 | 112.22 | 40.39 | 406.53 | 0.00 | 82.11 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 158.54 | 15.07 | 15.07 | 93.84 | 36.97 | 36.97 | 52.80 | 35.02 | 35.02 | 0.00 | 19.74 | 19.74 |
| Movement LOS | F | B | B | F | D | D | D | D | D | A | B | B |
| d_A, Approach Delay [s/veh] | 135.70 | | | 37.85 | | | 36.15 | | | 19.74 | | |
| Approach LOS | F | | | D | | | D | | | B | | |
| d_I, Intersection Delay [s/veh] | 77.94 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.783 | | | | | | | | | | | |

**Emissions**

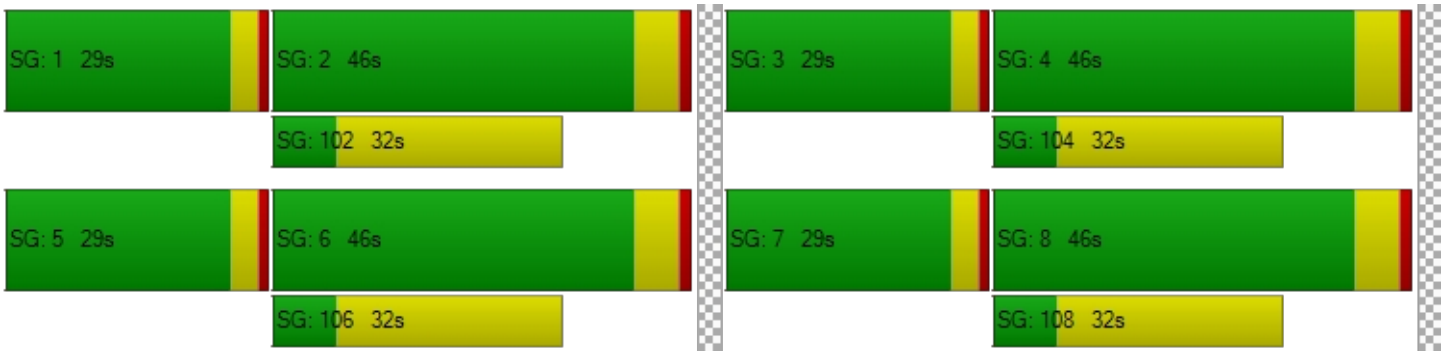
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 262.35 | 49.66 | 0.09 | 5.85 | 17.60 | 259.48 | 0.00 | 49.96 |
| Stops [stops/h] | 963.87 | 45.33 | 4.52 | 105.30 | 37.90 | 458.45 | 0.00 | 77.04 |
| Fuel consumption [US gal/h] | 37.85 | 2.57 | 0.10 | 2.47 | 1.31 | 16.89 | 0.00 | 3.01 |
| CO [g/h] | 2645.53 | 179.61 | 6.82 | 172.84 | 91.57 | 1180.70 | 0.00 | 210.59 |
| NOx [g/h] | 514.72 | 34.94 | 1.33 | 33.63 | 17.82 | 229.72 | 0.00 | 40.97 |
| VOC [g/h] | 613.13 | 41.63 | 1.58 | 40.06 | 21.22 | 273.64 | 0.00 | 48.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.34 | 32.34 | 32.34 | 32.34 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.472 | 2.075 | 2.330 | 2.027 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 938 | 938 | 938 | 938 |
| d_b, Bicycle Delay [s] | 12.01 | 12.01 | 12.01 | 12.01 |
| l_b,int, Bicycle LOS Score for Intersection | 2.586 | 1.774 | 2.469 | 1.777 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.714 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 274 | 467 | 22 | 445 | 283 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 274 | 467 | 22 | 445 | 283 | 49 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 117 | 6 | 111 | 71 | 12 |
| Total Analysis Volume [veh/h] | 274 | 467 | 22 | 445 | 283 | 49 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 5 | 2 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 40 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 5.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 7 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 25 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 14 | 0 | 14 | 14 | 9 | 0 |
| Lead / Lag | - | - | Lag | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 10 | 10 | 5 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | L | C | C |
|---|---|---|---|---|
| C, Cycle Length [s] | 75 | 75 | 75 | 75 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 39 | 4 | 47 | 20 |
| g / C, Green / Cycle | 0.53 | 0.05 | 0.63 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.49 | 0.01 | 0.26 | 0.21 |
| s, saturation flow rate [veh/h] | 1515 | 1603 | 1683 | 1575 |
| c, Capacity [veh/h] | 796 | 79 | 1058 | 417 |
| d1, Uniform Delay [s] | 16.48 | 34.30 | 7.02 | 25.66 |
| k, delay calibration | 0.40 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 15.99 | 1.88 | 0.27 | 3.53 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | |
|---|---|---|---|---|
| X, volume / capacity | 0.93 | 0.28 | 0.42 | 0.80 |
| d, Delay for Lane Group [s/veh] | 32.47 | 36.18 | 7.29 | 29.19 |
| Lane Group LOS | C | D | A | C |
| Critical Lane Group | Yes | Yes | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 12.65 | 0.40 | 2.59 | 5.62 |
| 50th-Percentile Queue Length [ft/ln] | 316.16 | 10.05 | 64.63 | 140.44 |
| 95th-Percentile Queue Length [veh/ln] | 18.48 | 0.72 | 4.65 | 9.50 |
| 95th-Percentile Queue Length [ft/ln] | 461.97 | 18.09 | 116.34 | 237.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.47 | 32.47 | 36.18 | 7.29 | 29.19 | 29.19 |
| Movement LOS | C | C | D | A | C | C |
| d_A, Approach Delay [s/veh] | 32.47 | | 8.65 | | 29.19 | |
| Approach LOS | C | | A | | C | |
| d_I, Intersection Delay [s/veh] | 24.54 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.714 | | | | | |

**Emissions**

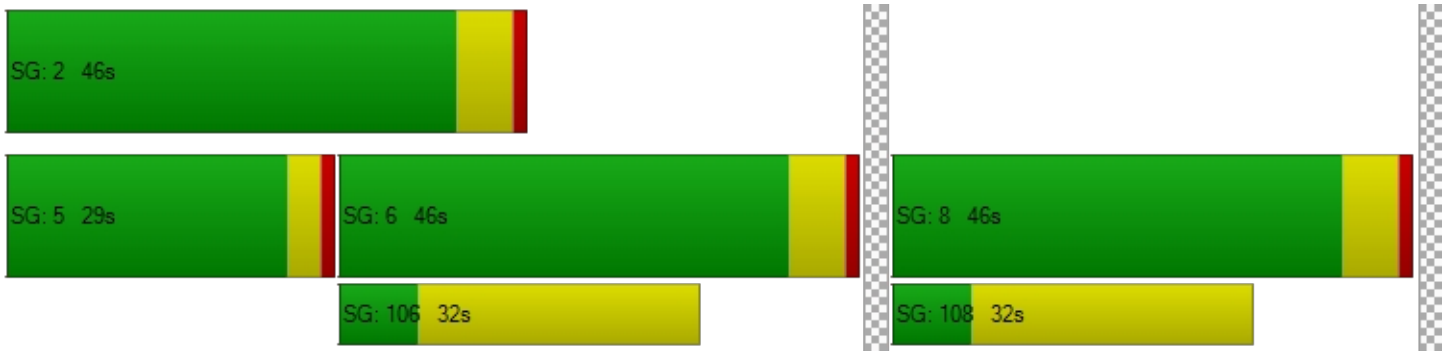
| | | | | |
|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 369.32 | 11.04 | 223.22 | 62.81 |
| Stops [stops/h] | 609.35 | 19.37 | 124.57 | 270.68 |
| Fuel consumption [US gal/h] | 25.13 | 0.78 | 9.86 | 6.05 |
| CO [g/h] | 1756.72 | 54.60 | 689.22 | 423.09 |
| NOx [g/h] | 341.79 | 10.62 | 134.10 | 82.32 |
| VOC [g/h] | 407.14 | 12.65 | 159.73 | 98.06 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.17 | 27.17 | 27.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.779 | 2.315 | 2.105 |
| Crosswalk LOS | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1071 | 1071 | 1071 |
| d_b, Bicycle Delay [s] | 8.06 | 8.06 | 8.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.782 | 2.330 | 2.107 |
| Bicycle LOS | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.633 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 484 | 15 | 158 | 313 | 104 | 125 | 195 | 67 | 96 | 137 | 122 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 484 | 15 | 158 | 313 | 104 | 125 | 195 | 67 | 96 | 137 | 122 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 126 | 4 | 41 | 82 | 27 | 33 | 51 | 17 | 25 | 36 | 32 |
| Total Analysis Volume [veh/h] | 3 | 504 | 16 | 165 | 326 | 108 | 130 | 203 | 70 | 100 | 143 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 21 | 21 | 9 | 29 | 7 | 11 | 11 | 7 | 10 | 10 |
| g / C, Green / Cycle | 0.01 | 0.33 | 0.33 | 0.14 | 0.46 | 0.11 | 0.17 | 0.17 | 0.11 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.27 | 0.01 | 0.09 | 0.24 | 0.07 | 0.07 | 0.08 | 0.06 | 0.08 | 0.08 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1806 | 1810 | 1900 | 1738 | 1787 | 1900 | 1605 |
| c, Capacity [veh/h] | 13 | 620 | 535 | 245 | 830 | 208 | 327 | 299 | 189 | 310 | 262 |
| d1, Uniform Delay [s] | 30.94 | 19.19 | 14.16 | 25.78 | 12.06 | 26.48 | 23.20 | 23.26 | 26.57 | 23.74 | 23.84 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.06 | 2.64 | 0.02 | 1.21 | 0.51 | 1.16 | 1.66 | 1.91 | 0.86 | 1.99 | 2.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.22 | 0.81 | 0.03 | 0.67 | 0.52 | 0.63 | 0.43 | 0.44 | 0.53 | 0.46 | 0.48 |
| d, Delay for Lane Group [s/veh] | 34.01 | 21.84 | 14.19 | 27.00 | 12.57 | 27.64 | 24.86 | 25.17 | 27.42 | 25.73 | 26.42 |
| Lane Group LOS | C | C | B | C | B | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.05 | 6.02 | 0.13 | 2.16 | 3.45 | 1.76 | 1.83 | 1.74 | 1.29 | 1.84 | 1.67 |
| 50th-Percentile Queue Length [ft/ln] | 1.31 | 150.56 | 3.34 | 54.11 | 86.34 | 43.89 | 45.73 | 43.61 | 32.27 | 45.88 | 41.79 |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 10.05 | 0.24 | 3.90 | 6.22 | 3.16 | 3.29 | 3.14 | 2.32 | 3.30 | 3.01 |
| 95th-Percentile Queue Length [ft/ln] | 2.37 | 251.18 | 6.02 | 97.39 | 155.40 | 79.00 | 82.32 | 78.49 | 58.08 | 82.58 | 75.23 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.01 | 21.84 | 14.19 | 27.00 | 12.57 | 12.57 | 27.64 | 24.96 | 25.17 | 27.42 | 25.73 | 26.42 |
| Movement LOS | C | C | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 21.67 | | | 16.54 | | | 25.86 | | | 26.43 | | |
| Approach LOS | C | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.87 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.633 | | | | | | | | | | | |

**Emissions**

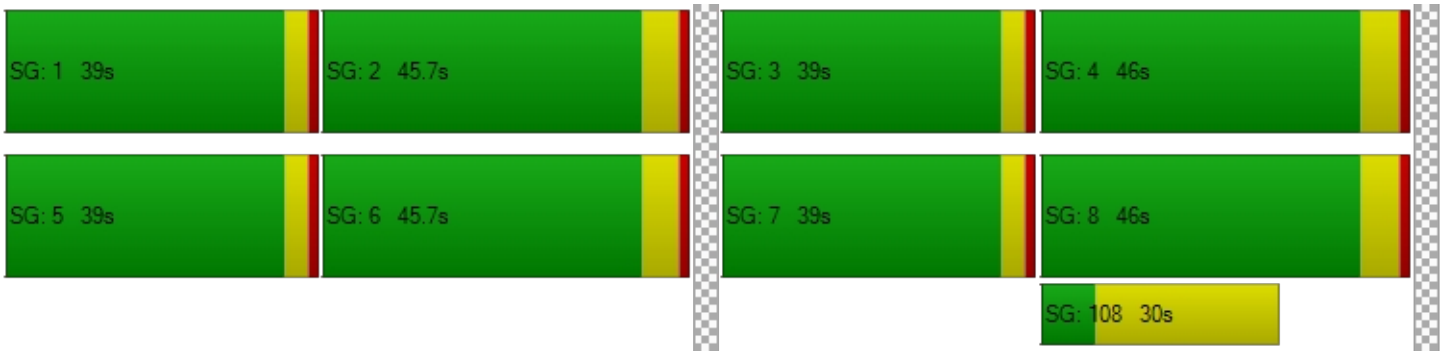
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.51 | 253.45 | 8.05 | 82.24 | 216.31 | 64.07 | 69.27 | 65.27 | 26.21 | 37.48 | 33.29 |
| Stops [stops/h] | 3.02 | 346.34 | 7.69 | 124.46 | 198.60 | 100.95 | 105.20 | 100.31 | 74.22 | 105.54 | 96.14 |
| Fuel consumption [US gal/h] | 0.11 | 15.23 | 0.42 | 5.27 | 10.99 | 4.02 | 4.23 | 4.00 | 2.58 | 3.62 | 3.27 |
| CO [g/h] | 7.69 | 1064.83 | 29.19 | 368.57 | 768.48 | 280.84 | 295.39 | 279.73 | 180.00 | 253.32 | 228.81 |
| NOx [g/h] | 1.50 | 207.18 | 5.68 | 71.71 | 149.52 | 54.64 | 57.47 | 54.42 | 35.02 | 49.29 | 44.52 |
| VOC [g/h] | 1.78 | 246.78 | 6.77 | 85.42 | 178.10 | 65.09 | 68.46 | 64.83 | 41.72 | 58.71 | 53.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.27 | 23.81 | 23.55 | 23.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.578 | 2.588 | 2.329 | 2.529 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1278 | 1278 | 1278 | 1278 |
| d_b, Bicycle Delay [s] | 4.08 | 4.08 | 4.08 | 4.08 |
| l_b,int, Bicycle LOS Score for Intersection | 2.423 | 2.548 | 1.892 | 2.170 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 32.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.107 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 439 | 13 | 10 | 488 | 8 | 15 | 14 | 6 | 1 | 53 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 439 | 13 | 10 | 488 | 8 | 15 | 14 | 6 | 1 | 53 | 9 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 114 | 3 | 3 | 127 | 2 | 4 | 4 | 2 | 0 | 14 | 2 |
| Total Analysis Volume [veh/h] | 18 | 457 | 14 | 10 | 508 | 8 | 16 | 15 | 6 | 1 | 55 | 9 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop | Stop |
|---|---|---|---|---|
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.11 | 0.07 | 0.01 | 0.01 | 0.24 | 0.01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.55 | 0.00 | 0.00 | 8.43 | 0.00 | 0.00 | 32.94 | 24.78 | 15.28 | 29.17 | 25.94 | 16.07 |
| Movement LOS | A | A | A | A | A | A | D | C | C | D | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.65 | 0.65 | 0.65 | 1.02 | 1.02 | 1.02 |
| 95th-Percentile Queue Length [ft/ln] | 1.33 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 | 16.30 | 16.30 | 16.30 | 25.53 | 25.53 | 25.53 |
| d_A, Approach Delay [s/veh] | 0.31 | | | 0.16 | | | 26.77 | | | 24.62 | | |
| Approach LOS | A | | | A | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 2.53 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.784 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 254 | 278 | 158 | 32 | 394 | 24 | 13 | 355 | 125 | 96 | 403 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 254 | 278 | 158 | 32 | 394 | 24 | 13 | 355 | 125 | 96 | 403 | 19 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 76 | 43 | 9 | 107 | 7 | 4 | 96 | 34 | 26 | 110 | 5 |
| Total Analysis Volume [veh/h] | 276 | 302 | 172 | 35 | 428 | 26 | 14 | 386 | 136 | 104 | 438 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 31 | 31 | 2 | 20 | 1 | 14 | 14 | 5 | 19 |
| g / C, Green / Cycle | 0.18 | 0.45 | 0.45 | 0.03 | 0.30 | 0.01 | 0.21 | 0.21 | 0.08 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.16 | 0.11 | 0.02 | 0.24 | 0.01 | 0.14 | 0.15 | 0.06 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1882 | 1595 | 1810 | 1873 | 1810 | 1900 | 1720 | 1810 | 1885 |
| c, Capacity [veh/h] | 327 | 846 | 717 | 52 | 558 | 25 | 403 | 365 | 137 | 516 |
| d1, Uniform Delay [s] | 27.08 | 12.32 | 11.58 | 32.88 | 22.23 | 33.50 | 24.74 | 24.85 | 30.99 | 23.83 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.04 | 0.08 | 0.08 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.33 | 0.36 | 0.24 | 5.63 | 4.44 | 7.18 | 1.45 | 1.73 | 3.28 | 8.54 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.84 | 0.36 | 0.24 | 0.68 | 0.81 | 0.56 | 0.67 | 0.69 | 0.76 | 0.89 |
| d, Delay for Lane Group [s/veh] | 29.41 | 12.68 | 11.82 | 38.51 | 26.68 | 40.68 | 26.19 | 26.58 | 34.27 | 32.36 |
| Lane Group LOS | C | B | B | D | C | D | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.11 | 2.55 | 1.37 | 0.63 | 6.93 | 0.26 | 3.75 | 3.52 | 1.66 | 7.41 |
| 50th-Percentile Queue Length [ft/ln] | 102.66 | 63.84 | 34.23 | 15.86 | 173.27 | 6.57 | 93.67 | 88.03 | 41.59 | 185.23 |
| 95th-Percentile Queue Length [veh/ln] | 7.39 | 4.60 | 2.46 | 1.14 | 11.25 | 0.47 | 6.74 | 6.34 | 2.99 | 11.87 |
| 95th-Percentile Queue Length [ft/ln] | 184.79 | 114.91 | 61.62 | 28.56 | 281.21 | 11.83 | 168.61 | 158.45 | 74.86 | 296.83 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.41 | 12.68 | 11.82 | 38.51 | 26.68 | 26.68 | 40.68 | 26.31 | 26.58 | 34.27 | 32.36 | 32.36 |
| Movement LOS | C | B | B | D | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 18.64 | | | 27.52 | | | 26.75 | | | 32.71 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.75 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.784 | | | | | | | | | | | |

**Emissions**

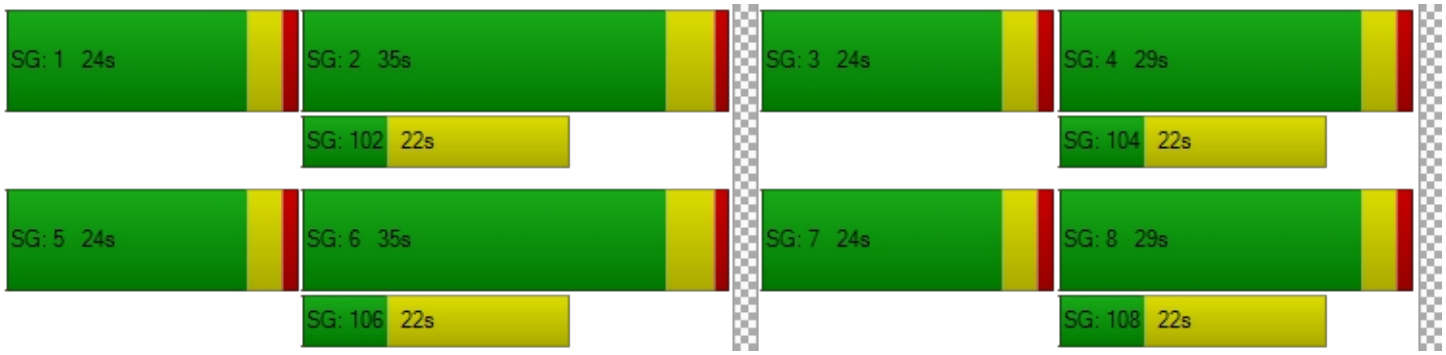
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 137.67 | 150.64 | 85.80 | 17.53 | 227.38 | 6.98 | 134.96 | 125.40 | 104.17 | 459.75 |
| Stops [stops/h] | 216.81 | 134.82 | 72.30 | 33.50 | 365.92 | 13.88 | 197.82 | 185.91 | 87.83 | 391.18 |
| Fuel consumption [US gal/h] | 9.07 | 7.62 | 4.25 | 1.18 | 13.85 | 0.53 | 8.53 | 7.97 | 5.39 | 23.65 |
| CO [g/h] | 633.75 | 532.60 | 297.33 | 82.55 | 967.88 | 36.90 | 596.09 | 557.11 | 376.62 | 1652.83 |
| NOx [g/h] | 123.30 | 103.63 | 57.85 | 16.06 | 188.32 | 7.18 | 115.98 | 108.39 | 73.28 | 321.58 |
| VOC [g/h] | 146.88 | 123.44 | 68.91 | 19.13 | 224.32 | 8.55 | 138.15 | 129.12 | 87.29 | 383.06 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.98 | 23.98 | 23.98 | 23.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.699 | 2.193 | 2.658 | 2.538 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 880 | 880 | 733 | 733 |
| d_b, Bicycle Delay [s] | 10.70 | 10.70 | 13.68 | 13.68 |
| l_b,int, Bicycle LOS Score for Intersection | 2.797 | 2.366 | 2.002 | 2.489 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.608 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 721 | 103 | 27 | 655 | 31 | 25 | 338 | 148 | 32 | 263 | 61 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 152 | 721 | 103 | 27 | 655 | 31 | 25 | 338 | 148 | 32 | 263 | 61 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 188 | 27 | 7 | 171 | 8 | 7 | 88 | 39 | 8 | 68 | 16 |
| Total Analysis Volume [veh/h] | 158 | 751 | 107 | 28 | 682 | 32 | 26 | 352 | 154 | 33 | 274 | 64 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 3 | 15 | 15 | 3 | 15 | 15 | 4 | 15 | 15 |
| g / C, Green / Cycle | 0.14 | 0.35 | 0.35 | 0.06 | 0.26 | 0.26 | 0.05 | 0.26 | 0.26 | 0.06 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.21 | 0.07 | 0.02 | 0.19 | 0.02 | 0.01 | 0.19 | 0.10 | 0.02 | 0.08 | 0.04 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1608 | 1810 | 3595 | 1594 | 1810 | 1888 | 1598 | 1810 | 3618 | 1592 |
| c, Capacity [veh/h] | 256 | 1251 | 559 | 104 | 942 | 418 | 98 | 483 | 409 | 118 | 965 | 425 |
| d1, Uniform Delay [s] | 23.50 | 15.68 | 13.29 | 26.34 | 19.61 | 16.21 | 26.49 | 19.86 | 17.88 | 25.98 | 16.97 | 16.33 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.42 | 0.47 | 0.16 | 1.38 | 1.07 | 0.08 | 1.44 | 2.13 | 0.57 | 1.29 | 0.16 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.62 | 0.60 | 0.19 | 0.27 | 0.72 | 0.08 | 0.27 | 0.73 | 0.38 | 0.28 | 0.28 | 0.15 |
| d, Delay for Lane Group [s/veh] | 25.92 | 16.15 | 13.46 | 27.72 | 20.68 | 16.29 | 27.93 | 21.99 | 18.45 | 27.27 | 17.13 | 16.49 |
| Lane Group LOS | C | B | B | C | C | B | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.95 | 3.39 | 0.82 | 0.39 | 3.94 | 0.30 | 0.37 | 4.24 | 1.62 | 0.43 | 1.25 | 0.57 |
| 50th-Percentile Queue Length [ft/ln] | 48.78 | 84.65 | 20.59 | 9.77 | 98.60 | 7.60 | 9.15 | 105.98 | 40.56 | 10.74 | 31.22 | 14.27 |
| 95th-Percentile Queue Length [veh/ln] | 3.51 | 6.10 | 1.48 | 0.70 | 7.10 | 0.55 | 0.66 | 7.62 | 2.92 | 0.77 | 2.25 | 1.03 |
| 95th-Percentile Queue Length [ft/ln] | 87.80 | 152.38 | 37.06 | 17.59 | 177.48 | 13.68 | 16.47 | 190.40 | 73.01 | 19.34 | 56.20 | 25.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.92 | 16.15 | 13.46 | 27.72 | 20.68 | 16.29 | 27.93 | 21.99 | 18.45 | 27.27 | 17.13 | 16.49 |
| Movement LOS | C | B | B | C | C | B | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 17.39 | | | 20.76 | | | 21.25 | | | 17.92 | | |
| Approach LOS | B | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.17 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.608 | | | | | | | | | | | |

**Emissions**

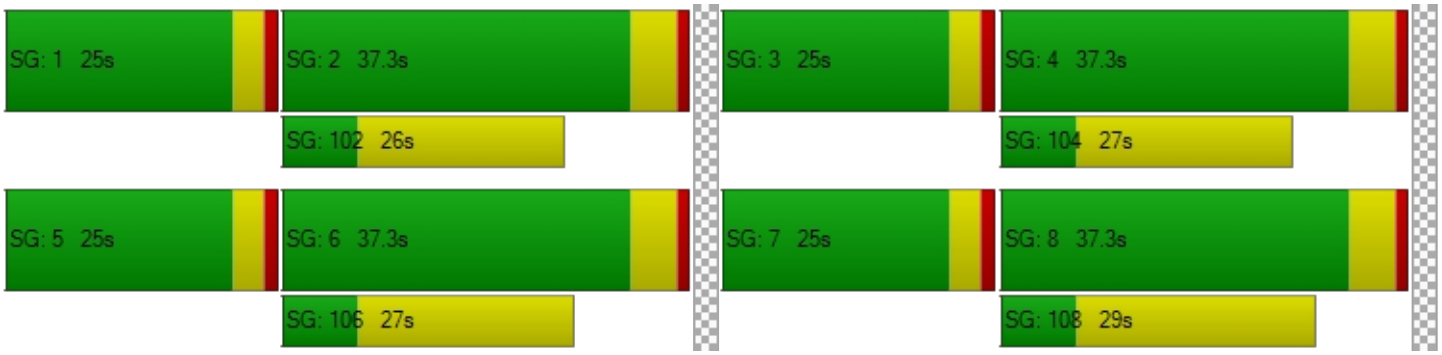
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 31.58 | 150.12 | 21.39 | 13.97 | 340.19 | 15.96 | 12.81 | 173.46 | 75.89 | 3.41 | 28.29 | 6.61 |
| Stops [stops/h] | 120.86 | 419.49 | 51.02 | 24.21 | 488.62 | 18.83 | 22.67 | 262.59 | 100.50 | 26.62 | 154.71 | 35.37 |
| Fuel consumption [US gal/h] | 3.42 | 12.83 | 1.66 | 0.87 | 19.57 | 0.87 | 0.80 | 10.17 | 4.26 | 0.63 | 3.85 | 0.88 |
| CO [g/h] | 238.97 | 896.81 | 116.07 | 60.58 | 1368.26 | 60.62 | 55.95 | 710.63 | 297.61 | 44.10 | 269.01 | 61.59 |
| NOx [g/h] | 46.49 | 174.49 | 22.58 | 11.79 | 266.21 | 11.79 | 10.89 | 138.26 | 57.90 | 8.58 | 52.34 | 11.98 |
| VOC [g/h] | 55.38 | 207.84 | 26.90 | 14.04 | 317.11 | 14.05 | 12.97 | 164.70 | 68.97 | 10.22 | 62.35 | 14.27 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.10 | 19.10 | 19.10 | 19.10 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.888 | 2.686 | 2.470 | 2.526 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1101 | 1101 | 1101 | 1101 |
| d_b, Bicycle Delay [s] | 5.87 | 5.87 | 5.87 | 5.87 |
| l_b,int, Bicycle LOS Score for Intersection | 2.398 | 2.172 | 2.437 | 1.866 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.572 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 497 | 1001 | 0 | 0 | 501 | 300 | 0 | 0 | 0 | 127 | 0 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 497 | 1001 | 0 | 0 | 501 | 300 | 0 | 0 | 0 | 127 | 0 | 12 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 132 | 266 | 0 | 0 | 133 | 80 | 0 | 0 | 0 | 34 | 0 | 3 |
| Total Analysis Volume [veh/h] | 529 | 1065 | 0 | 0 | 533 | 319 | 0 | 0 | 0 | 135 | 0 | 13 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 59 | 59 | 59 | 59 | | 59 | 59 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 11 | 39 | 22 | 22 | | 7 | 7 |
| g / C, Green / Cycle | 0.19 | 0.66 | 0.37 | 0.37 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.30 | 0.23 | 0.26 | | 0.08 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1646 | | 1787 | 1615 |
| c, Capacity [veh/h] | 676 | 2361 | 692 | 605 | | 220 | 199 |
| d1, Uniform Delay [s] | 22.81 | 4.98 | 15.38 | 16.05 | | 24.74 | 23.06 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.77 | 0.25 | 1.66 | 2.79 | | 5.82 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.45 | 0.62 | 0.70 | | 0.61 | 0.07 |
| d, Delay for Lane Group [s/veh] | 23.58 | 5.23 | 17.04 | 18.85 | | 30.56 | 23.35 |
| Lane Group LOS | C | A | B | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.11 | 1.68 | 4.10 | 4.42 | | 1.88 | 0.15 |
| 50th-Percentile Queue Length [ft/ln] | 77.77 | 41.91 | 102.61 | 110.52 | | 47.03 | 3.83 |
| 95th-Percentile Queue Length [veh/ln] | 5.60 | 3.02 | 7.39 | 7.87 | | 3.39 | 0.28 |
| 95th-Percentile Queue Length [ft/ln] | 139.99 | 75.44 | 184.69 | 196.73 | | 84.65 | 6.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.58 | 5.23 | 0.00 | 0.00 | 17.40 | 18.85 | 0.00 | 0.00 | 0.00 | 30.56 | 0.00 | 23.35 |
| Movement LOS | C | A | | | B | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 11.32 | | | 17.94 | | | 0.00 | | | 29.93 | | |
| Approach LOS | B | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 14.56 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.572 | | | | | | | | | | | |

**Emissions**

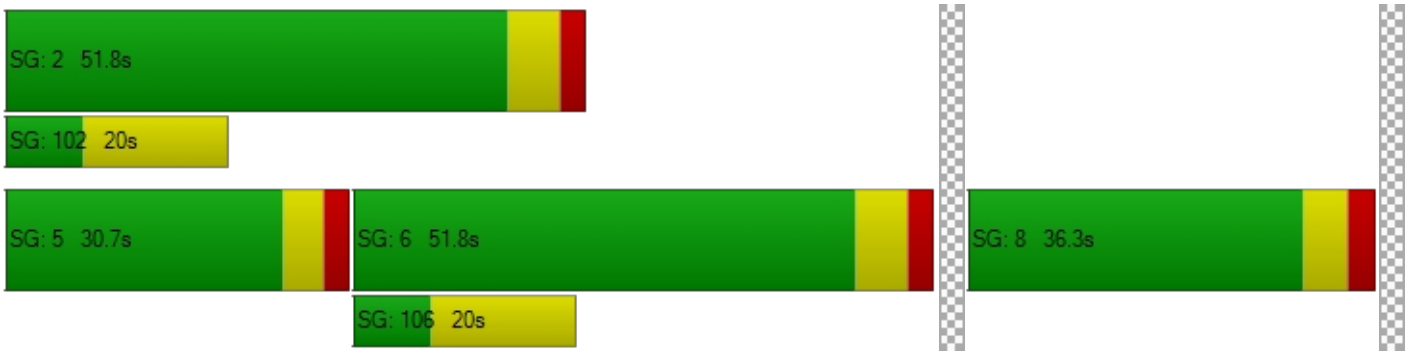
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 57.18 | 115.13 | 85.15 | 85.15 | | 11.60 | 1.12 |
| Stops [stops/h] | 377.05 | 203.19 | 248.72 | 267.91 | | 114.00 | 9.28 |
| Fuel consumption [US gal/h] | 9.19 | 7.61 | 7.49 | 7.88 | | 3.35 | 0.27 |
| CO [g/h] | 642.13 | 531.75 | 523.44 | 551.08 | | 233.83 | 18.98 |
| NOx [g/h] | 124.94 | 103.46 | 101.84 | 107.22 | | 45.49 | 3.69 |
| VOC [g/h] | 148.82 | 123.24 | 121.31 | 127.72 | | 54.19 | 4.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.06 | 27.06 | 19.72 | 19.72 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.994 | 2.826 | 2.105 | 1.824 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1515 | 1515 | 0 | 1010 |
| d_b, Bicycle Delay [s] | 1.75 | 1.75 | 29.70 | 7.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.875 | 2.263 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.752 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 929 | 301 | 20 | 610 | 0 | 576 | 0 | 467 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 929 | 301 | 20 | 610 | 0 | 576 | 0 | 467 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 242 | 78 | 5 | 159 | 0 | 150 | 0 | 122 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 968 | 314 | 21 | 635 | 0 | 600 | 0 | 486 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 3 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.03 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.34 | 0.37 | 0.01 | 0.18 | 0.17 | 0.30 | |
| s, saturation flow rate [veh/h] | 1889 | 1739 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 922 | 849 | 48 | 2040 | 1037 | 478 | |
| d1, Uniform Delay [s] | 19.81 | 20.73 | 47.83 | 11.10 | 29.73 | 35.06 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.44 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.31 | 6.19 | 2.33 | 0.40 | 1.09 | 43.02 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.69 | 0.76 | 0.44 | 0.31 | 0.58 | 1.02 | |
| d, Delay for Lane Group [s/veh] | 24.12 | 26.91 | 50.16 | 11.50 | 30.82 | 78.08 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 11.65 | 12.49 | 0.53 | 3.32 | 5.76 | 16.23 | |
| 50th-Percentile Queue Length [ft/ln] | 291.21 | 312.32 | 13.24 | 83.08 | 144.00 | 405.87 | |
| 95th-Percentile Queue Length [veh/ln] | 17.25 | 18.29 | 0.95 | 5.98 | 9.70 | 23.09 | |
| 95th-Percentile Queue Length [ft/ln] | 431.14 | 457.23 | 23.83 | 149.55 | 242.40 | 577.21 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 25.06 | 26.91 | 50.16 | 11.50 | 0.00 | 30.82 | 0.00 | 78.08 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 25.51 | | | 12.74 | | | 51.97 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 32.24 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.752 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.54 | 42.54 | 2.27 | 68.64 | 71.31 | 57.76 | |
| Stops [stops/h] | 419.52 | 449.93 | 19.07 | 239.39 | 414.91 | 584.71 | |
| Fuel consumption [US gal/h] | 8.79 | 9.45 | 0.53 | 6.82 | 13.86 | 20.51 | |
| CO [g/h] | 614.47 | 660.85 | 37.00 | 476.41 | 968.50 | 1433.94 | |
| NOx [g/h] | 119.55 | 128.58 | 7.20 | 92.69 | 188.44 | 278.99 | |
| VOC [g/h] | 142.41 | 153.16 | 8.57 | 110.41 | 224.46 | 332.33 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.898 | 2.936 | 2.592 | 1.883 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.617 | 2.101 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.032 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 4 | 469 | 4 | 2 | 311 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 4 | 469 | 4 | 2 | 311 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 156 | 1 | 1 | 104 |
| Total Analysis Volume [veh/h] | 8 | 5 | 625 | 5 | 3 | 415 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 19.96 | 13.01 | 0.00 | 0.00 | 8.80 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.13 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 3.32 | 3.32 | 0.00 | 0.00 | 0.13 | 0.13 |
| d_A, Approach Delay [s/veh] | 17.28 | | 0.00 | | 0.06 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.24 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.002 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 1 | 13 | 15 | 230 | 297 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 13 | 15 | 230 | 297 | 3 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 4 | 4 | 63 | 82 | 1 |
| Total Analysis Volume [veh/h] | 1 | 14 | 16 | 253 | 326 | 3 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.16 | 9.28 | 7.97 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.40 | 1.40 | 0.99 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.47 | | 0.47 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.44 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.086 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 12 | 225 | 62 | 12 | 279 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 12 | 225 | 62 | 12 | 279 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 3 | 59 | 16 | 3 | 73 |
| Total Analysis Volume [veh/h] | 49 | 13 | 237 | 65 | 13 | 294 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.97 | 9.57 | 0.00 | 0.00 | 7.86 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.33 | 0.33 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.32 | 8.32 | 0.00 | 0.00 | 0.78 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.47 | | 0.00 | | 0.33 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.21 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.784 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 221 | 354 | 47 | 40 | 276 | 63 | 109 | 170 | 31 | 144 | 85 | 109 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 221 | 354 | 47 | 40 | 276 | 63 | 109 | 170 | 31 | 144 | 85 | 109 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 58 | 93 | 12 | 11 | 73 | 17 | 29 | 45 | 8 | 38 | 22 | 29 |
| Total Analysis Volume [veh/h] | 233 | 373 | 49 | 42 | 291 | 66 | 115 | 179 | 33 | 152 | 89 | 115 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 40 | 40 | 27 | 27 | 10 | 16 | 16 | 13 | 19 |
| g / C, Green / Cycle | 0.36 | 0.36 | 0.24 | 0.24 | 0.09 | 0.14 | 0.14 | 0.12 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.03 | 0.02 | 0.19 | 0.06 | 0.05 | 0.02 | 0.09 | 0.12 |
| s, saturation flow rate [veh/h] | 1864 | 1615 | 1810 | 1840 | 1810 | 3600 | 1587 | 1659 | 1723 |
| c, Capacity [veh/h] | 667 | 578 | 435 | 443 | 159 | 516 | 228 | 194 | 297 |
| d1, Uniform Delay [s] | 34.58 | 24.07 | 33.41 | 40.49 | 50.31 | 43.71 | 42.40 | 48.61 | 43.97 |
| k, delay calibration | 0.39 | 0.04 | 0.23 | 0.33 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 15.11 | 0.02 | 0.20 | 10.06 | 2.35 | 0.85 | 0.62 | 2.64 | 5.90 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.91 | 0.08 | 0.10 | 0.81 | 0.72 | 0.35 | 0.14 | 0.78 | 0.69 |
| d, Delay for Lane Group [s/veh] | 49.69 | 24.09 | 33.62 | 50.55 | 52.66 | 44.56 | 43.02 | 51.25 | 49.87 |
| Lane Group LOS | D | C | C | D | D | D | D | D | D |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 18.31 | 0.88 | 0.93 | 10.52 | 3.15 | 2.24 | 0.82 | 4.15 | 5.62 |
| 50th-Percentile Queue Length [ft/ln] | 457.81 | 21.92 | 23.14 | 262.94 | 78.87 | 55.91 | 20.43 | 103.68 | 140.50 |
| 95th-Percentile Queue Length [veh/ln] | 25.33 | 1.58 | 1.67 | 15.84 | 5.68 | 4.03 | 1.47 | 7.46 | 9.51 |
| 95th-Percentile Queue Length [ft/ln] | 633.26 | 39.45 | 41.65 | 395.90 | 141.96 | 100.64 | 36.77 | 186.62 | 237.70 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.69 | 49.69 | 24.09 | 33.62 | 50.55 | 50.55 | 52.66 | 44.56 | 43.02 | 51.25 | 49.87 | 49.87 |
| Movement LOS | D | D | C | C | D | D | D | D | D | D | D | D |
| d_A, Approach Delay [s/veh] | 47.78 | | | 48.77 | | | 47.25 | | | 50.46 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 48.46 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.784 | | | | | | | | | | | |

**Emissions**

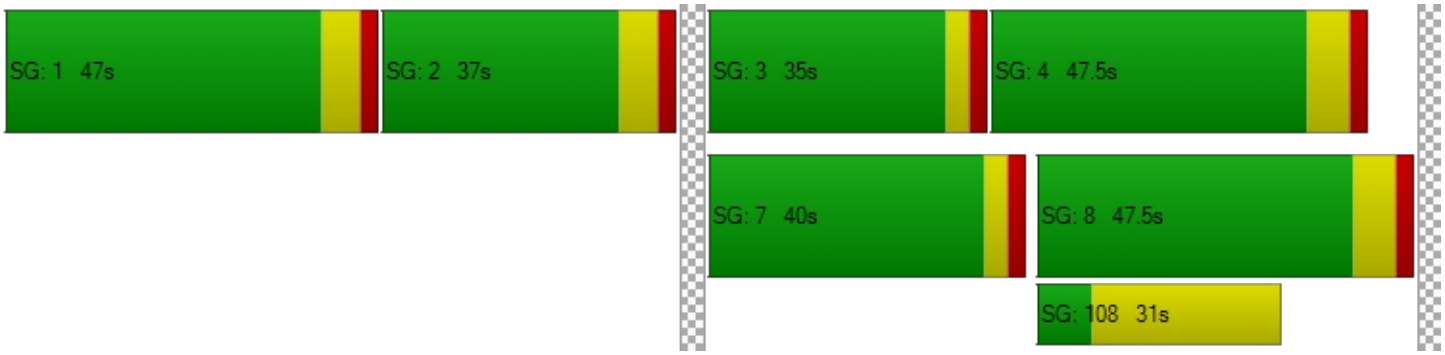
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 603.84 | 48.83 | 1.18 | 10.05 | 42.41 | 66.01 | 12.17 | 76.79 | 103.07 |
| Stops [stops/h] | 583.40 | 27.93 | 29.49 | 335.07 | 100.50 | 142.49 | 26.03 | 132.12 | 179.05 |
| Fuel consumption [US gal/h] | 34.21 | 2.40 | 0.50 | 5.94 | 4.20 | 6.02 | 1.10 | 6.18 | 8.27 |
| CO [g/h] | 2391.20 | 168.07 | 34.87 | 414.98 | 293.24 | 420.85 | 76.61 | 432.33 | 578.07 |
| NOx [g/h] | 465.24 | 32.70 | 6.78 | 80.74 | 57.05 | 81.88 | 14.91 | 84.12 | 112.47 |
| VOC [g/h] | 554.18 | 38.95 | 8.08 | 96.18 | 67.96 | 97.54 | 17.76 | 100.20 | 133.97 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.04 | 50.19 | 49.72 | 49.72 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.418 | 2.280 | 2.546 | 2.399 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 708 | 531 | 708 | 708 |
| d_b, Bicycle Delay [s] | 23.58 | 30.48 | 23.60 | 23.58 |
| l_b,int, Bicycle LOS Score for Intersection | 2.640 | 2.218 | 1.829 | 2.147 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.600 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 155 | 602 | 183 | 9 | 427 | 88 | 295 | 232 | 39 | 84 | 109 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 155 | 602 | 183 | 9 | 427 | 88 | 295 | 232 | 39 | 84 | 109 | 4 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 167 | 51 | 3 | 119 | 24 | 82 | 64 | 11 | 23 | 30 | 1 |
| Total Analysis Volume [veh/h] | 172 | 669 | 203 | 10 | 474 | 98 | 328 | 258 | 43 | 93 | 121 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 1 | 13 | 13 | 12 | 14 | 14 | 7 | 8 | 8 |
| g / C, Green / Cycle | 0.15 | 0.34 | 0.34 | 0.02 | 0.22 | 0.22 | 0.22 | 0.24 | 0.24 | 0.12 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.19 | 0.13 | 0.01 | 0.13 | 0.06 | 0.18 | 0.14 | 0.03 | 0.05 | 0.06 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1810 | 1867 | 1615 |
| c, Capacity [veh/h] | 262 | 1237 | 550 | 43 | 791 | 356 | 387 | 445 | 380 | 219 | 266 | 230 |
| d1, Uniform Delay [s] | 23.42 | 15.40 | 14.36 | 27.84 | 20.33 | 18.79 | 21.86 | 19.59 | 17.37 | 23.63 | 22.83 | 21.40 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.04 | 0.49 | 0.55 | 1.04 | 0.97 | 0.55 | 2.03 | 1.49 | 0.16 | 0.48 | 1.51 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.66 | 0.54 | 0.37 | 0.23 | 0.60 | 0.28 | 0.85 | 0.58 | 0.11 | 0.42 | 0.45 | 0.02 |
| d, Delay for Lane Group [s/veh] | 24.46 | 15.89 | 14.91 | 28.87 | 21.31 | 19.34 | 23.89 | 21.08 | 17.53 | 24.11 | 24.34 | 21.44 |
| Lane Group LOS | C | B | B | C | C | B | C | C | B | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.97 | 2.87 | 1.66 | 0.13 | 2.50 | 0.97 | 4.13 | 2.99 | 0.43 | 1.07 | 1.44 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 49.18 | 71.73 | 41.51 | 3.30 | 62.43 | 24.20 | 103.23 | 74.85 | 10.81 | 26.65 | 35.88 | 1.08 |
| 95th-Percentile Queue Length [veh/ln] | 3.54 | 5.16 | 2.99 | 0.24 | 4.50 | 1.74 | 7.43 | 5.39 | 0.78 | 1.92 | 2.58 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 88.53 | 129.11 | 74.72 | 5.95 | 112.38 | 43.56 | 185.81 | 134.73 | 19.46 | 47.96 | 64.58 | 1.95 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.46 | 15.89 | 14.91 | 28.87 | 21.31 | 19.34 | 23.89 | 21.08 | 17.53 | 24.11 | 24.34 | 21.44 |
| Movement LOS | C | B | B | C | C | B | C | C | B | C | C | C |
| d_A, Approach Delay [s/veh] | 17.11 | | | 21.11 | | | 22.30 | | | 24.19 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.00 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.600 | | | | | | | | | | | |

**Emissions**

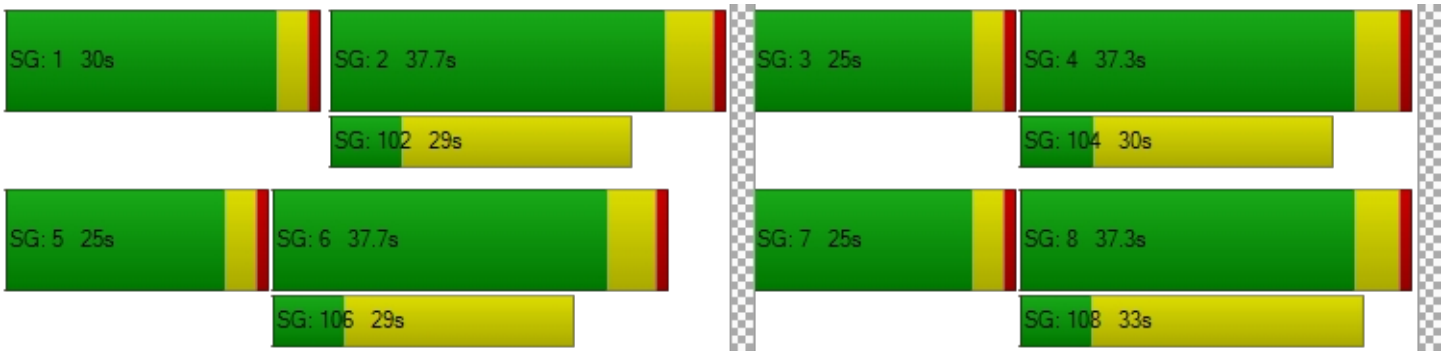
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 78.73 | 306.23 | 92.92 | 9.96 | 472.31 | 97.65 | 328.53 | 258.42 | 43.07 | 46.65 | 60.69 | 2.01 |
| Stops [stops/h] | 122.30 | 356.72 | 103.22 | 8.21 | 310.50 | 60.18 | 256.70 | 186.13 | 26.88 | 66.26 | 89.22 | 2.70 |
| Fuel consumption [US gal/h] | 5.37 | 17.89 | 5.31 | 0.52 | 22.64 | 4.58 | 16.54 | 12.77 | 2.07 | 2.88 | 3.79 | 0.12 |
| CO [g/h] | 375.38 | 1250.82 | 371.34 | 36.24 | 1582.44 | 320.12 | 1155.96 | 892.85 | 145.04 | 201.26 | 264.85 | 8.37 |
| NOx [g/h] | 73.04 | 243.36 | 72.25 | 7.05 | 307.89 | 62.28 | 224.91 | 173.72 | 28.22 | 39.16 | 51.53 | 1.63 |
| VOC [g/h] | 87.00 | 289.89 | 86.06 | 8.40 | 366.75 | 74.19 | 267.91 | 206.93 | 33.61 | 46.64 | 61.38 | 1.94 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.00 | 19.00 | 19.00 | 19.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.876 | 2.857 | 2.355 | 2.358 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1105 | 1105 | 1105 | 1105 |
| d_b, Bicycle Delay [s] | 5.80 | 5.80 | 5.80 | 5.80 |
| l_b,int, Bicycle LOS Score for Intersection | 2.421 | 2.040 | 2.597 | 1.919 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 203 | 825 | 197 | 65 | 505 | 41 | 80 | 54 | 253 | 161 | 48 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 203 | 825 | 197 | 65 | 505 | 41 | 80 | 54 | 253 | 161 | 48 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 222 | 53 | 17 | 136 | 11 | 22 | 15 | 68 | 43 | 13 | 23 |
| Total Analysis Volume [veh/h] | 218 | 887 | 212 | 70 | 543 | 44 | 86 | 58 | 272 | 173 | 52 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 220 | | | 453 | | | 805 | | | 1199 | | |
| Exiting Flow Rate [veh/h] | 1010 | | | 1074 | | | 316 | | | 350 | | |
| Demand Flow Rate [veh/h] | 203 | 825 | 197 | 65 | 505 | 41 | 80 | 54 | 253 | 161 | 48 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 218 | 887 | 212 | 70 | 543 | 44 | 86 | 58 | 272 | 173 | 52 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.97 |
| Entry Flow Rate [veh/h] | 623 | 706 | 315 | 354 | 148 | 278 | 176 | 154 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1163 | 1163 | 891 | 967 | 645 | 717 | 448 | 513 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1155 | 1150 | 875 | 953 | 627 | 703 | 430 | 496 |
| X, volume / capacity | 0.54 | 0.61 | 0.35 | 0.37 | 0.23 | 0.39 | 0.39 | 0.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | B | A | A | A | B | C | B |
| 95th-Percentile Queue Length [veh] | 3.30 | 4.31 | 1.60 | 1.69 | 0.88 | 1.83 | 1.83 | 1.25 |
| 95th-Percentile Queue Length [ft] | 82.61 | 107.83 | 40.04 | 42.28 | 22.04 | 45.83 | 45.65 | 31.32 |
| Approach Delay [s/veh] | 10.16 | | 7.93 | | 9.68 | | 13.85 | |
| Approach LOS | B | | A | | A | | B | |
| Intersection Delay [s/veh] | 9.98 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.452 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1150 | 870 | 0 | 510 | 373 | 0 | 0 | 0 | 51 | 0 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1150 | 870 | 0 | 510 | 373 | 0 | 0 | 0 | 51 | 0 | 24 |
| Peak Hour Factor | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 1.0000 | 1.0000 | 0.8900 | 1.0000 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 323 | 244 | 0 | 143 | 105 | 0 | 0 | 0 | 14 | 0 | 7 |
| Total Analysis Volume [veh/h] | 0 | 1292 | 978 | 0 | 573 | 419 | 0 | 0 | 0 | 57 | 0 | 27 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 45 | 45 | 45 | | 45 | 45 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 27 | 27 | 27 | | 5 | 5 |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.60 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.16 | 0.26 | | 0.03 | 0.02 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 2154 | 2147 | 961 | | 209 | 190 |
| d1, Uniform Delay [s] | 5.62 | 4.29 | 4.88 | | 18.03 | 17.75 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.50 | 0.12 | 0.58 | | 1.48 | 0.73 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.60 | 0.27 | 0.44 | | 0.27 | 0.14 |
| d, Delay for Lane Group [s/veh] | 6.13 | 4.41 | 5.46 | | 19.51 | 18.47 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.58 | 0.52 | 0.96 | | 0.50 | 0.23 |
| 50th-Percentile Queue Length [ft/ln] | 39.45 | 12.98 | 23.95 | | 12.38 | 5.73 |
| 95th-Percentile Queue Length [veh/ln] | 2.84 | 0.93 | 1.72 | | 0.89 | 0.41 |
| 95th-Percentile Queue Length [ft/ln] | 71.02 | 23.37 | 43.11 | | 22.29 | 10.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.13 | 0.00 | 0.00 | 4.41 | 5.46 | 0.00 | 0.00 | 0.00 | 19.51 | 0.00 | 18.47 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.66 | | | 4.85 | | | 0.00 | | | 19.18 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.71 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.452 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 147.79 | 56.53 | 41.34 | | 4.03 | 1.91 |
| Stops [stops/h] | 254.10 | 83.63 | 77.13 | | 39.88 | 18.44 |
| Fuel consumption [US gal/h] | 9.84 | 3.49 | 2.84 | | 1.10 | 0.51 |
| CO [g/h] | 687.58 | 244.09 | 198.60 | | 77.02 | 35.50 |
| NOx [g/h] | 133.78 | 47.49 | 38.64 | | 14.99 | 6.91 |
| VOC [g/h] | 159.35 | 56.57 | 46.03 | | 17.85 | 8.23 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.37 | 19.37 | 12.71 | 12.71 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.838 | 2.952 | 1.878 | 1.950 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1565 | 1565 | 0 | 895 |
| d_b, Bicycle Delay [s] | 1.06 | 1.06 | 22.36 | 6.83 |
| l_b,int, Bicycle LOS Score for Intersection | 2.626 | 2.378 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 56.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.887 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1446 | 81 | 27 | 557 | 0 | 546 | 0 | 764 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1446 | 81 | 27 | 557 | 0 | 546 | 0 | 764 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 402 | 23 | 8 | 155 | 0 | 152 | 0 | 212 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1607 | 90 | 30 | 619 | 0 | 607 | 0 | 849 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 104 | 104 | 104 | 104 | 104 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 4 | 54 | 38 | |
| g / C, Green / Cycle | 0.43 | 0.43 | 0.03 | 0.52 | 0.36 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.45 | 0.46 | 0.02 | 0.17 | 0.34 | |
| s, saturation flow rate [veh/h] | 1892 | 1858 | 1810 | 3595 | 1801 | |
| c, Capacity [veh/h] | 816 | 801 | 61 | 1869 | 649 | |
| d1, Uniform Delay [s] | 29.67 | 29.67 | 49.51 | 14.53 | 32.20 | |
| k, delay calibration | 0.46 | 0.47 | 0.04 | 0.19 | 0.40 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 41.06 | 47.82 | 2.22 | 0.18 | 19.14 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 1.04 | 1.06 | 0.49 | 0.33 | 0.94 | |
| d, Delay for Lane Group [s/veh] | 70.74 | 77.49 | 51.73 | 14.71 | 51.34 | |
| Lane Group LOS | F | F | D | B | D | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 27.81 | 28.80 | 0.78 | 3.91 | 16.74 | |
| 50th-Percentile Queue Length [ft/ln] | 695.34 | 720.09 | 19.57 | 97.78 | 418.40 | |
| 95th-Percentile Queue Length [veh/ln] | 37.55 | 39.25 | 1.41 | 7.04 | 23.45 | |
| 95th-Percentile Queue Length [ft/ln] | 938.67 | 981.26 | 35.22 | 176.01 | 586.13 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 73.92 | 77.49 | 51.73 | 14.71 | 0.00 | 51.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | E | E | D | B | | D | | | | | |
| d_A, Approach Delay [s/veh] | 74.11 | | | 16.42 | | | 51.34 | | | 0.00 | | |
| Approach LOS | E | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 56.75 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.887 | | | | | | | | | | | |

**Emissions**

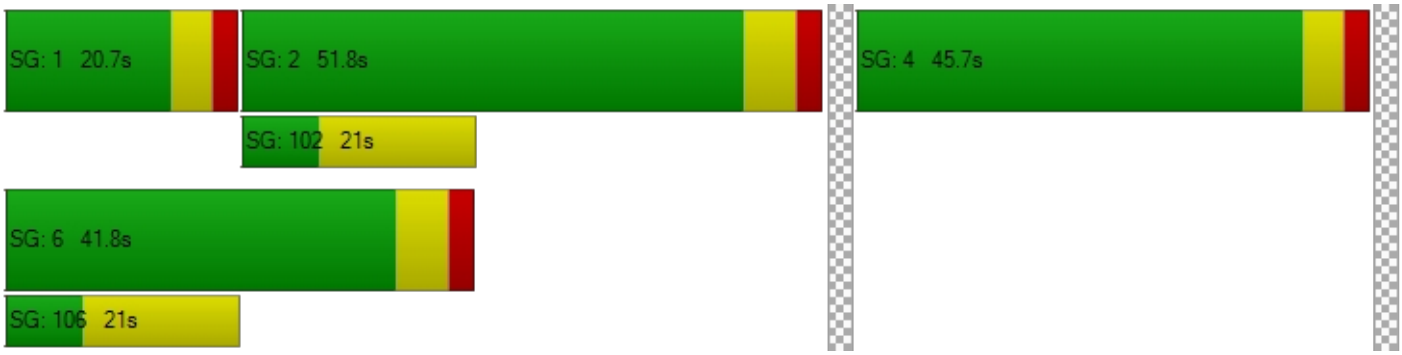
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 68.73 | 68.73 | 3.43 | 70.81 | 47.47 | |
| Stops [stops/h] | 960.48 | 994.67 | 27.03 | 270.13 | 577.93 | |
| Fuel consumption [US gal/h] | 26.51 | 28.10 | 0.77 | 7.64 | 18.66 | |
| CO [g/h] | 1853.08 | 1964.31 | 53.79 | 533.97 | 1304.59 | |
| NOx [g/h] | 360.54 | 382.18 | 10.46 | 103.89 | 253.83 | |
| VOC [g/h] | 429.47 | 455.25 | 12.47 | 123.75 | 302.35 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 52.12 | 52.12 | 41.71 | 41.71 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.994 | 3.167 | 2.264 | 1.780 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 863 | 671 | 767 | 0 |
| d_b, Bicycle Delay [s] | 16.84 | 23.00 | 19.80 | 52.12 |
| l_b,int, Bicycle LOS Score for Intersection | 2.960 | 2.095 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.615 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 227 | 20 | 27 | 64 | 8 | 47 | 31 | 194 | 33 | 16 | 204 | 201 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 227 | 20 | 27 | 64 | 8 | 47 | 31 | 194 | 33 | 16 | 204 | 201 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 66 | 6 | 8 | 19 | 2 | 14 | 9 | 56 | 10 | 5 | 59 | 58 |
| Total Analysis Volume [veh/h] | 264 | 23 | 31 | 74 | 9 | 55 | 36 | 226 | 38 | 19 | 237 | 234 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 10 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 12 | 3 | 10 | 2 | 13 | 13 | 1 | 12 | 12 |
| g / C, Green / Cycle | 0.15 | 0.27 | 0.07 | 0.23 | 0.04 | 0.28 | 0.28 | 0.02 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.02 | 0.06 | 0.04 | 0.02 | 0.07 | 0.03 | 0.01 | 0.07 | 0.16 |
| s, saturation flow rate [veh/h] | 1371 | 1454 | 1269 | 1485 | 1629 | 3243 | 1448 | 1629 | 3256 | 1454 |
| c, Capacity [veh/h] | 363 | 387 | 159 | 335 | 69 | 925 | 413 | 41 | 873 | 390 |
| d1, Uniform Delay [s] | 9.49 | 12.45 | 20.84 | 14.18 | 21.23 | 12.43 | 11.87 | 21.77 | 13.08 | 14.45 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.87 | 0.09 | 2.10 | 0.27 | 6.07 | 0.14 | 0.10 | 8.11 | 0.17 | 1.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.08 | 0.46 | 0.19 | 0.52 | 0.24 | 0.09 | 0.47 | 0.27 | 0.60 |
| d, Delay for Lane Group [s/veh] | 13.36 | 12.54 | 22.95 | 14.45 | 27.30 | 12.57 | 11.97 | 29.88 | 13.24 | 15.94 |
| Lane Group LOS | B | B | C | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.85 | 0.19 | 0.78 | 0.48 | 0.42 | 0.64 | 0.21 | 0.25 | 0.71 | 1.66 |
| 50th-Percentile Queue Length [ft/ln] | 46.22 | 4.68 | 19.60 | 12.00 | 10.44 | 16.10 | 5.30 | 6.33 | 17.66 | 41.48 |
| 95th-Percentile Queue Length [veh/ln] | 3.33 | 0.34 | 1.41 | 0.86 | 0.75 | 1.16 | 0.38 | 0.46 | 1.27 | 2.99 |
| 95th-Percentile Queue Length [ft/ln] | 83.20 | 8.42 | 35.28 | 21.60 | 18.79 | 28.97 | 9.55 | 11.40 | 31.79 | 74.66 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.36 | 13.36 | 12.54 | 22.95 | 14.45 | 14.45 | 27.30 | 12.57 | 11.97 | 29.88 | 13.24 | 15.94 |
| Movement LOS | B | B | B | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 13.28 | | | 19.01 | | | 14.26 | | | 15.18 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 14.90 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 2.615 | | | | | | | | | | | |

**Emissions**

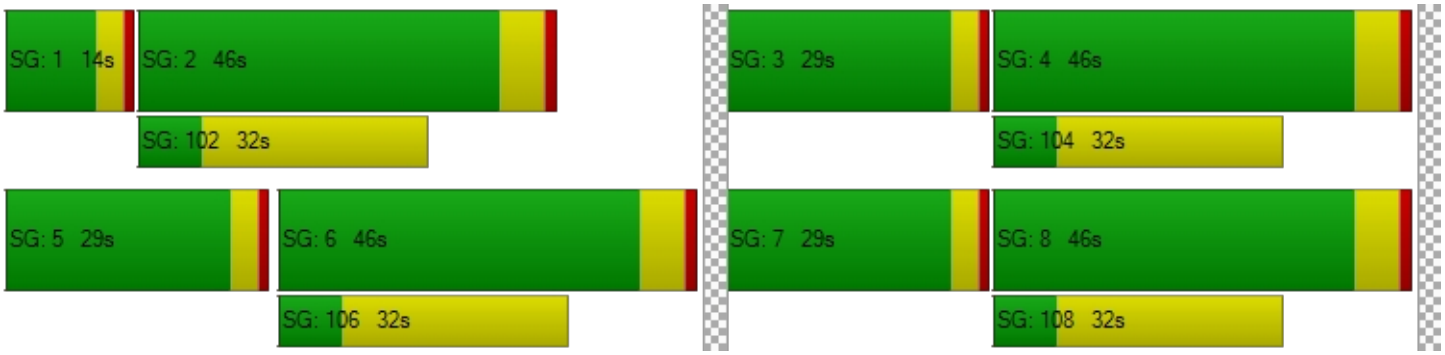
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 14.94 | 1.61 | 1.85 | 1.60 | 18.19 | 114.18 | 19.20 | 9.51 | 118.58 | 117.08 |
| Stops [stops/h] | 147.78 | 14.95 | 62.66 | 38.37 | 33.38 | 102.93 | 16.96 | 20.25 | 112.94 | 132.60 |
| Fuel consumption [US gal/h] | 3.13 | 0.32 | 0.77 | 0.47 | 1.32 | 5.98 | 1.00 | 0.74 | 6.34 | 6.72 |
| CO [g/h] | 218.75 | 22.39 | 53.67 | 32.58 | 92.38 | 418.12 | 69.61 | 52.06 | 443.41 | 469.41 |
| NOx [g/h] | 42.56 | 4.36 | 10.44 | 6.34 | 17.97 | 81.35 | 13.54 | 10.13 | 86.27 | 91.33 |
| VOC [g/h] | 50.70 | 5.19 | 12.44 | 7.55 | 21.41 | 96.90 | 16.13 | 12.07 | 102.76 | 108.79 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.86 | 12.86 | 12.86 | 12.86 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.087 | 2.040 | 2.862 | 2.740 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3064 | 1776 | 1776 | 1776 |
| d_b, Bicycle Delay [s] | 6.37 | 0.28 | 0.28 | 0.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.084 | 1.787 | 1.807 | 1.964 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.581 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 1 | 5 | 0 | 0 | 6 | 155 | 393 | 9 | 2 | 1 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 5 | 0 | 0 | 6 | 155 | 393 | 9 | 2 | 1 | 2 | 0 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 1 | 0 | 0 | 2 | 44 | 112 | 3 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 1 | 6 | 0 | 0 | 7 | 176 | 447 | 10 | 2 | 1 | 2 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 3 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 679 | 805 | 789 | 726 |
| Degree of Utilization, x | 0.01 | 0.23 | 0.58 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.03 | 0.87 | 3.81 | 0.01 |
| 95th-Percentile Queue Length [ft] | 0.78 | 21.82 | 95.32 | 0.31 |
| Approach Delay [s/veh] | 8.36 | 8.78 | 13.69 | 7.98 |
| Approach LOS | A | A | B | A |
| Intersection Delay [s/veh] | 12.23 | | | |
| Intersection LOS | B | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.450 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 207 | 4 | 0 | 147 | 106 | 4 | 256 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 207 | 4 | 0 | 147 | 106 | 4 | 256 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 66 | 1 | 0 | 47 | 34 | 1 | 81 |
| Total Analysis Volume [veh/h] | 262 | 5 | 0 | 186 | 134 | 5 | 324 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.00 | 0.31 | 0.31 | 0.01 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.00 | 0.00 | 0.05 | 0.08 | 0.00 | 0.17 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 1880 |
| c, Capacity [veh/h] | 508 | 454 | 1 | 1136 | 502 | 23 | 613 |
| d1, Uniform Delay [s] | 9.24 | 7.93 | 0.00 | 7.58 | 7.85 | 14.95 | 8.39 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.00 | 0.00 | 0.09 | 0.39 | 1.82 | 0.98 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.52 | 0.01 | 0.00 | 0.16 | 0.27 | 0.22 | 0.53 |
| d, Delay for Lane Group [s/veh] | 9.54 | 7.93 | 0.00 | 7.67 | 8.24 | 16.77 | 9.37 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.02 | 0.02 | 0.00 | 0.21 | 0.35 | 0.04 | 1.27 |
| 50th-Percentile Queue Length [ft/ln] | 25.56 | 0.41 | 0.00 | 5.29 | 8.70 | 0.97 | 31.77 |
| 95th-Percentile Queue Length [veh/ln] | 1.84 | 0.03 | 0.00 | 0.38 | 0.63 | 0.07 | 2.29 |
| 95th-Percentile Queue Length [ft/ln] | 46.00 | 0.74 | 0.00 | 9.52 | 15.66 | 1.75 | 57.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.54 | 7.93 | 0.00 | 7.67 | 8.24 | 16.77 | 9.37 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.51 | | 7.91 | | | 9.48 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.94 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.450 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 196.08 | 3.74 | 0.00 | 93.06 | 67.04 | 6.49 | 420.61 |
| Stops [stops/h] | 120.95 | 1.95 | 0.00 | 50.06 | 41.18 | 4.59 | 150.34 |
| Fuel consumption [US gal/h] | 9.25 | 0.17 | 0.00 | 4.18 | 3.10 | 0.31 | 18.76 |
| CO [g/h] | 646.51 | 12.09 | 0.00 | 291.86 | 216.82 | 21.64 | 1311.56 |
| NOx [g/h] | 125.79 | 2.35 | 0.00 | 56.79 | 42.19 | 4.21 | 255.18 |
| VOC [g/h] | 149.84 | 2.80 | 0.00 | 67.64 | 50.25 | 5.02 | 303.97 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.20 | 11.74 | 11.74 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.161 | 2.654 | 2.214 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1446 | 2103 | 2103 |
| d_b, Bicycle Delay [s] | 1.17 | 0.04 | 0.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.824 | 2.102 |
| Bicycle LOS | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 6.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 263 | 8 | 11 | 30 | 34 | 672 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 263 | 8 | 11 | 30 | 34 | 672 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 70 | 2 | 3 | 8 | 9 | 179 |
| Total Analysis Volume [veh/h] | 280 | 9 | 12 | 32 | 36 | 715 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 37 | | 280 | | 12 | |
| Exiting Flow Rate [veh/h] | 728 | | 46 | | 314 | |
| Demand Flow Rate [veh/h] | 263 | 8 | 11 | 30 | 34 | 672 |
| Adjusted Demand Flow Rate [veh/h] | 280 | 9 | 12 | 32 | 36 | 715 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 1.00 | 1.00 | 0.95 | 0.94 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 280 | 9 | 22 | 25 | 38 | 718 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1305 | 1376 | 1101 | 1101 | 1405 | 1405 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1305 | 1376 | 1051 | 1032 | 1365 | 1401 |
| X, volume / capacity | 0.21 | 0.01 | 0.02 | 0.02 | 0.03 | 0.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.81 | 0.02 | 0.06 | 0.07 | 0.08 | 3.02 |
| 95th-Percentile Queue Length [ft] | 20.36 | 0.49 | 1.51 | 1.73 | 2.03 | 75.61 |
| Approach Delay [s/veh] | 4.52 | | 3.64 | | 7.54 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 6.58 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 38.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.541 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 50 | 74 | 27 | 3 | 28 | 241 | 597 | 517 | 81 | 13 | 317 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 50 | 74 | 27 | 3 | 28 | 241 | 597 | 517 | 81 | 13 | 317 | 4 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 20 | 7 | 1 | 7 | 64 | 159 | 138 | 22 | 3 | 84 | 1 |
| Total Analysis Volume [veh/h] | 53 | 79 | 29 | 3 | 30 | 256 | 635 | 550 | 86 | 14 | 337 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 7 | 24 | 24 | 1 | 18 | 18 | 15 | 26 | 26 | 3 | 14 | 14 |
| g / C, Green / Cycle | 0.08 | 0.29 | 0.29 | 0.01 | 0.21 | 0.21 | 0.18 | 0.31 | 0.31 | 0.03 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.02 | 0.02 | 0.00 | 0.02 | 0.16 | 0.18 | 0.15 | 0.05 | 0.01 | 0.09 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 155 | 995 | 468 | 16 | 389 | 342 | 625 | 1116 | 492 | 62 | 602 | 273 |
| d1, Uniform Delay [s] | 36.35 | 21.77 | 21.66 | 41.51 | 26.54 | 31.06 | 34.69 | 23.57 | 21.09 | 39.65 | 32.17 | 29.20 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.33 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.31 | 0.09 | 0.14 | 5.50 | 0.24 | 9.42 | 20.96 | 2.15 | 1.07 | 1.82 | 5.14 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.08 | 0.06 | 0.19 | 0.08 | 0.75 | 1.02 | 0.49 | 0.17 | 0.23 | 0.56 | 0.01 |
| d, Delay for Lane Group [s/veh] | 37.66 | 21.86 | 21.80 | 47.01 | 26.78 | 40.48 | 55.65 | 25.72 | 22.16 | 41.47 | 37.31 | 29.34 |
| Lane Group LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.07 | 0.57 | 0.42 | 0.09 | 0.50 | 5.62 | 8.03 | 4.62 | 1.35 | 0.31 | 3.51 | 0.08 |
| 50th-Percentile Queue Length [ft/ln] | 26.69 | 14.18 | 10.60 | 2.14 | 12.49 | 140.53 | 200.72 | 115.61 | 33.67 | 7.74 | 87.86 | 1.92 |
| 95th-Percentile Queue Length [veh/ln] | 1.92 | 1.02 | 0.76 | 0.15 | 0.90 | 9.51 | 12.77 | 8.15 | 2.42 | 0.56 | 6.33 | 0.14 |
| 95th-Percentile Queue Length [ft/ln] | 48.04 | 25.52 | 19.08 | 3.85 | 22.48 | 237.74 | 319.37 | 203.77 | 60.61 | 13.93 | 158.15 | 3.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.66 | 21.86 | 21.80 | 47.01 | 26.78 | 40.48 | 55.65 | 25.72 | 22.16 | 41.47 | 37.31 | 29.34 |
| Movement LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 27.05 | | | 39.12 | | | 40.43 | | | 37.39 | | |
| Approach LOS | C | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 38.69 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.541 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.55 | 6.78 | 2.49 | 0.82 | 8.23 | 70.19 | 87.76 | 76.01 | 11.89 | 17.46 | 420.31 | 4.99 |
| Stops [stops/h] | 45.63 | 48.48 | 18.12 | 3.66 | 21.35 | 240.27 | 686.34 | 395.31 | 57.57 | 13.23 | 300.44 | 3.28 |
| Fuel consumption [US gal/h] | 0.85 | 0.90 | 0.33 | 0.08 | 0.62 | 6.33 | 14.60 | 8.19 | 1.20 | 0.91 | 21.52 | 0.25 |
| CO [g/h] | 59.10 | 62.79 | 23.15 | 5.79 | 43.34 | 442.16 | 1020.20 | 572.61 | 83.54 | 63.61 | 1504.35 | 17.29 |
| NOx [g/h] | 11.50 | 12.22 | 4.50 | 1.13 | 8.43 | 86.03 | 198.49 | 111.41 | 16.25 | 12.38 | 292.69 | 3.36 |
| VOC [g/h] | 13.70 | 14.55 | 5.37 | 1.34 | 10.05 | 102.48 | 236.44 | 132.71 | 19.36 | 14.74 | 348.65 | 4.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.83 | 31.83 | 31.83 | 31.83 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.353 | 2.613 | 2.857 | 2.601 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 475 | 475 | 950 | 950 |
| d_b, Bicycle Delay [s] | 24.49 | 24.49 | 11.61 | 11.61 |
| l_b,int, Bicycle LOS Score for Intersection | 1.692 | 2.036 | 2.608 | 1.852 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.215 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 39 | 2 | 53 | 34 | 68 | 164 | 368 | 31 | 1 | 230 | 78 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 39 | 2 | 53 | 34 | 68 | 164 | 368 | 31 | 1 | 230 | 78 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 11 | 1 | 14 | 9 | 18 | 45 | 100 | 8 | 0 | 63 | 21 |
| Total Analysis Volume [veh/h] | 18 | 42 | 2 | 58 | 37 | 74 | 178 | 400 | 34 | 1 | 250 | 85 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 12 | 7 | 16 | 16 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.18 | 0.10 | 0.23 | 0.23 | 0.14 | 0.28 | 0.28 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.02 | 0.02 | 0.05 | 0.05 | 0.11 | 0.02 | 0.00 | 0.07 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1809 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 321 | 349 | 443 | 377 | 499 | 1007 | 455 | 7 | 519 | 422 |
| d1, Uniform Delay [s] | 31.53 | 23.67 | 28.17 | 20.48 | 21.05 | 26.48 | 19.85 | 18.01 | 33.92 | 26.72 | 25.58 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 0.66 | 0.08 | 0.46 | 1.44 | 0.16 | 0.54 | 0.15 | 3.82 | 1.48 | 0.50 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.14 | 0.17 | 0.08 | 0.20 | 0.36 | 0.40 | 0.07 | 0.15 | 0.48 | 0.20 |
| d, Delay for Lane Group [s/veh] | 32.06 | 24.33 | 28.25 | 20.94 | 22.49 | 26.64 | 20.40 | 18.16 | 37.74 | 28.20 | 26.08 |
| Lane Group LOS | C | C | C | C | C | C | C | B | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.29 | 0.63 | 0.40 | 0.46 | 0.98 | 1.26 | 2.49 | 0.39 | 0.02 | 1.68 | 0.54 |
| 50th-Percentile Queue Length [ft/ln] | 7.21 | 15.77 | 9.88 | 11.53 | 24.56 | 31.57 | 62.19 | 9.77 | 0.54 | 41.89 | 13.50 |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 1.14 | 0.71 | 0.83 | 1.77 | 2.27 | 4.48 | 0.70 | 0.04 | 3.02 | 0.97 |
| 95th-Percentile Queue Length [ft/ln] | 12.98 | 28.39 | 17.78 | 20.75 | 44.21 | 56.82 | 111.94 | 17.58 | 0.96 | 75.41 | 24.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.06 | 24.33 | 24.33 | 28.25 | 20.94 | 22.49 | 26.64 | 20.40 | 18.16 | 37.74 | 28.20 | 26.08 |
| Movement LOS | C | C | C | C | C | C | C | C | B | D | C | C |
| d_A, Approach Delay [s/veh] | 26.57 | | | 24.13 | | | 22.09 | | | 27.69 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.21 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.215 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.33 | 3.26 | 75.29 | 48.03 | 96.07 | 222.00 | 498.89 | 42.41 | 0.17 | 43.24 | 14.70 |
| Stops [stops/h] | 15.24 | 33.33 | 41.75 | 24.36 | 51.92 | 133.45 | 262.89 | 20.64 | 1.13 | 177.10 | 57.06 |
| Fuel consumption [US gal/h] | 0.26 | 0.54 | 3.50 | 2.14 | 4.35 | 10.84 | 23.65 | 1.99 | 0.04 | 7.57 | 2.46 |
| CO [g/h] | 17.93 | 37.48 | 244.35 | 149.60 | 304.26 | 757.82 | 1653.15 | 138.78 | 3.02 | 529.16 | 171.64 |
| NOx [g/h] | 3.49 | 7.29 | 47.54 | 29.11 | 59.20 | 147.44 | 321.64 | 27.00 | 0.59 | 102.96 | 33.40 |
| VOC [g/h] | 4.16 | 8.69 | 56.63 | 34.67 | 70.51 | 175.63 | 383.13 | 32.16 | 0.70 | 122.64 | 39.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.95 | 23.95 | 23.95 | 23.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.968 | 2.566 | 2.711 | 2.819 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 587 | 587 | 881 | 881 |
| d_b, Bicycle Delay [s] | 17.00 | 17.00 | 10.67 | 10.67 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.838 | 2.065 | 1.837 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.162 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 128 | 0 | 277 | 204 | 222 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 128 | 0 | 277 | 204 | 222 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 32 | 0 | 69 | 51 | 56 |
| Total Analysis Volume [veh/h] | 0 | 128 | 0 | 277 | 204 | 222 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.60 | 10.42 | 8.19 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 14.36 | 14.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.42 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.60 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.117 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 111 | 0 | 0 | 121 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 0 | 0 | 121 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 0 | 0 | 30 | 0 | 0 |
| Total Analysis Volume [veh/h] | 111 | 0 | 0 | 121 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.31 | 9.09 | 0.00 | 0.00 | 7.45 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.40 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 9.93 | 9.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.31 | | 0.00 | | 3.73 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.45 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro Scenario 15 15 Near Term AM Plus Proj Improved
Report File: \...\Near Term Plus Proj Improved AM.pdf 8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | WB Left | 0.652 | 30.4 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Right | 0.628 | 33.6 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.538 | 25.9 | C |
| 4 | Minnewawa Ave & International Ave | All-way stop | HCM 7th Edition | NB Left | 0.895 | 25.4 | D |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | EB Left | 0.639 | 25.7 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.863 | 49.9 | D |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Right | 0.793 | 53.1 | D |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Thru | 0.805 | 39.8 | D |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.807 | 48.2 | D |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.812 | 43.0 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.514 | 18.9 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 1.005 | 36.1 | D |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.754 | 19.0 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | SB Thru | 0.998 | 78.7 | E |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 1.150 | 138.9 | F |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.663 | 37.4 | D |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.810 | 50.9 | D |
| 21 | Fowler Ave & Perrin Ave | Signalized | HCM 7th Edition | SB Left | 0.826 | 31.4 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.767 | 34.9 | C |
| 23 | Fowler Ave & Teague Ave | All-way stop | HCM 7th Edition | NB Thru | 0.642 | 16.1 | C |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.709 | 20.8 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 1.097 | 125.8 | F |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.901 | 42.2 | D |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.711 | 26.1 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.093 | 22.6 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.018 | 14.7 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.311 | 20.4 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.813 | 50.3 | D |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.732 | 29.0 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | EB Right | | 16.6 | C |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.694 | 9.0 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.629 | 15.2 | B |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 692.569 | 268.7 | F |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | SB Right | 0.747 | 15.8 | C |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.488 | 9.0 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | SB Left | | 11.8 | B |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Right | 0.696 | 54.6 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.386 | 28.8 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.149 | 10.0 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.228 | 9.6 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.652 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 434 | 397 | 19 | 56 | 453 | 95 | 12 | 77 | 342 | 5 | 247 | 158 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 434 | 397 | 19 | 56 | 453 | 95 | 12 | 77 | 342 | 5 | 247 | 158 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 141 | 129 | 6 | 18 | 147 | 31 | 4 | 25 | 111 | 2 | 80 | 51 |
| Total Analysis Volume [veh/h] | 564 | 516 | 25 | 73 | 588 | 123 | 16 | 100 | 444 | 6 | 321 | 205 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 16 | 29 | 29 | 7 | 19 | 19 | 3 | 26 | 26 | 1 | 24 | 24 |
| g / C, Green / Cycle | 0.19 | 0.35 | 0.35 | 0.08 | 0.23 | 0.23 | 0.03 | 0.31 | 0.31 | 0.01 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.14 | 0.02 | 0.04 | 0.12 | 0.08 | 0.01 | 0.05 | 0.28 | 0.00 | 0.17 | 0.13 |
| s, saturation flow rate [veh/h] | 3475 | 3560 | 1615 | 1759 | 5065 | 1573 | 1810 | 1877 | 1603 | 1810 | 1894 | 1565 |
| c, Capacity [veh/h] | 653 | 1239 | 562 | 137 | 1146 | 356 | 54 | 591 | 504 | 23 | 549 | 454 |
| d1, Uniform Delay [s] | 33.18 | 20.95 | 18.20 | 37.37 | 28.54 | 27.37 | 40.00 | 20.91 | 27.37 | 41.22 | 25.57 | 24.43 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.35 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.37 | 0.73 | 0.10 | 1.19 | 1.16 | 1.87 | 1.11 | 0.32 | 14.44 | 2.24 | 1.69 | 1.20 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.86 | 0.42 | 0.04 | 0.53 | 0.51 | 0.35 | 0.29 | 0.17 | 0.88 | 0.26 | 0.58 | 0.45 |
| d, Delay for Lane Group [s/veh] | 34.55 | 21.68 | 18.30 | 38.55 | 29.70 | 29.23 | 41.12 | 21.23 | 41.81 | 43.46 | 27.26 | 25.64 |
| Lane Group LOS | C | C | B | D | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.24 | 3.58 | 0.31 | 1.40 | 3.29 | 2.09 | 0.32 | 1.37 | 9.66 | 0.14 | 5.55 | 3.38 |
| 50th-Percentile Queue Length [ft/ln] | 130.89 | 89.46 | 7.67 | 34.91 | 82.24 | 52.25 | 8.12 | 34.18 | 241.62 | 3.39 | 138.86 | 84.60 |
| 95th-Percentile Queue Length [veh/ln] | 8.99 | 6.44 | 0.55 | 2.51 | 5.92 | 3.76 | 0.58 | 2.46 | 14.76 | 0.24 | 9.42 | 6.09 |
| 95th-Percentile Queue Length [ft/ln] | 224.70 | 161.03 | 13.81 | 62.84 | 148.02 | 94.05 | 14.62 | 61.52 | 369.08 | 6.11 | 235.48 | 152.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.55 | 21.68 | 18.30 | 38.55 | 29.70 | 29.23 | 41.12 | 21.23 | 41.81 | 43.46 | 27.26 | 25.64 |
| Movement LOS | C | C | B | D | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 28.17 | | | 30.45 | | | 38.11 | | | 26.82 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.40 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.652 | | | | | | | | | | | |

**Emissions**

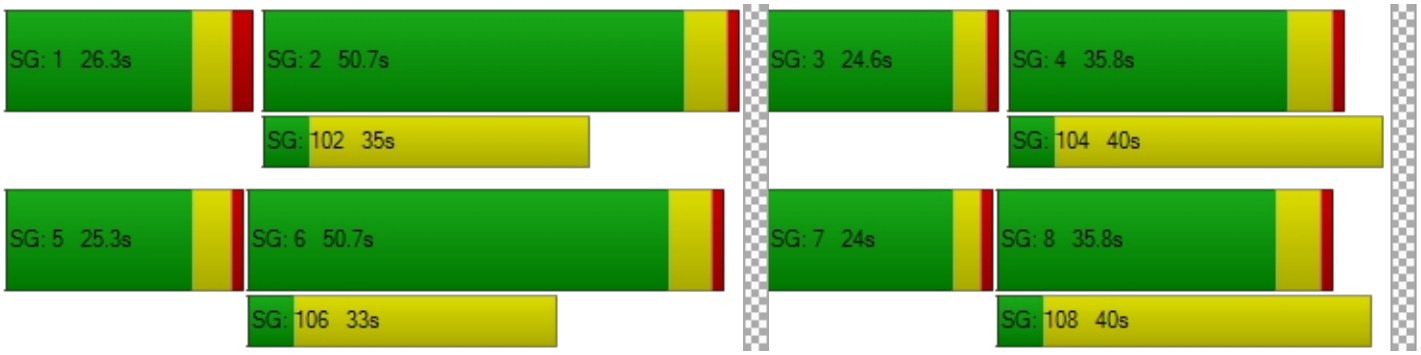
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 284.71 | 260.48 | 12.62 | 7.19 | 57.92 | 12.12 | 1.59 | 9.96 | 44.23 | 6.23 | 333.05 | 212.70 |
| Stops [stops/h] | 448.28 | 306.39 | 13.14 | 59.78 | 422.48 | 89.48 | 13.91 | 58.53 | 413.77 | 5.81 | 237.79 | 144.87 |
| Fuel consumption [US gal/h] | 20.38 | 15.70 | 0.72 | 1.73 | 11.98 | 2.51 | 0.36 | 1.50 | 10.44 | 0.34 | 16.81 | 10.63 |
| CO [g/h] | 1424.61 | 1097.64 | 50.15 | 121.01 | 837.29 | 175.52 | 25.27 | 104.93 | 729.61 | 23.87 | 1174.69 | 742.76 |
| NOx [g/h] | 277.18 | 213.56 | 9.76 | 23.54 | 162.91 | 34.15 | 4.92 | 20.42 | 141.96 | 4.64 | 228.55 | 144.51 |
| VOC [g/h] | 330.17 | 254.39 | 11.62 | 28.04 | 194.05 | 40.68 | 5.86 | 24.32 | 169.09 | 5.53 | 272.25 | 172.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.53 | 33.53 | 33.53 | 33.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.159 | 2.945 | 2.757 | 2.307 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1070 | 1070 | 714 | 714 |
| d_b, Bicycle Delay [s] | 9.08 | 9.08 | 17.40 | 17.40 |
| l_b,int, Bicycle LOS Score for Intersection | 2.471 | 1.991 | 2.484 | 2.437 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.628 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 136 | 608 | 30 | 73 | 676 | 63 | 76 | 134 | 263 | 187 | 184 | 196 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 136 | 608 | 30 | 73 | 676 | 63 | 76 | 134 | 263 | 187 | 184 | 196 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 171 | 8 | 21 | 190 | 18 | 21 | 38 | 74 | 53 | 52 | 55 |
| Total Analysis Volume [veh/h] | 153 | 683 | 34 | 82 | 760 | 71 | 85 | 151 | 296 | 210 | 207 | 220 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 10 | 27 | 27 | 7 | 24 | 24 | 7 | 21 | 21 | 13 | 25 |
| g / C, Green / Cycle | 0.11 | 0.30 | 0.30 | 0.08 | 0.27 | 0.27 | 0.08 | 0.24 | 0.24 | 0.14 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.13 | 0.02 | 0.05 | 0.15 | 0.04 | 0.05 | 0.08 | 0.19 | 0.12 | 0.25 |
| s, saturation flow rate [veh/h] | 1747 | 5127 | 1567 | 1711 | 5090 | 1615 | 1772 | 1888 | 1577 | 1758 | 1724 |
| c, Capacity [veh/h] | 188 | 1526 | 466 | 133 | 1363 | 433 | 140 | 446 | 373 | 248 | 484 |
| d1, Uniform Delay [s] | 39.06 | 25.48 | 22.57 | 39.98 | 28.22 | 25.11 | 39.91 | 28.38 | 32.15 | 37.50 | 30.78 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.32 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.19 | 0.67 | 0.21 | 1.71 | 1.16 | 0.57 | 1.59 | 0.54 | 4.64 | 3.06 | 13.94 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.45 | 0.07 | 0.61 | 0.56 | 0.16 | 0.61 | 0.34 | 0.79 | 0.85 | 0.88 |
| d, Delay for Lane Group [s/veh] | 42.25 | 26.15 | 22.79 | 41.69 | 29.38 | 25.68 | 41.50 | 28.92 | 36.79 | 40.56 | 44.72 |
| Lane Group LOS | D | C | C | D | C | C | D | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.25 | 3.68 | 0.50 | 1.71 | 4.43 | 1.14 | 1.81 | 2.63 | 6.17 | 4.61 | 10.37 |
| 50th-Percentile Queue Length [ft/ln] | 81.14 | 91.99 | 12.55 | 42.69 | 110.75 | 28.43 | 45.13 | 65.75 | 154.28 | 115.22 | 259.35 |
| 95th-Percentile Queue Length [veh/ln] | 5.84 | 6.62 | 0.90 | 3.07 | 7.88 | 2.05 | 3.25 | 4.73 | 10.25 | 8.13 | 15.66 |
| 95th-Percentile Queue Length [ft/ln] | 146.05 | 165.58 | 22.59 | 76.85 | 197.05 | 51.17 | 81.24 | 118.35 | 256.14 | 203.23 | 391.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.25 | 26.15 | 22.79 | 41.69 | 29.38 | 25.68 | 41.50 | 28.92 | 36.79 | 40.56 | 44.72 | 44.72 |
| Movement LOS | D | C | C | D | C | C | D | C | D | D | D | D |
| d_A, Approach Delay [s/veh] | 28.85 | | | 30.20 | | | 35.31 | | | 43.35 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.56 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.628 | | | | | | | | | | | |

**Emissions**

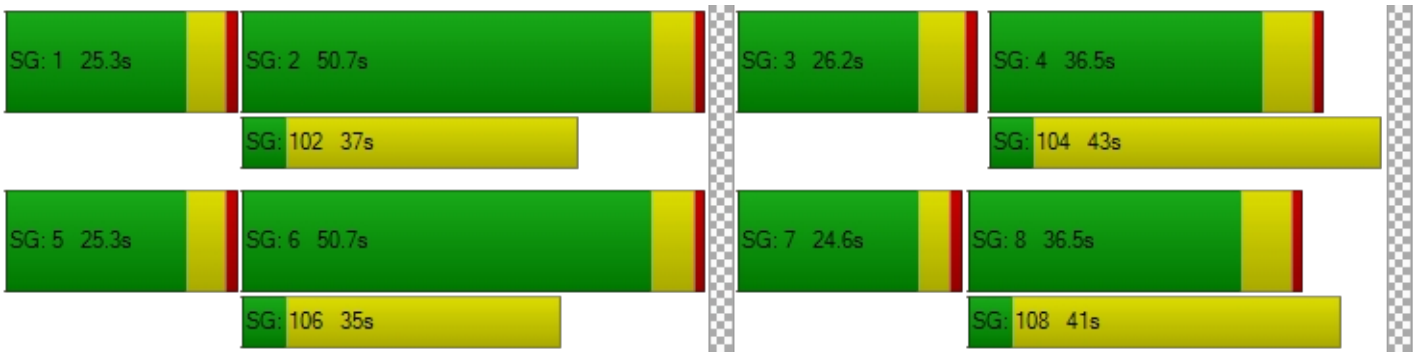
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 155.00 | 691.93 | 34.44 | 41.39 | 383.65 | 35.84 | 9.25 | 16.43 | 32.20 | 217.86 | 442.98 |
| Stops [stops/h] | 130.75 | 444.70 | 20.22 | 68.80 | 535.41 | 45.81 | 72.73 | 105.95 | 248.62 | 185.66 | 417.92 |
| Fuel consumption [US gal/h] | 8.51 | 33.63 | 1.62 | 3.14 | 25.61 | 2.27 | 1.76 | 2.52 | 5.81 | 11.73 | 24.43 |
| CO [g/h] | 595.07 | 2350.87 | 113.35 | 219.34 | 1790.15 | 158.99 | 123.27 | 176.00 | 406.23 | 819.75 | 1707.71 |
| NOx [g/h] | 115.78 | 457.39 | 22.05 | 42.68 | 348.30 | 30.93 | 23.98 | 34.24 | 79.04 | 159.49 | 332.26 |
| VOC [g/h] | 137.91 | 544.84 | 26.27 | 50.83 | 414.88 | 36.85 | 28.57 | 40.79 | 94.15 | 189.99 | 395.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.13 | 36.13 | 36.13 | 36.13 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.160 | 3.113 | 2.445 | 2.235 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1007 | 1007 | 671 | 671 |
| d_b, Bicycle Delay [s] | 11.01 | 11.01 | 19.72 | 19.72 |
| l_b,int, Bicycle LOS Score for Intersection | 2.038 | 2.062 | 2.437 | 2.611 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.538 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 130 | 727 | 173 | 98 | 1336 | 305 | 116 | 183 | 99 | 185 | 226 | 37 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 130 | 727 | 173 | 98 | 1336 | 305 | 116 | 183 | 99 | 185 | 226 | 37 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 202 | 48 | 27 | 371 | 85 | 32 | 51 | 28 | 51 | 63 | 10 |
| Total Analysis Volume [veh/h] | 144 | 808 | 192 | 109 | 1484 | 339 | 129 | 203 | 110 | 206 | 251 | 41 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 35 | 35 | 7 | 34 | 34 | 8 | 10 | 10 | 8 | 12 | 12 |
| g / C, Green / Cycle | 0.09 | 0.41 | 0.41 | 0.09 | 0.40 | 0.40 | 0.09 | 0.12 | 0.12 | 0.09 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.16 | 0.12 | 0.03 | 0.29 | 0.22 | 0.04 | 0.06 | 0.07 | 0.06 | 0.07 | 0.03 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1544 | 3467 | 3526 | 1558 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 316 | 2088 | 658 | 300 | 2056 | 623 | 313 | 417 | 184 | 330 | 485 | 216 |
| d1, Uniform Delay [s] | 36.78 | 17.81 | 17.02 | 36.71 | 21.44 | 19.40 | 36.71 | 35.23 | 35.67 | 37.25 | 34.30 | 32.73 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 0.38 | 0.79 | 0.27 | 1.58 | 2.39 | 0.32 | 2.07 | 7.10 | 0.72 | 1.18 | 0.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.39 | 0.29 | 0.36 | 0.72 | 0.54 | 0.41 | 0.49 | 0.60 | 0.62 | 0.52 | 0.19 |
| d, Delay for Lane Group [s/veh] | 37.16 | 18.19 | 17.81 | 36.99 | 23.02 | 21.79 | 37.03 | 37.30 | 42.77 | 37.97 | 35.47 | 33.31 |
| Lane Group LOS | D | B | B | D | C | C | D | D | D | D | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.35 | 3.34 | 2.37 | 1.01 | 7.50 | 4.88 | 1.20 | 1.96 | 2.38 | 1.97 | 2.33 | 0.74 |
| 50th-Percentile Queue Length [ft/ln] | 33.71 | 83.56 | 59.30 | 25.36 | 187.52 | 121.98 | 30.09 | 49.03 | 59.60 | 49.16 | 58.27 | 18.42 |
| 95th-Percentile Queue Length [veh/ln] | 2.43 | 6.02 | 4.27 | 1.83 | 11.99 | 8.50 | 2.17 | 3.53 | 4.29 | 3.54 | 4.20 | 1.33 |
| 95th-Percentile Queue Length [ft/ln] | 60.67 | 150.41 | 106.75 | 45.65 | 299.81 | 212.55 | 54.15 | 88.26 | 107.29 | 88.48 | 104.88 | 33.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.16 | 18.19 | 17.81 | 36.99 | 23.02 | 21.79 | 37.03 | 37.30 | 42.77 | 37.97 | 35.47 | 33.31 |
| Movement LOS | D | B | B | D | C | C | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 20.51 | | | 23.59 | | | 38.58 | | | 36.33 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 25.94 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.538 | | | | | | | | | | | |

**Emissions**

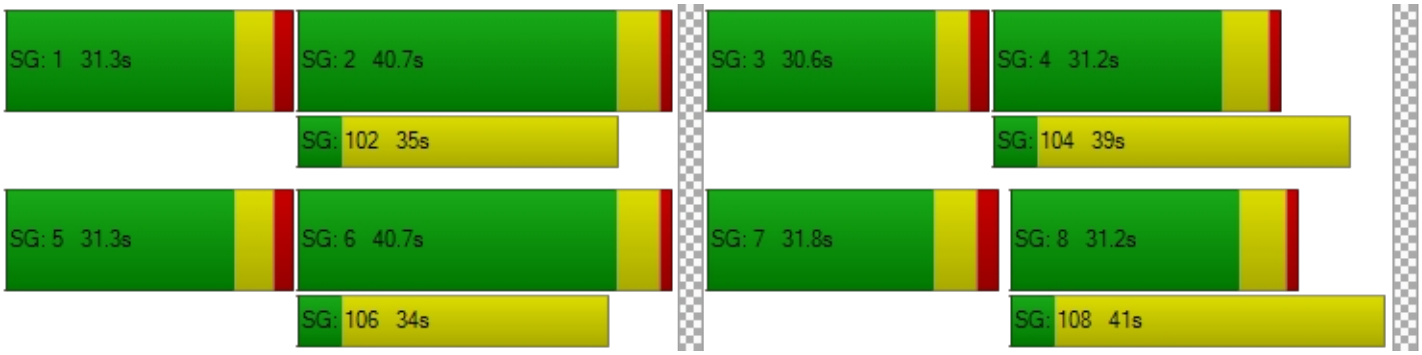
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 23.50 | 131.84 | 31.33 | 110.42 | 1503.39 | 343.43 | 16.86 | 26.53 | 14.37 | 213.43 | 260.05 | 42.48 |
| Stops [stops/h] | 113.89 | 423.51 | 100.19 | 85.69 | 950.41 | 206.08 | 101.65 | 165.67 | 100.70 | 166.09 | 196.88 | 31.11 |
| Fuel consumption [US gal/h] | 3.62 | 13.91 | 3.28 | 5.83 | 71.89 | 16.17 | 3.10 | 4.97 | 2.98 | 11.29 | 13.54 | 2.18 |
| CO [g/h] | 253.32 | 972.07 | 229.49 | 407.77 | 5024.84 | 1130.11 | 216.48 | 347.55 | 208.62 | 789.08 | 946.64 | 152.24 |
| NOx [g/h] | 49.29 | 189.13 | 44.65 | 79.34 | 977.65 | 219.88 | 42.12 | 67.62 | 40.59 | 153.53 | 184.18 | 29.62 |
| VOC [g/h] | 58.71 | 225.29 | 53.19 | 94.51 | 1164.56 | 261.91 | 50.17 | 80.55 | 48.35 | 182.88 | 219.39 | 35.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 8765.74 | 0.00 | 346.56 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.09 | 34.09 | 34.09 | 34.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.380 | 3.373 | 2.866 | 2.928 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 821 | 821 | 587 | 587 |
| d_b, Bicycle Delay [s] | 14.80 | 14.80 | 21.32 | 21.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.189 | 2.622 | 1.924 | 1.970 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 25.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.895 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 415 | 109 | 0 | 0 | 295 | 13 | 3 | 0 | 111 | 0 | 1 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 415 | 109 | 0 | 0 | 295 | 13 | 3 | 0 | 111 | 0 | 1 | 0 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 127 | 33 | 0 | 0 | 90 | 4 | 1 | 0 | 34 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 506 | 133 | 0 | 0 | 360 | 16 | 4 | 0 | 135 | 0 | 1 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 714 | 692 | 616 | 530 |
| Degree of Utilization, x | 0.90 | 0.54 | 0.23 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 11.49 | 3.29 | 0.86 | 0.01 |
| 95th-Percentile Queue Length [ft] | 287.25 | 82.34 | 21.56 | 0.14 |
| Approach Delay [s/veh] | 35.31 | 14.21 | 10.54 | 9.81 |
| Approach LOS | E | B | B | A |
| Intersection Delay [s/veh] | 25.44 | | | |
| Intersection LOS | D | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.639 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 183 | 203 | 22 | 166 | 216 | 6 | 3 | 149 | 59 | 59 | 404 | 328 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 183 | 203 | 22 | 166 | 216 | 6 | 3 | 149 | 59 | 59 | 404 | 328 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 54 | 6 | 44 | 57 | 2 | 1 | 40 | 16 | 16 | 107 | 87 |
| Total Analysis Volume [veh/h] | 195 | 216 | 23 | 177 | 230 | 6 | 3 | 159 | 63 | 63 | 430 | 349 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| L, Total Lost Time per Cycle [s] | 4.00 | 6.00 | 4.00 | 6.00 | 4.00 | 6.00 | 6.00 | 4.00 | 6.00 | 6.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 4.00 | 2.00 | 4.00 | 2.00 | 4.00 | 4.00 | 2.00 | 4.00 | 4.00 |
| g_i, Effective Green Time [s] | 11 | 12 | 11 | 12 | 1 | 15 | 15 | 8 | 22 | 22 |
| g / C, Green / Cycle | 0.16 | 0.18 | 0.16 | 0.18 | 0.01 | 0.23 | 0.23 | 0.12 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.15 | 0.11 | 0.14 | 0.00 | 0.10 | 0.04 | 0.04 | 0.25 | 0.24 |
| s, saturation flow rate [veh/h] | 1599 | 1611 | 1569 | 1647 | 1629 | 1671 | 1454 | 1629 | 1687 | 1440 |
| c, Capacity [veh/h] | 261 | 296 | 254 | 303 | 15 | 390 | 340 | 188 | 571 | 487 |
| d1, Uniform Delay [s] | 26.11 | 25.61 | 25.96 | 25.48 | 32.23 | 21.27 | 20.11 | 26.66 | 19.24 | 18.92 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.60 | 5.57 | 1.30 | 6.12 | 2.45 | 1.04 | 0.40 | 0.39 | 3.32 | 3.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.81 | 0.70 | 0.78 | 0.20 | 0.41 | 0.19 | 0.33 | 0.75 | 0.72 |
| d, Delay for Lane Group [s/veh] | 27.71 | 31.19 | 27.26 | 31.60 | 34.68 | 22.31 | 20.51 | 27.05 | 22.56 | 22.16 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.85 | 3.81 | 2.55 | 3.80 | 0.06 | 2.05 | 0.76 | 0.88 | 5.80 | 4.65 |
| 50th-Percentile Queue Length [ft/ln] | 71.17 | 95.22 | 63.79 | 95.10 | 1.39 | 51.30 | 19.10 | 22.09 | 144.93 | 116.13 |
| 95th-Percentile Queue Length [veh/ln] | 5.12 | 6.86 | 4.59 | 6.85 | 0.10 | 3.69 | 1.38 | 1.59 | 9.75 | 8.18 |
| 95th-Percentile Queue Length [ft/ln] | 128.11 | 171.40 | 114.82 | 171.18 | 2.50 | 92.33 | 34.39 | 39.76 | 243.65 | 204.49 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.71 | 31.19 | 31.19 | 27.26 | 31.60 | 31.60 | 34.68 | 22.31 | 20.51 | 27.05 | 22.56 | 22.16 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 29.62 | | | 29.74 | | | 21.97 | | | 22.73 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.72 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.639 | | | | | | | | | | | |

**Emissions**

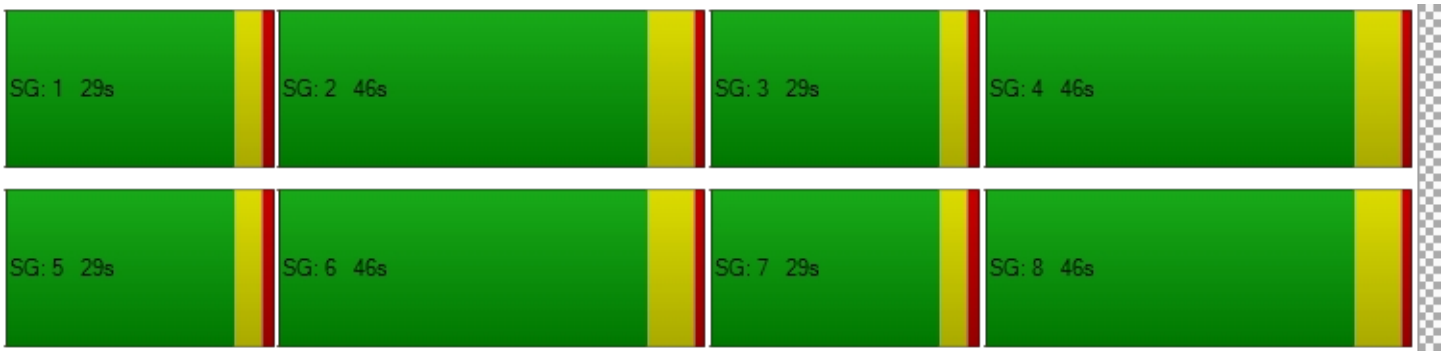
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 195.92 | 240.13 | 89.10 | 118.80 | 3.11 | 164.95 | 65.36 | 38.67 | 263.95 | 214.23 |
| Stops [stops/h] | 156.84 | 209.83 | 140.57 | 209.57 | 3.06 | 113.04 | 42.10 | 48.67 | 319.37 | 255.90 |
| Fuel consumption [US gal/h] | 10.03 | 12.56 | 5.43 | 7.57 | 0.17 | 8.14 | 3.19 | 2.21 | 14.60 | 11.81 |
| CO [g/h] | 701.19 | 878.03 | 379.30 | 528.86 | 11.62 | 568.77 | 222.71 | 154.31 | 1020.88 | 825.29 |
| NOx [g/h] | 136.43 | 170.83 | 73.80 | 102.90 | 2.26 | 110.66 | 43.33 | 30.02 | 198.63 | 160.57 |
| VOC [g/h] | 162.51 | 203.49 | 87.91 | 122.57 | 2.69 | 131.82 | 51.62 | 35.76 | 236.60 | 191.27 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | F | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1224 | 1224 | 1224 | 1224 |
| d_b, Bicycle Delay [s] | 4.92 | 4.92 | 4.92 | 4.92 |
| l_b,int, Bicycle LOS Score for Intersection | 2.276 | 2.241 | 1.931 | 2.949 |
| Bicycle LOS | B | B | A | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 49.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.863 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 130 | 260 | 78 | 170 | 290 | 95 | 50 | 449 | 669 | 54 | 137 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 130 | 260 | 78 | 170 | 290 | 95 | 50 | 449 | 539 | 54 | 137 | 27 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 76 | 23 | 50 | 85 | 28 | 15 | 132 | 159 | 16 | 40 | 8 |
| Total Analysis Volume [veh/h] | 153 | 306 | 92 | 200 | 341 | 112 | 59 | 528 | 634 | 64 | 161 | 32 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 29 | 29 | 15 | 32 | 9 | 42 | 42 | 9 | 42 | 42 |
| g / C, Green / Cycle | 0.10 | 0.26 | 0.26 | 0.13 | 0.29 | 0.08 | 0.38 | 0.38 | 0.09 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.16 | 0.06 | 0.11 | 0.25 | 0.03 | 0.15 | 0.40 | 0.04 | 0.09 | 0.02 |
| s, saturation flow rate [veh/h] | 1774 | 1855 | 1517 | 1794 | 1797 | 1711 | 3512 | 1601 | 1810 | 1879 | 1568 |
| c, Capacity [veh/h] | 186 | 485 | 397 | 235 | 517 | 143 | 1327 | 605 | 155 | 714 | 596 |
| d1, Uniform Delay [s] | 48.73 | 36.29 | 32.26 | 47.24 | 37.71 | 48.37 | 25.33 | 34.53 | 48.18 | 23.36 | 21.81 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.24 | 0.11 | 0.11 | 0.50 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.69 | 1.36 | 0.30 | 8.40 | 9.99 | 1.91 | 0.19 | 49.94 | 1.76 | 0.16 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.63 | 0.23 | 0.85 | 0.88 | 0.41 | 0.40 | 1.05 | 0.41 | 0.23 | 0.05 |
| d, Delay for Lane Group [s/veh] | 57.42 | 37.64 | 32.55 | 55.64 | 47.70 | 50.29 | 25.52 | 84.46 | 49.94 | 23.52 | 21.84 |
| Lane Group LOS | E | D | C | E | D | D | C | F | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.48 | 7.22 | 1.91 | 5.78 | 12.59 | 1.57 | 4.81 | 23.31 | 1.70 | 2.73 | 0.51 |
| 50th-Percentile Queue Length [ft/ln] | 111.89 | 180.61 | 47.87 | 144.51 | 314.70 | 39.29 | 120.37 | 582.80 | 42.38 | 68.19 | 12.66 |
| 95th-Percentile Queue Length [veh/ln] | 7.95 | 11.63 | 3.45 | 9.72 | 18.41 | 2.83 | 8.41 | 32.29 | 3.05 | 4.91 | 0.91 |
| 95th-Percentile Queue Length [ft/ln] | 198.63 | 290.82 | 86.16 | 243.08 | 460.17 | 70.72 | 210.33 | 807.15 | 76.28 | 122.73 | 22.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 57.42 | 37.64 | 32.55 | 55.64 | 47.70 | 47.70 | 50.29 | 25.52 | 84.46 | 49.94 | 23.52 | 21.84 |
| Movement LOS | E | D | C | E | D | D | D | C | F | D | C | C |
| d_A, Approach Delay [s/veh] | 42.29 | | | 50.13 | | | 57.32 | | | 29.89 | | |
| Approach LOS | D | | | D | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 49.85 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.863 | | | | | | | | | | | |

**Emissions**

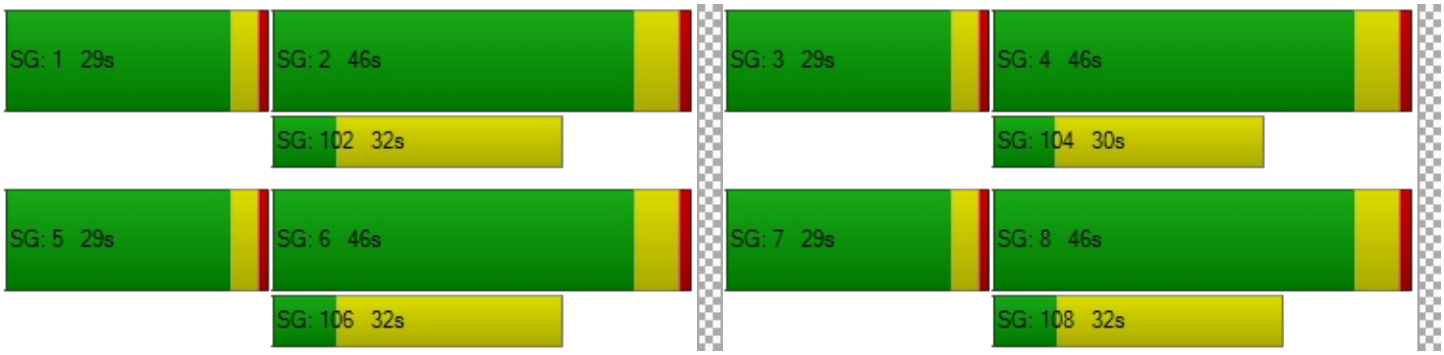
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 18.32 | 36.63 | 11.01 | 200.94 | 455.14 | 61.13 | 547.04 | 656.87 | 32.05 | 80.62 | 16.02 |
| Stops [stops/h] | 145.12 | 234.26 | 62.08 | 187.43 | 408.17 | 50.96 | 312.24 | 755.89 | 54.96 | 88.44 | 16.42 |
| Fuel consumption [US gal/h] | 4.22 | 6.51 | 1.76 | 11.48 | 25.07 | 3.43 | 25.85 | 44.50 | 2.57 | 4.83 | 0.93 |
| CO [g/h] | 294.96 | 455.22 | 122.95 | 802.64 | 1752.59 | 239.97 | 1807.22 | 3110.31 | 179.45 | 337.49 | 65.07 |
| NOx [g/h] | 57.39 | 88.57 | 23.92 | 156.16 | 340.99 | 46.69 | 351.62 | 605.15 | 34.91 | 65.66 | 12.66 |
| VOC [g/h] | 68.36 | 105.50 | 28.49 | 186.02 | 406.18 | 55.61 | 418.84 | 720.85 | 41.59 | 78.22 | 15.08 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 7438.75 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.06 | 45.06 | 45.06 | 45.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.770 | 2.462 | 3.129 | 2.660 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 721 | 721 | 721 | 721 |
| d_b, Bicycle Delay [s] | 22.72 | 22.72 | 22.72 | 22.72 |
| l_b,int, Bicycle LOS Score for Intersection | 2.469 | 2.637 | 2.674 | 1.984 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 304 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 304 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 76 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 304 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 53.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.793 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 274.61 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 164 | 59 | 97 | 19 | 71 | 67 | 32 | 344 | 644 | 277 | 19 | 48 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 59 | 97 | 19 | 71 | 67 | 32 | 344 | 644 | 277 | 19 | 48 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 49 | 18 | 29 | 6 | 21 | 20 | 10 | 104 | 194 | 83 | 6 | 14 |
| Total Analysis Volume [veh/h] | 198 | 71 | 117 | 23 | 86 | 81 | 39 | 414 | 776 | 334 | 23 | 58 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 18 | 18 | 6 | 13 | 13 | 8 | 42 | 42 | 13 | 47 | 47 |
| g / C, Green / Cycle | 0.12 | 0.19 | 0.19 | 0.07 | 0.13 | 0.13 | 0.09 | 0.44 | 0.44 | 0.14 | 0.49 | 0.49 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.04 | 0.08 | 0.01 | 0.02 | 0.05 | 0.01 | 0.11 | 0.49 | 0.10 | 0.01 | 0.04 |
| s, saturation flow rate [veh/h] | 3472 | 1705 | 1449 | 3514 | 3618 | 1577 | 3428 | 3618 | 1587 | 3514 | 3509 | 1613 |
| c, Capacity [veh/h] | 423 | 321 | 273 | 231 | 478 | 209 | 293 | 1598 | 701 | 478 | 1727 | 794 |
| d1, Uniform Delay [s] | 38.89 | 32.69 | 34.08 | 41.78 | 36.68 | 37.74 | 40.23 | 16.74 | 26.55 | 39.22 | 12.34 | 12.72 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.50 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.77 | 2.38 | 0.07 | 0.91 | 5.94 | 0.08 | 0.13 | 67.30 | 0.70 | 0.00 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.22 | 0.43 | 0.10 | 0.18 | 0.39 | 0.13 | 0.26 | 1.11 | 0.70 | 0.01 | 0.07 |
| d, Delay for Lane Group [s/veh] | 39.19 | 33.46 | 36.46 | 41.85 | 37.60 | 43.68 | 40.31 | 16.87 | 93.85 | 39.91 | 12.34 | 12.77 |
| Lane Group LOS | D | C | D | D | D | D | D | B | F | D | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.08 | 1.39 | 2.45 | 0.25 | 0.94 | 2.05 | 0.40 | 2.58 | 26.81 | 3.72 | 0.12 | 0.64 |
| 50th-Percentile Queue Length [ft/ln] | 51.90 | 34.78 | 61.30 | 6.36 | 23.56 | 51.32 | 10.11 | 64.54 | 670.31 | 93.06 | 3.07 | 16.11 |
| 95th-Percentile Queue Length [veh/ln] | 3.74 | 2.50 | 4.41 | 0.46 | 1.70 | 3.69 | 0.73 | 4.65 | 37.98 | 6.70 | 0.22 | 1.16 |
| 95th-Percentile Queue Length [ft/ln] | 93.42 | 62.60 | 110.34 | 11.44 | 42.40 | 92.37 | 18.20 | 116.17 | 949.43 | 167.51 | 5.52 | 28.99 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.19 | 33.46 | 36.46 | 41.85 | 37.60 | 43.68 | 40.31 | 16.87 | 93.85 | 39.91 | 12.34 | 12.77 |
| Movement LOS | D | C | D | D | D | D | D | B | F | D | B | B |
| d_A, Approach Delay [s/veh] | 37.31 | | | 40.70 | | | 66.22 | | | 34.59 | | |
| Approach LOS | D | | | D | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 53.10 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.793 | | | | | | | | | | | |

**Emissions**

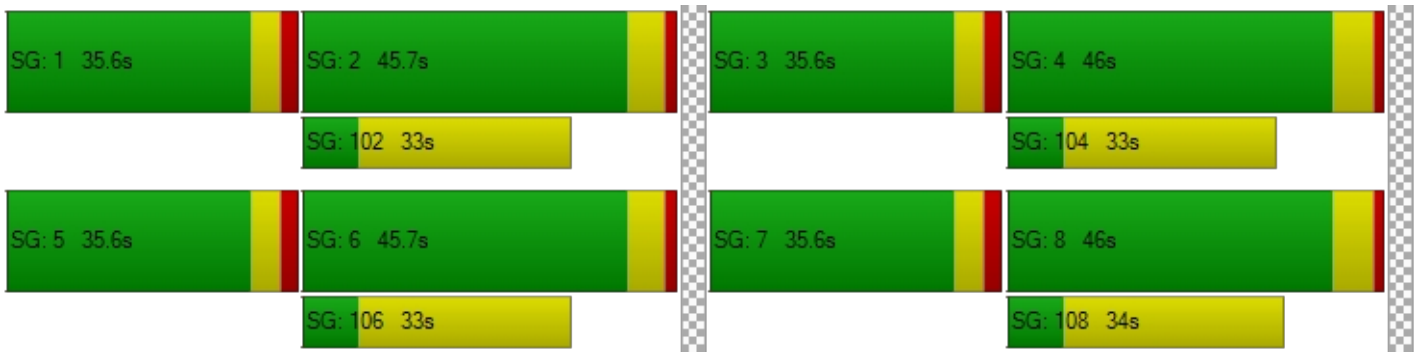
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 201.59 | 72.29 | 119.12 | 23.77 | 88.90 | 83.73 | 19.53 | 207.32 | 388.60 | 167.44 | 11.53 | 29.08 |
| Stops [stops/h] | 157.36 | 52.72 | 92.94 | 19.28 | 71.43 | 77.80 | 30.66 | 195.69 | 1016.22 | 282.18 | 9.29 | 24.42 |
| Fuel consumption [US gal/h] | 10.45 | 3.62 | 6.11 | 1.28 | 4.71 | 4.60 | 1.44 | 11.37 | 43.43 | 11.16 | 0.58 | 1.48 |
| CO [g/h] | 730.14 | 252.81 | 426.87 | 89.55 | 329.37 | 321.29 | 100.97 | 794.62 | 3035.89 | 780.39 | 40.81 | 103.63 |
| NOx [g/h] | 142.06 | 49.19 | 83.05 | 17.42 | 64.08 | 62.51 | 19.64 | 154.60 | 590.67 | 151.83 | 7.94 | 20.16 |
| VOC [g/h] | 169.22 | 58.59 | 98.93 | 20.75 | 76.34 | 74.46 | 23.40 | 184.16 | 703.60 | 180.86 | 9.46 | 24.02 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 4905.59 | 3188.34 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.13 | 37.13 | 37.13 | 37.13 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.017 | 2.646 | 2.952 | 2.731 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 842 | 842 | 842 | 842 |
| d_b, Bicycle Delay [s] | 15.91 | 15.91 | 15.91 | 15.91 |
| l_b,int, Bicycle LOS Score for Intersection | 1.878 | 1.716 | 2.574 | 1.902 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.805 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 365 | 20 | 139 | 867 | 42 | 34 | 730 | 139 | 20 | 633 | 150 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 365 | 20 | 139 | 867 | 42 | 34 | 730 | 139 | 20 | 633 | 150 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 105 | 6 | 40 | 249 | 12 | 10 | 210 | 40 | 6 | 182 | 43 |
| Total Analysis Volume [veh/h] | 54 | 420 | 23 | 160 | 997 | 48 | 39 | 839 | 160 | 23 | 728 | 172 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 33 | 33 | 12 | 37 | 37 | 7 | 44 | 44 | 5 | 42 | 42 |
| g / C, Green / Cycle | 0.07 | 0.30 | 0.30 | 0.11 | 0.33 | 0.33 | 0.06 | 0.40 | 0.40 | 0.05 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.12 | 0.02 | 0.09 | 0.28 | 0.03 | 0.02 | 0.24 | 0.10 | 0.01 | 0.39 | 0.11 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1478 | 1724 | 3569 | 1587 | 1810 | 3538 | 1592 | 1810 | 1886 | 1598 |
| c, Capacity [veh/h] | 132 | 1035 | 439 | 190 | 1190 | 529 | 116 | 1416 | 637 | 84 | 722 | 612 |
| d1, Uniform Delay [s] | 48.52 | 30.83 | 27.54 | 47.86 | 33.83 | 25.14 | 49.14 | 25.88 | 21.95 | 50.54 | 33.88 | 23.43 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.50 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.76 | 0.39 | 0.07 | 3.79 | 2.49 | 0.11 | 0.63 | 0.61 | 0.31 | 0.65 | 35.59 | 0.37 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.41 | 0.05 | 0.84 | 0.84 | 0.09 | 0.34 | 0.59 | 0.25 | 0.27 | 1.01 | 0.28 |
| d, Delay for Lane Group [s/veh] | 49.29 | 31.22 | 27.61 | 51.65 | 36.32 | 25.25 | 49.77 | 26.49 | 22.26 | 51.18 | 69.46 | 23.79 |
| Lane Group LOS | D | C | C | D | D | C | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.40 | 4.32 | 0.43 | 4.35 | 11.99 | 0.84 | 1.01 | 8.19 | 2.67 | 0.61 | 24.93 | 2.99 |
| 50th-Percentile Queue Length [ft/ln] | 34.99 | 107.91 | 10.65 | 108.75 | 299.74 | 21.12 | 25.36 | 204.86 | 66.67 | 15.21 | 623.24 | 74.85 |
| 95th-Percentile Queue Length [veh/ln] | 2.52 | 7.72 | 0.77 | 7.77 | 17.67 | 1.52 | 1.83 | 12.89 | 4.80 | 1.10 | 33.32 | 5.39 |
| 95th-Percentile Queue Length [ft/ln] | 62.99 | 193.10 | 19.17 | 194.27 | 441.71 | 38.02 | 45.65 | 322.23 | 120.01 | 27.38 | 833.08 | 134.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.29 | 31.22 | 27.61 | 51.65 | 36.32 | 25.25 | 49.77 | 26.49 | 22.26 | 51.18 | 69.46 | 23.79 |
| Movement LOS | D | C | C | D | D | C | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 33.02 | | | 37.91 | | | 26.72 | | | 60.50 | | |
| Approach LOS | C | | | D | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 39.77 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.805 | | | | | | | | | | | |

**Emissions**

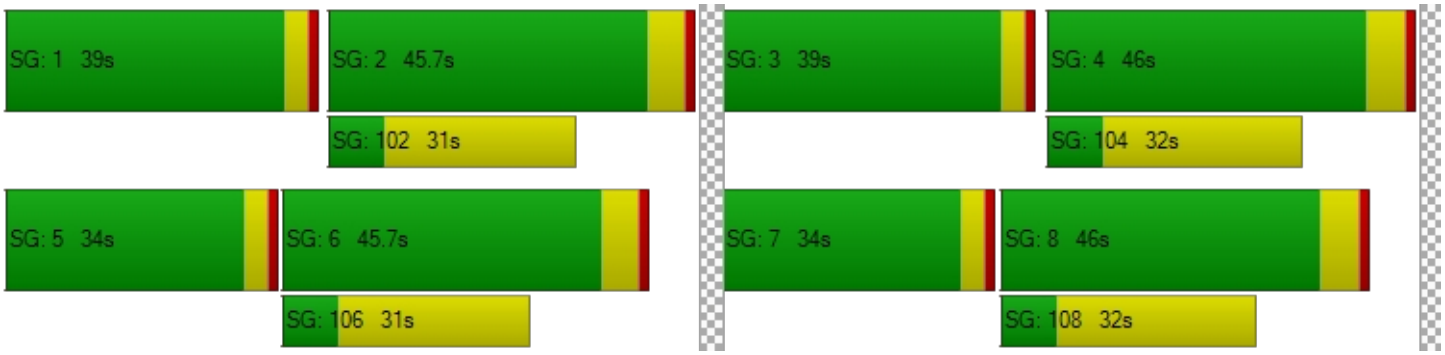
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 28.35 | 220.51 | 12.08 | 162.90 | 1015.08 | 48.87 | 3.37 | 72.57 | 13.84 | 13.84 | 438.12 | 103.51 |
| Stops [stops/h] | 45.97 | 283.54 | 13.99 | 142.87 | 787.56 | 27.75 | 33.32 | 538.27 | 87.59 | 19.99 | 818.78 | 98.34 |
| Fuel consumption [US gal/h] | 2.08 | 13.75 | 0.72 | 9.04 | 51.95 | 2.27 | 0.92 | 13.70 | 2.29 | 0.96 | 35.49 | 5.60 |
| CO [g/h] | 145.74 | 961.29 | 50.13 | 632.03 | 3631.63 | 158.45 | 64.65 | 957.86 | 159.95 | 67.28 | 2480.60 | 391.70 |
| NOx [g/h] | 28.36 | 187.03 | 9.75 | 122.97 | 706.58 | 30.83 | 12.58 | 186.37 | 31.12 | 13.09 | 482.64 | 76.21 |
| VOC [g/h] | 33.78 | 222.79 | 11.62 | 146.48 | 841.66 | 36.72 | 14.98 | 221.99 | 37.07 | 15.59 | 574.90 | 90.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.36 | 44.36 | 44.36 | 44.36 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.871 | 2.987 | 2.918 | 2.878 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 730 | 730 | 730 | 730 |
| d_b, Bicycle Delay [s] | 22.10 | 22.10 | 22.10 | 22.10 |
| l_b,int, Bicycle LOS Score for Intersection | 1.970 | 2.554 | 2.416 | 3.083 |
| Bicycle LOS | A | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 48.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 63 | 314 | 16 | 265 | 690 | 25 | 12 | 329 | 432 | 18 | 693 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 63 | 314 | 16 | 265 | 690 | 25 | 12 | 329 | 432 | 18 | 693 | 64 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 88 | 4 | 74 | 194 | 7 | 3 | 92 | 121 | 5 | 195 | 18 |
| Total Analysis Volume [veh/h] | 71 | 353 | 18 | 298 | 775 | 28 | 13 | 370 | 485 | 20 | 779 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 19 | 19 | 13 | 23 | 23 | 3 | 32 | 32 | 4 | 33 | 33 |
| g / C, Green / Cycle | 0.12 | 0.23 | 0.23 | 0.16 | 0.27 | 0.27 | 0.03 | 0.38 | 0.38 | 0.05 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.10 | 0.10 | 0.17 | 0.21 | 0.21 | 0.01 | 0.20 | 0.31 | 0.01 | 0.42 | 0.04 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1797 | 1791 | 1891 | 1868 | 1810 | 1835 | 1548 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 209 | 423 | 415 | 277 | 510 | 503 | 61 | 691 | 583 | 86 | 731 | 624 |
| d1, Uniform Delay [s] | 34.13 | 27.65 | 27.67 | 35.47 | 28.49 | 28.49 | 39.45 | 20.44 | 23.68 | 38.52 | 25.61 | 16.36 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.45 | 0.14 | 0.14 | 0.11 | 0.12 | 0.34 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.96 | 0.72 | 0.75 | 72.25 | 3.69 | 3.75 | 1.69 | 0.71 | 9.32 | 1.38 | 52.41 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.44 | 0.44 | 1.07 | 0.79 | 0.79 | 0.21 | 0.54 | 0.83 | 0.23 | 1.07 | 0.12 |
| d, Delay for Lane Group [s/veh] | 35.09 | 28.37 | 28.42 | 107.72 | 32.18 | 32.23 | 41.14 | 21.15 | 33.00 | 39.90 | 78.02 | 16.45 |
| Lane Group LOS | D | C | C | F | C | C | D | C | C | D | F | B |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.31 | 3.07 | 3.04 | 10.85 | 7.43 | 7.35 | 0.28 | 5.21 | 9.21 | 0.41 | 23.37 | 0.82 |
| 50th-Percentile Queue Length [ft/ln] | 32.84 | 76.73 | 75.93 | 271.32 | 185.85 | 183.82 | 6.92 | 130.19 | 230.21 | 10.24 | 584.16 | 20.39 |
| 95th-Percentile Queue Length [veh/ln] | 2.36 | 5.52 | 5.47 | 16.80 | 11.91 | 11.80 | 0.50 | 8.95 | 14.18 | 0.74 | 32.73 | 1.47 |
| 95th-Percentile Queue Length [ft/ln] | 59.11 | 138.12 | 136.67 | 420.10 | 297.64 | 294.99 | 12.45 | 223.76 | 354.62 | 18.43 | 818.30 | 36.71 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.09 | 28.39 | 28.42 | 107.72 | 32.20 | 32.23 | 41.14 | 21.15 | 33.00 | 39.90 | 78.02 | 16.45 |
| Movement LOS | D | C | C | F | C | C | D | C | C | D | F | B |
| d_A, Approach Delay [s/veh] | 29.47 | | | 52.64 | | | 28.07 | | | 72.06 | | |
| Approach LOS | C | | | D | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 48.18 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.807 | | | | | | | | | | | |

**Emissions**

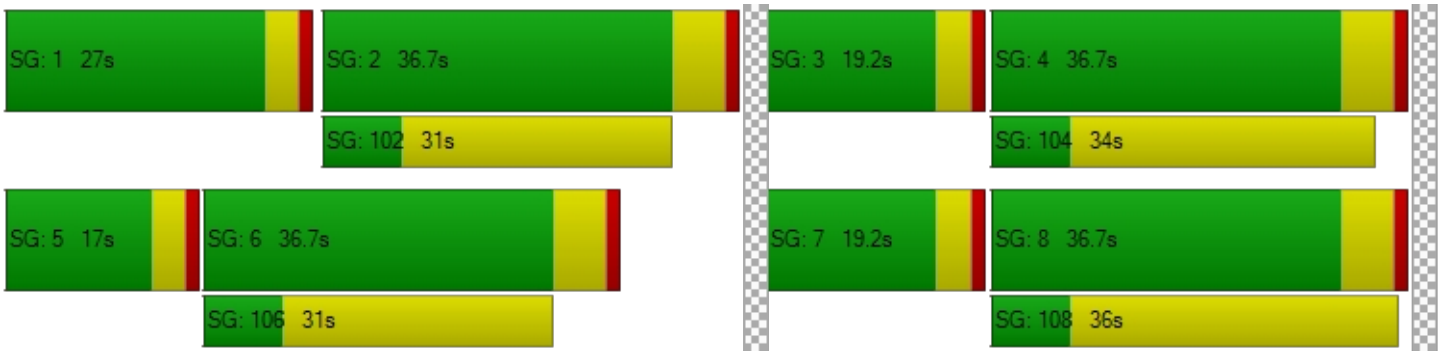
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.72 | 99.15 | 97.96 | 156.46 | 212.07 | 209.52 | 1.30 | 37.09 | 48.62 | 9.52 | 370.76 | 34.27 |
| Stops [stops/h] | 56.41 | 131.81 | 130.43 | 466.07 | 319.25 | 315.76 | 11.89 | 223.65 | 395.45 | 17.58 | 1003.47 | 35.03 |
| Fuel consumption [US gal/h] | 2.50 | 6.11 | 6.05 | 17.69 | 13.88 | 13.73 | 0.30 | 5.64 | 9.84 | 0.71 | 37.55 | 1.85 |
| CO [g/h] | 174.84 | 427.43 | 422.61 | 1236.49 | 970.47 | 959.43 | 21.06 | 394.56 | 687.81 | 49.44 | 2624.95 | 129.40 |
| NOx [g/h] | 34.02 | 83.16 | 82.22 | 240.58 | 188.82 | 186.67 | 4.10 | 76.77 | 133.82 | 9.62 | 510.72 | 25.18 |
| VOC [g/h] | 40.52 | 99.06 | 97.94 | 286.57 | 224.92 | 222.36 | 4.88 | 91.44 | 159.41 | 11.46 | 608.36 | 29.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.64 | 31.64 | 31.64 | 31.64 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.868 | 2.746 | 2.765 | 2.696 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 740 | 740 | 740 | 740 |
| d_b, Bicycle Delay [s] | 16.65 | 16.65 | 16.65 | 16.65 |
| l_b,int, Bicycle LOS Score for Intersection | 1.924 | 2.468 | 2.992 | 2.997 |
| Bicycle LOS | A | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 43.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.812 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 219 | 265 | 134 | 209 | 487 | 662 | 204 | 1123 | 235 | 153 | 1651 | 131 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 219 | 265 | 134 | 209 | 487 | 662 | 204 | 1123 | 235 | 153 | 1651 | 131 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 59 | 71 | 36 | 56 | 131 | 178 | 55 | 302 | 63 | 41 | 444 | 35 |
| Total Analysis Volume [veh/h] | 235 | 285 | 144 | 225 | 524 | 712 | 219 | 1208 | 253 | 165 | 1775 | 141 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 24 | 44 | 0 | 18 | 38 | 0 | 17 | 51 | 0 | 17 | 51 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 37 | 37 | 14 | 37 | 37 | 13 | 50 | 50 | 13 | 50 | 50 |
| g / C, Green / Cycle | 0.11 | 0.29 | 0.29 | 0.11 | 0.29 | 0.29 | 0.10 | 0.38 | 0.38 | 0.10 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.08 | 0.09 | 0.07 | 0.10 | 0.25 | 0.07 | 0.24 | 0.16 | 0.05 | 0.35 | 0.09 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1545 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 368 | 1008 | 443 | 367 | 1468 | 812 | 336 | 1926 | 604 | 342 | 1930 | 602 |
| d1, Uniform Delay [s] | 55.59 | 36.03 | 36.51 | 55.42 | 36.89 | 44.24 | 56.34 | 32.68 | 29.57 | 55.36 | 38.32 | 27.30 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.69 | 0.06 | 0.16 | 0.62 | 0.17 | 3.62 | 0.80 | 1.56 | 2.13 | 0.39 | 8.64 | 0.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.28 | 0.33 | 0.61 | 0.36 | 0.88 | 0.65 | 0.63 | 0.42 | 0.48 | 0.92 | 0.23 |
| d, Delay for Lane Group [s/veh] | 56.28 | 36.09 | 36.67 | 56.04 | 37.05 | 47.86 | 57.14 | 34.23 | 31.70 | 55.75 | 46.97 | 28.22 |
| Lane Group LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.68 | 3.48 | 3.58 | 3.49 | 4.34 | 10.96 | 3.43 | 10.22 | 6.01 | 2.53 | 18.67 | 3.06 |
| 50th-Percentile Queue Length [ft/ln] | 92.06 | 87.09 | 89.47 | 87.14 | 108.49 | 274.03 | 85.71 | 255.40 | 150.20 | 63.21 | 466.68 | 76.49 |
| 95th-Percentile Queue Length [veh/ln] | 6.63 | 6.27 | 6.44 | 6.27 | 7.76 | 16.39 | 6.17 | 15.46 | 10.03 | 4.55 | 25.75 | 5.51 |
| 95th-Percentile Queue Length [ft/ln] | 165.70 | 156.77 | 161.04 | 156.84 | 193.90 | 409.77 | 154.28 | 386.45 | 250.70 | 113.78 | 643.82 | 137.68 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 56.28 | 36.09 | 36.67 | 56.04 | 37.05 | 47.86 | 57.14 | 34.23 | 31.70 | 55.75 | 46.97 | 28.22 |
| Movement LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 43.36 | | | 45.24 | | | 36.84 | | | 46.39 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 43.04 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.812 | | | | | | | | | | | |

**Emissions**

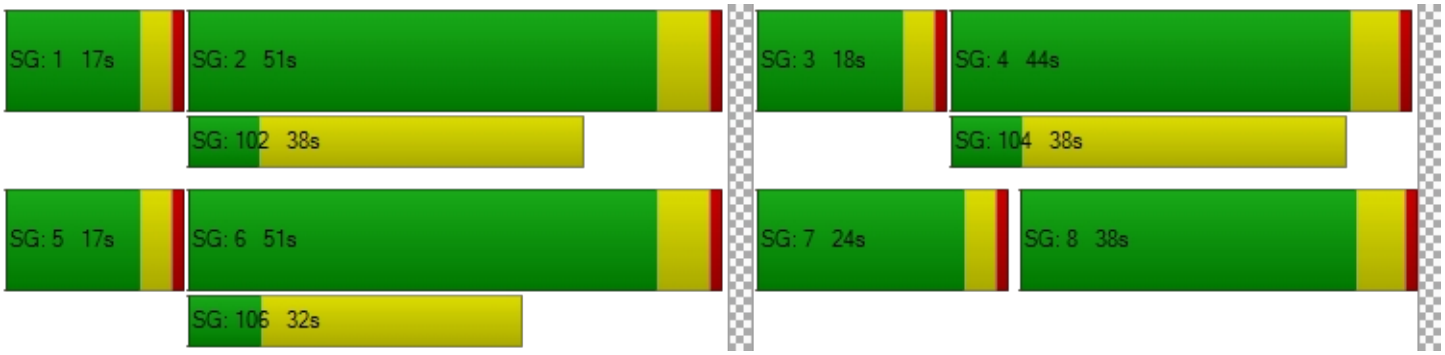
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 17.18 | 20.83 | 10.53 | 119.54 | 278.40 | 378.29 | 24.92 | 137.45 | 28.79 | 82.35 | 885.86 | 70.37 |
| Stops [stops/h] | 203.83 | 192.84 | 99.05 | 192.94 | 360.34 | 606.76 | 189.79 | 848.29 | 166.29 | 139.97 | 1550.00 | 84.68 |
| Fuel consumption [US gal/h] | 5.31 | 4.73 | 2.42 | 9.06 | 17.97 | 27.44 | 5.76 | 23.67 | 4.69 | 6.43 | 66.60 | 4.27 |
| CO [g/h] | 371.10 | 330.88 | 169.48 | 633.46 | 1256.38 | 1918.39 | 402.64 | 1654.80 | 327.57 | 449.79 | 4655.38 | 298.79 |
| NOx [g/h] | 72.20 | 64.38 | 32.98 | 123.25 | 244.45 | 373.25 | 78.34 | 321.96 | 63.73 | 87.51 | 905.77 | 58.13 |
| VOC [g/h] | 86.01 | 76.68 | 39.28 | 146.81 | 291.18 | 444.61 | 93.32 | 383.52 | 75.92 | 104.24 | 1078.93 | 69.25 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 32.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.50 | 54.50 | 36.74 | 54.50 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.004 | 3.376 | 3.723 | 3.461 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 589 | 497 | 692 | 692 |
| d_b, Bicycle Delay [s] | 32.39 | 36.74 | 27.82 | 27.82 |
| l_b,int, Bicycle LOS Score for Intersection | 1.925 | 2.363 | 2.484 | 2.704 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.514 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 491 | 0 | 0 | 0 | 0 | 1064 | 264 | 0 | 2419 | 68 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 491 | 0 | 0 | 0 | 0 | 1064 | 264 | 0 | 2419 | 68 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 131 | 0 | 0 | 0 | 0 | 283 | 70 | 0 | 643 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 522 | 0 | 0 | 0 | 0 | 1132 | 281 | 0 | 2573 | 72 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 32 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 36 | 36 | | 80 | 80 | 80 |
| g / C, Green / Cycle | 0.28 | 0.28 | | 0.61 | 0.61 | 0.61 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.19 | | 0.22 | 0.30 | 0.05 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1443 | 774 | | 3101 | 5211 | 979 |
| d1, Uniform Delay [s] | 37.33 | 41.65 | | 12.51 | 13.93 | 10.17 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.34 | 2.55 | | 0.33 | 0.34 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.67 | | 0.36 | 0.49 | 0.07 |
| d, Delay for Lane Group [s/veh] | 37.67 | 44.20 | | 12.84 | 14.26 | 10.31 |
| Lane Group LOS | D | D | | B | B | B |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.98 | 7.35 | | 5.15 | 7.78 | 0.82 |
| 50th-Percentile Queue Length [ft/ln] | 99.54 | 183.72 | | 128.81 | 194.38 | 20.60 |
| 95th-Percentile Queue Length [veh/ln] | 7.17 | 11.79 | | 8.88 | 12.35 | 1.48 |
| 95th-Percentile Queue Length [ft/ln] | 179.17 | 294.87 | | 221.88 | 308.70 | 37.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.67 | 0.00 | 44.20 | 0.00 | 0.00 | 0.00 | 0.00 | 12.84 | 0.00 | 0.00 | 14.26 | 10.31 |
| Movement LOS | D | | D | | | | | B | | | B | B |
| d_A, Approach Delay [s/veh] | 41.05 | | | 0.00 | | | 10.41 | | | 14.16 | | |
| Approach LOS | D | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.94 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.514 | | | | | | | | | | | |

**Emissions**

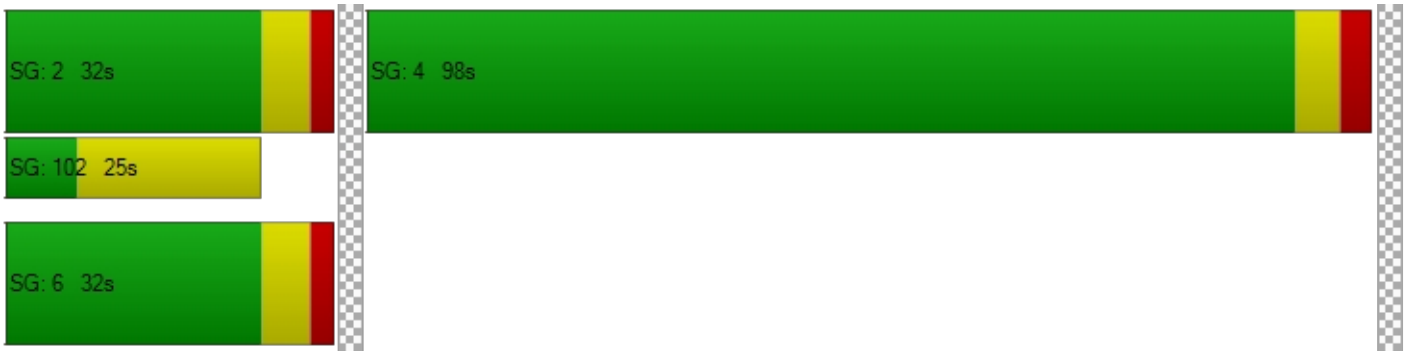
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 68.43 | | 178.13 | 292.77 | 8.19 |
| Stops [stops/h] | 330.95 | 407.23 | | 428.28 | 1077.12 | 22.83 |
| Fuel consumption [US gal/h] | 12.00 | 14.55 | | 14.39 | 30.90 | 0.72 |
| CO [g/h] | 839.08 | 1016.90 | | 1005.82 | 2159.65 | 50.04 |
| NOx [g/h] | 163.26 | 197.85 | | 195.70 | 420.19 | 9.74 |
| VOC [g/h] | 194.47 | 235.68 | | 233.11 | 500.52 | 11.60 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.771 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1396 | 0 | 388 | 388 |
| d_b, Bicycle Delay [s] | 5.92 | 64.97 | 42.21 | 42.21 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.182 | 2.432 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.005 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 78 | 0 | 836 | 0 | 1266 | 972 | 0 | 2227 | 688 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 78 | 0 | 836 | 0 | 1266 | 972 | 0 | 2227 | 688 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 20 | 0 | 218 | 0 | 330 | 253 | 0 | 580 | 179 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 81 | 0 | 871 | 0 | 1319 | 1013 | 0 | 2320 | 717 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 86 | 0 | 0 | 86 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 37 | 37 | 79 | 79 | 79 |
| g / C, Green / Cycle | | 0.29 | 0.29 | 0.61 | 0.61 | 0.61 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.31 | 0.20 | 0.65 | 0.34 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 994 | 815 | 4098 | 945 | 4121 |
| d1, Uniform Delay [s] | | 33.86 | 46.31 | 12.32 | 25.35 | 15.07 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.09 | 43.71 | 0.21 | 50.54 | 0.56 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.08 | 1.07 | 0.32 | 1.07 | 0.56 |
| d, Delay for Lane Group [s/veh] | | 33.95 | 90.03 | 12.53 | 75.89 | 15.64 |
| Lane Group LOS | | C | F | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.96 | 18.01 | 4.38 | 38.74 | 9.46 |
| 50th-Percentile Queue Length [ft/ln] | | 24.01 | 450.21 | 109.47 | 968.38 | 236.42 |
| 95th-Percentile Queue Length [veh/ln] | | 1.73 | 25.99 | 7.81 | 51.92 | 14.50 |
| 95th-Percentile Queue Length [ft/ln] | | 43.21 | 649.85 | 195.27 | 1297.98 | 362.50 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 33.95 | 0.00 | 90.03 | 0.00 | 12.53 | 75.89 | 0.00 | 15.64 | 0.00 |
| Movement LOS | | | | C | | F | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 85.26 | | | 40.05 | | | 12.06 | | |
| Approach LOS | A | | | F | | | D | | | B | | |
| d_I, Intersection Delay [s/veh] | 36.14 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 1.005 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 12.48 | 134.22 | 127.72 | 98.09 | 365.07 |
| Stops [stops/h] | | 53.24 | 998.46 | 485.57 | 1073.82 | 1048.65 |
| Fuel consumption [US gal/h] | | 1.37 | 27.00 | 13.78 | 32.36 | 32.93 |
| CO [g/h] | | 95.59 | 1887.05 | 963.11 | 2261.62 | 2302.10 |
| NOx [g/h] | | 18.60 | 367.15 | 187.39 | 440.03 | 447.91 |
| VOC [g/h] | | 22.15 | 437.34 | 223.21 | 524.15 | 533.53 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.226 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 573 | 1220 | 1220 |
| d_b, Bicycle Delay [s] | 64.93 | 33.06 | 9.88 | 9.88 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.522 | 2.517 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 19.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.754 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 78 | 54 | 26 | 6 | 209 | 73 | 18 | 310 | 122 | 127 | 131 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 54 | 26 | 6 | 209 | 73 | 18 | 310 | 122 | 127 | 131 | 1 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 14 | 7 | 2 | 53 | 19 | 5 | 79 | 31 | 32 | 33 | 0 |
| Total Analysis Volume [veh/h] | 80 | 55 | 27 | 6 | 213 | 74 | 18 | 316 | 124 | 130 | 134 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 517 | 558 | 607 | 550 |
| Degree of Utilization, x | 0.31 | 0.53 | 0.75 | 0.48 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 1.33 | 3.04 | 6.76 | 2.60 |
| 95th-Percentile Queue Length [ft] | 33.28 | 76.10 | 169.01 | 65.11 |
| Approach Delay [s/veh] | 13.13 | 16.39 | 24.84 | 15.50 |
| Approach LOS | B | C | C | C |
| Intersection Delay [s/veh] | 19.03 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 78.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.998 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 98 | 18 | 28 | 437 | 176 | 21 | 359 | 485 | 58 | 454 | 46 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 128 | 98 | 18 | 28 | 437 | 176 | 21 | 359 | 485 | 58 | 454 | 46 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 34 | 26 | 5 | 7 | 115 | 46 | 6 | 94 | 128 | 15 | 119 | 12 |
| Total Analysis Volume [veh/h] | 135 | 103 | 19 | 29 | 460 | 185 | 22 | 378 | 511 | 61 | 478 | 48 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 15 | 50 | 50 | 7 | 42 | 6 | 42 | 42 | 10 | 46 | 46 |
| g / C, Green / Cycle | 0.12 | 0.40 | 0.40 | 0.06 | 0.34 | 0.05 | 0.34 | 0.34 | 0.08 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.06 | 0.01 | 0.02 | 0.40 | 0.01 | 0.23 | 0.36 | 0.04 | 0.16 | 0.16 |
| s, saturation flow rate [veh/h] | 1281 | 1645 | 1414 | 1468 | 1628 | 1537 | 1669 | 1417 | 1537 | 1683 | 1630 |
| c, Capacity [veh/h] | 155 | 657 | 565 | 84 | 547 | 75 | 561 | 476 | 121 | 617 | 597 |
| d1, Uniform Delay [s] | 53.97 | 24.01 | 22.82 | 56.61 | 41.46 | 57.36 | 35.57 | 41.46 | 55.21 | 29.80 | 29.83 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.04 | 0.28 | 0.50 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.80 | 0.12 | 0.03 | 0.90 | 98.14 | 0.81 | 3.63 | 62.15 | 1.21 | 0.79 | 0.82 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.87 | 0.16 | 0.03 | 0.34 | 1.18 | 0.29 | 0.67 | 1.07 | 0.50 | 0.43 | 0.43 |
| d, Delay for Lane Group [s/veh] | 59.77 | 24.13 | 22.84 | 57.51 | 139.59 | 58.16 | 39.20 | 103.61 | 56.42 | 30.59 | 30.65 |
| Lane Group LOS | E | C | C | E | F | E | D | F | E | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.31 | 1.91 | 0.34 | 0.88 | 30.93 | 0.67 | 10.06 | 22.16 | 1.84 | 5.95 | 5.80 |
| 50th-Percentile Queue Length [ft/ln] | 107.79 | 47.84 | 8.39 | 22.06 | 773.27 | 16.84 | 251.39 | 553.96 | 46.08 | 148.85 | 145.11 |
| 95th-Percentile Queue Length [veh/ln] | 7.72 | 3.44 | 0.60 | 1.59 | 44.43 | 1.21 | 15.26 | 31.30 | 3.32 | 9.96 | 9.76 |
| 95th-Percentile Queue Length [ft/ln] | 192.93 | 86.12 | 15.11 | 39.72 | 1110.85 | 30.31 | 381.40 | 782.40 | 82.95 | 248.89 | 243.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 59.77 | 24.13 | 22.84 | 57.51 | 139.59 | 139.59 | 58.16 | 39.20 | 103.61 | 56.42 | 30.62 | 30.65 |
| Movement LOS | E | C | C | E | F | F | E | D | F | E | C | C |
| d_A, Approach Delay [s/veh] | 42.76 | | | 136.06 | | | 75.79 | | | 33.30 | | |
| Approach LOS | D | | | F | | | E | | | C | | |
| d_I, Intersection Delay [s/veh] | 78.75 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.998 | | | | | | | | | | | |

**Emissions**

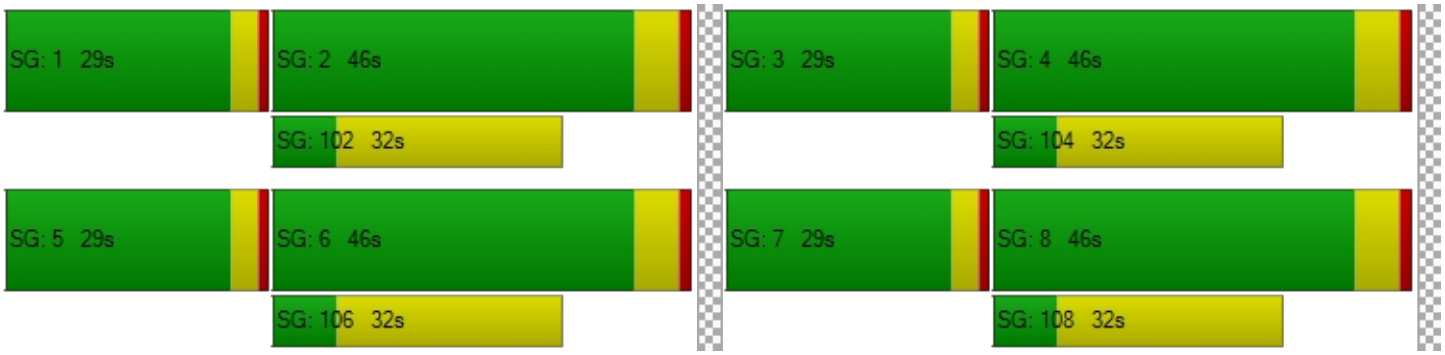
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 67.13 | 51.22 | 9.45 | 29.20 | 649.38 | 13.24 | 227.49 | 307.53 | 30.43 | 132.96 | 129.40 |
| Stops [stops/h] | 124.43 | 55.23 | 9.69 | 25.47 | 892.61 | 19.44 | 290.18 | 639.45 | 53.19 | 171.82 | 167.51 |
| Fuel consumption [US gal/h] | 5.49 | 2.95 | 0.53 | 1.66 | 51.68 | 0.96 | 14.42 | 29.26 | 2.40 | 8.35 | 8.14 |
| CO [g/h] | 383.74 | 206.07 | 37.23 | 115.81 | 3612.21 | 66.82 | 1008.02 | 2045.58 | 168.08 | 583.88 | 568.72 |
| NOx [g/h] | 74.66 | 40.09 | 7.24 | 22.53 | 702.80 | 13.00 | 196.12 | 398.00 | 32.70 | 113.60 | 110.65 |
| VOC [g/h] | 88.94 | 47.76 | 8.63 | 26.84 | 837.16 | 15.49 | 233.62 | 474.08 | 38.95 | 135.32 | 131.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 51.86 | 51.86 | 51.86 | 51.86 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.693 | 2.369 | 2.815 | 2.612 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 641 | 641 | 641 | 641 |
| d_b, Bicycle Delay [s] | 28.79 | 28.79 | 28.79 | 28.79 |
| l_b,int, Bicycle LOS Score for Intersection | 1.984 | 2.672 | 2.311 | 2.044 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 138.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.150 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 8 | 199 | 36 | 206 | 708 | 138 | 103 | 364 | 228 | 51 | 932 | 78 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 199 | 36 | 206 | 708 | 138 | 103 | 364 | 228 | 51 | 932 | 78 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 63 | 11 | 65 | 224 | 44 | 33 | 115 | 72 | 16 | 295 | 25 |
| Total Analysis Volume [veh/h] | 10 | 252 | 46 | 261 | 896 | 175 | 130 | 461 | 289 | 65 | 1180 | 99 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 18 | 18 | 16 | 32 | 32 | 10 | 35 | 35 | 8 | 34 | 34 |
| g / C, Green / Cycle | 0.03 | 0.19 | 0.19 | 0.17 | 0.34 | 0.34 | 0.11 | 0.37 | 0.37 | 0.09 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.08 | 0.08 | 0.15 | 0.30 | 0.30 | 0.07 | 0.24 | 0.19 | 0.04 | 0.62 | 0.06 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1747 | 1737 | 1849 | 1741 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 47 | 360 | 338 | 300 | 626 | 590 | 188 | 708 | 568 | 159 | 677 | 567 |
| d1, Uniform Delay [s] | 44.75 | 33.30 | 33.40 | 37.87 | 29.24 | 29.37 | 40.60 | 24.37 | 22.76 | 40.45 | 30.18 | 20.65 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.27 | 0.36 | 0.37 | 0.11 | 0.24 | 0.13 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.26 | 0.78 | 0.88 | 16.82 | 12.04 | 13.66 | 4.48 | 2.28 | 0.84 | 1.67 | 339.91 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.42 | 0.43 | 0.87 | 0.88 | 0.89 | 0.69 | 0.65 | 0.51 | 0.41 | 1.74 | 0.17 |
| d, Delay for Lane Group [s/veh] | 47.01 | 34.08 | 34.28 | 54.69 | 41.28 | 43.04 | 45.08 | 26.65 | 23.60 | 42.12 | 370.09 | 20.79 |
| Lane Group LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.25 | 2.99 | 2.92 | 6.94 | 12.78 | 12.45 | 3.01 | 8.22 | 4.68 | 1.44 | 77.86 | 1.41 |
| 50th-Percentile Queue Length [ft/ln] | 6.28 | 74.80 | 73.05 | 173.45 | 319.56 | 311.30 | 75.16 | 205.39 | 116.99 | 35.89 | 1946.47 | 35.29 |
| 95th-Percentile Queue Length [veh/ln] | 0.45 | 5.39 | 5.26 | 11.26 | 18.65 | 18.24 | 5.41 | 12.92 | 8.23 | 2.58 | 121.33 | 2.54 |
| 95th-Percentile Queue Length [ft/ln] | 11.30 | 134.64 | 131.49 | 281.45 | 466.15 | 455.97 | 135.29 | 322.90 | 205.68 | 64.61 | 3033.29 | 63.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 47.01 | 34.16 | 34.28 | 54.69 | 41.96 | 43.04 | 45.08 | 26.65 | 23.60 | 42.12 | 370.09 | 20.79 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 34.60 | | | 44.60 | | | 28.37 | | | 328.50 | | |
| Approach LOS | C | | | D | | | C | | | F | | |
| d_I, Intersection Delay [s/veh] | 138.85 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.150 | | | | | | | | | | | |

**Emissions**

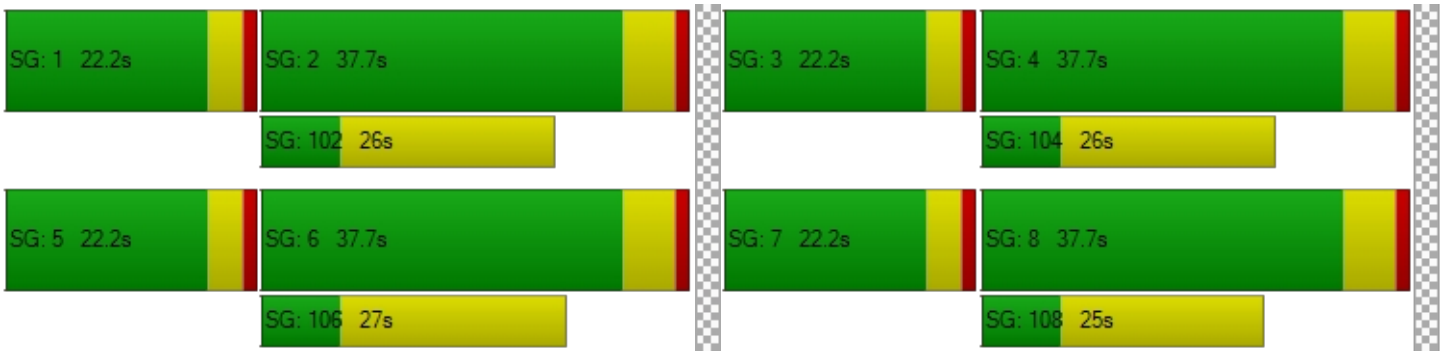
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.40 | 81.68 | 79.35 | 129.78 | 272.91 | 259.64 | 61.87 | 219.41 | 137.55 | 32.03 | 581.47 | 48.78 |
| Stops [stops/h] | 9.62 | 114.71 | 112.02 | 265.99 | 490.04 | 477.37 | 115.26 | 314.96 | 179.40 | 55.04 | 2984.89 | 54.11 |
| Fuel consumption [US gal/h] | 0.38 | 5.10 | 4.97 | 10.66 | 20.06 | 19.41 | 4.75 | 13.94 | 8.33 | 2.34 | 145.90 | 2.76 |
| CO [g/h] | 26.82 | 356.57 | 347.20 | 745.17 | 1402.05 | 1356.62 | 331.77 | 974.21 | 582.49 | 163.52 | 10198.1 | 193.19 |
| NOx [g/h] | 5.22 | 69.38 | 67.55 | 144.98 | 272.79 | 263.95 | 64.55 | 189.55 | 113.33 | 31.81 | 1984.19 | 37.59 |
| VOC [g/h] | 6.22 | 82.64 | 80.47 | 172.70 | 324.94 | 314.41 | 76.89 | 225.78 | 135.00 | 37.90 | 2363.52 | 44.77 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.60 | 36.60 | 36.60 | 36.60 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.707 | 2.832 | 2.954 | 2.905 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 682 | 682 | 682 | 682 |
| d_b, Bicycle Delay [s] | 20.41 | 20.40 | 20.40 | 20.40 |
| l_b,int, Bicycle LOS Score for Intersection | 1.814 | 2.659 | 3.012 | 3.777 |
| Bicycle LOS | A | B | C | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.663 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 154 | 83 | 78 | 311 | 331 | 331 | 103 | 867 | 403 | 155 | 1302 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 154 | 83 | 78 | 311 | 331 | 331 | 103 | 867 | 403 | 155 | 1302 | 23 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 22 | 21 | 84 | 89 | 89 | 28 | 233 | 108 | 42 | 350 | 6 |
| Total Analysis Volume [veh/h] | 166 | 89 | 84 | 334 | 356 | 356 | 111 | 932 | 433 | 167 | 1400 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 19 | 37 | 0 | 20 | 38 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 29 | 29 | 15 | 31 | 31 | 13 | 47 | 47 | 13 | 48 | 48 |
| g / C, Green / Cycle | 0.11 | 0.24 | 0.24 | 0.13 | 0.26 | 0.26 | 0.11 | 0.39 | 0.39 | 0.11 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.03 | 0.06 | 0.10 | 0.11 | 0.22 | 0.03 | 0.18 | 0.27 | 0.05 | 0.27 | 0.02 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1526 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 364 | 812 | 365 | 415 | 800 | 407 | 375 | 2005 | 621 | 375 | 2023 | 621 |
| d1, Uniform Delay [s] | 50.25 | 35.75 | 36.83 | 51.17 | 37.60 | 42.93 | 49.59 | 27.08 | 30.49 | 50.24 | 30.27 | 22.34 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.20 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.33 | 0.05 | 0.25 | 1.41 | 0.31 | 10.60 | 0.16 | 0.78 | 6.39 | 0.31 | 1.97 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.11 | 0.23 | 0.80 | 0.44 | 0.88 | 0.30 | 0.46 | 0.70 | 0.45 | 0.69 | 0.04 |
| d, Delay for Lane Group [s/veh] | 50.58 | 35.80 | 37.09 | 52.58 | 37.92 | 53.53 | 49.75 | 27.86 | 36.89 | 50.55 | 32.24 | 22.46 |
| Lane Group LOS | D | D | D | D | D | D | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.32 | 1.01 | 1.99 | 4.97 | 4.45 | 11.27 | 1.55 | 6.73 | 11.45 | 2.31 | 11.03 | 0.44 |
| 50th-Percentile Queue Length [ft/ln] | 58.11 | 25.33 | 49.65 | 124.29 | 111.13 | 281.72 | 38.82 | 168.37 | 286.13 | 57.87 | 275.64 | 11.06 |
| 95th-Percentile Queue Length [veh/ln] | 4.18 | 1.82 | 3.57 | 8.63 | 7.90 | 16.77 | 2.80 | 10.99 | 16.99 | 4.17 | 16.47 | 0.80 |
| 95th-Percentile Queue Length [ft/ln] | 104.60 | 45.59 | 89.37 | 215.70 | 197.57 | 419.36 | 69.88 | 274.77 | 424.84 | 104.17 | 411.78 | 19.90 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.58 | 35.80 | 37.09 | 52.58 | 37.92 | 53.53 | 49.75 | 27.86 | 36.89 | 50.55 | 32.24 | 22.46 |
| Movement LOS | D | D | D | D | D | D | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 43.36 | | | 47.91 | | | 32.15 | | | 34.01 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 37.37 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.663 | | | | | | | | | | | |

**Emissions**

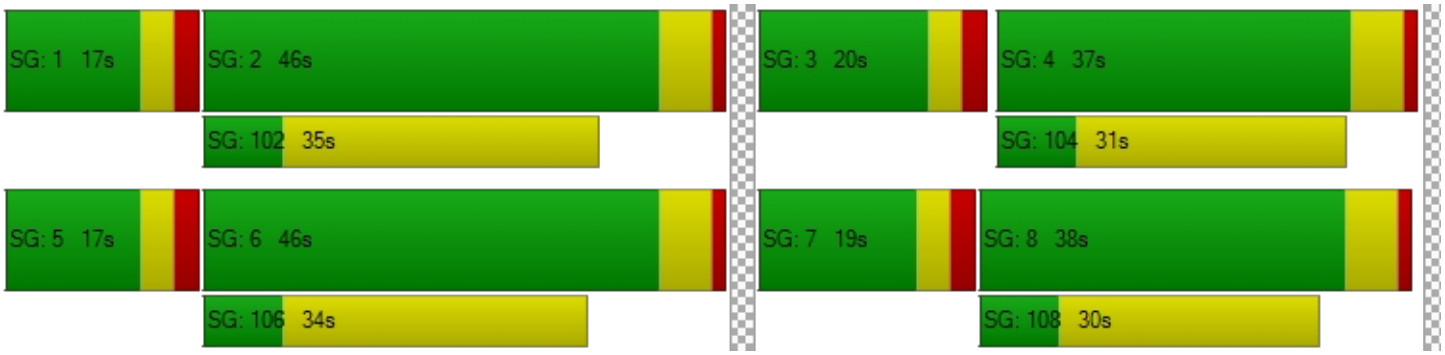
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 17.37 | 9.32 | 8.79 | 180.48 | 192.37 | 192.37 | 55.40 | 465.14 | 216.10 | 19.25 | 161.36 | 2.88 |
| Stops [stops/h] | 139.28 | 60.71 | 59.50 | 297.89 | 266.35 | 337.61 | 93.05 | 605.31 | 342.90 | 138.71 | 990.98 | 13.25 |
| Fuel consumption [US gal/h] | 3.70 | 1.58 | 1.53 | 12.65 | 12.14 | 13.66 | 3.92 | 27.78 | 14.04 | 4.10 | 27.04 | 0.38 |
| CO [g/h] | 258.56 | 110.33 | 107.18 | 884.19 | 848.41 | 955.01 | 273.88 | 1941.49 | 981.43 | 286.73 | 1889.87 | 26.41 |
| NOx [g/h] | 50.31 | 21.47 | 20.85 | 172.03 | 165.07 | 185.81 | 53.29 | 377.74 | 190.95 | 55.79 | 367.70 | 5.14 |
| VOC [g/h] | 59.92 | 25.57 | 24.84 | 204.92 | 196.63 | 221.33 | 63.48 | 449.96 | 227.45 | 66.45 | 438.00 | 6.12 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.58 | 49.58 | 49.58 | 49.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.848 | 2.785 | 3.231 | 3.341 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 521 | 538 | 671 | 671 |
| d_b, Bicycle Delay [s] | 32.86 | 32.12 | 26.54 | 26.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.839 | 2.423 | 2.371 | 2.435 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 50.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.810 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 540 | 137 | 2 | 10 | 69 | 30 | 14 | 17 | 301 | 2 | 229 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 540 | 137 | 2 | 10 | 69 | 30 | 14 | 17 | 301 | 2 | 229 | 7 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 148 | 38 | 1 | 3 | 19 | 8 | 4 | 5 | 83 | 1 | 63 | 2 |
| Total Analysis Volume [veh/h] | 593 | 151 | 2 | 11 | 76 | 33 | 15 | 19 | 331 | 2 | 252 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 35 | 1 | 11 | 1 | 22 | 0 | 20 |
| g / C, Green / Cycle | 0.34 | 0.47 | 0.01 | 0.15 | 0.02 | 0.29 | 0.00 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.09 | 0.01 | 0.07 | 0.01 | 0.24 | 0.00 | 0.15 |
| s, saturation flow rate [veh/h] | 1605 | 1631 | 1629 | 1580 | 1629 | 1465 | 1629 | 1701 |
| c, Capacity [veh/h] | 543 | 771 | 23 | 235 | 30 | 430 | 5 | 473 |
| d1, Uniform Delay [s] | 24.42 | 11.31 | 36.14 | 28.75 | 35.92 | 24.23 | 36.75 | 22.72 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 65.73 | 0.12 | 15.01 | 1.43 | 12.59 | 3.79 | 49.97 | 1.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.09 | 0.20 | 0.48 | 0.46 | 0.50 | 0.81 | 0.42 | 0.55 |
| d, Delay for Lane Group [s/veh] | 90.15 | 11.44 | 51.16 | 30.18 | 48.51 | 28.02 | 86.72 | 23.72 |
| Lane Group LOS | F | B | D | C | D | C | F | C |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 18.12 | 1.25 | 0.28 | 1.72 | 0.36 | 5.79 | 0.10 | 3.79 |
| 50th-Percentile Queue Length [ft/ln] | 453.06 | 31.15 | 6.98 | 42.96 | 9.12 | 144.73 | 2.53 | 94.73 |
| 95th-Percentile Queue Length [veh/ln] | 26.53 | 2.24 | 0.50 | 3.09 | 0.66 | 9.73 | 0.18 | 6.82 |
| 95th-Percentile Queue Length [ft/ln] | 663.27 | 56.07 | 12.56 | 77.33 | 16.42 | 243.37 | 4.55 | 170.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 90.15 | 11.44 | 11.44 | 51.16 | 30.18 | 30.18 | 48.51 | 28.02 | 28.02 | 86.72 | 23.72 | 23.72 |
| Movement LOS | F | B | B | D | C | C | D | C | C | F | C | C |
| d_A, Approach Delay [s/veh] | 74.01 | | | 32.10 | | | 28.86 | | | 24.20 | | |
| Approach LOS | E | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 50.86 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.810 | | | | | | | | | | | |

**Emissions**

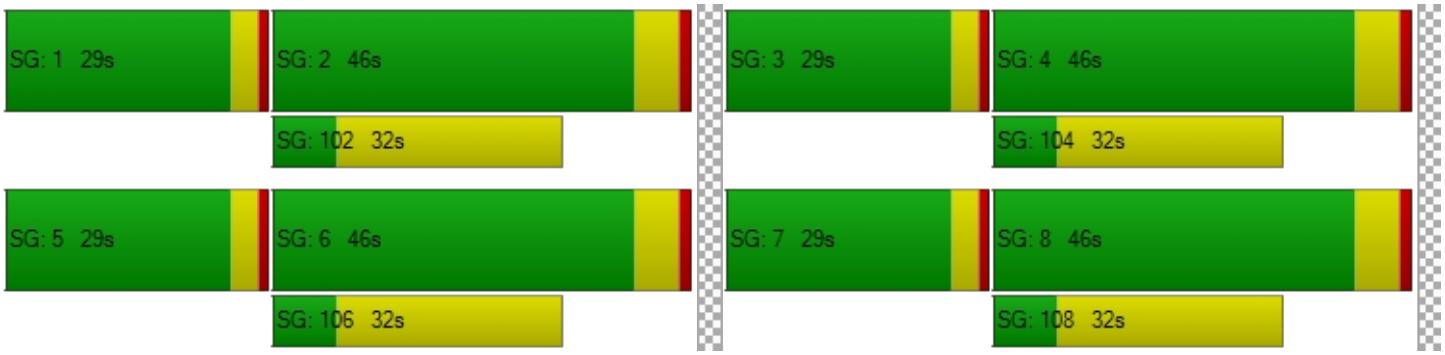
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 297.46 | 76.75 | 0.50 | 4.98 | 7.54 | 176.00 | 0.76 | 98.41 |
| Stops [stops/h] | 884.50 | 60.81 | 13.63 | 83.87 | 17.81 | 282.55 | 4.93 | 184.94 |
| Fuel consumption [US gal/h] | 32.07 | 3.74 | 0.30 | 1.88 | 0.56 | 10.80 | 0.09 | 6.33 |
| CO [g/h] | 2241.78 | 261.63 | 21.05 | 131.62 | 38.93 | 755.07 | 6.55 | 442.35 |
| NOx [g/h] | 436.17 | 50.90 | 4.10 | 25.61 | 7.57 | 146.91 | 1.27 | 86.07 |
| VOC [g/h] | 519.55 | 60.63 | 4.88 | 30.50 | 9.02 | 174.99 | 1.52 | 102.52 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.70 | 26.70 | 26.70 | 26.70 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.492 | 2.073 | 2.333 | 2.025 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1085 | 1085 | 1085 | 1085 |
| d_b, Bicycle Delay [s] | 7.73 | 7.73 | 7.73 | 7.73 |
| l_b,int, Bicycle LOS Score for Intersection | 2.791 | 1.758 | 2.162 | 1.992 |
| Bicycle LOS | C | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.826 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 513 | 171 | 38 | 362 | 434 | 32 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 513 | 171 | 38 | 362 | 434 | 32 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 128 | 43 | 10 | 91 | 109 | 8 |
| Total Analysis Volume [veh/h] | 513 | 171 | 38 | 362 | 434 | 32 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 5 | 2 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 40 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 5.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 5 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 10 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 14 | 0 | 14 | 47 | 9 | 0 |
| Lead / Lag | - | - | Lag | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 10 | 10 | 5 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | L | C | C |
|---|---|---|---|---|
| C, Cycle Length [s] | 87 | 87 | 87 | 87 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 40 | 6 | 50 | 29 |
| g / C, Green / Cycle | 0.46 | 0.07 | 0.57 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.42 | 0.02 | 0.22 | 0.29 |
| s, saturation flow rate [veh/h] | 1612 | 1603 | 1683 | 1590 |
| c, Capacity [veh/h] | 736 | 111 | 962 | 536 |
| d1, Uniform Delay [s] | 22.46 | 38.89 | 10.25 | 27.24 |
| k, delay calibration | 0.41 | 0.11 | 0.11 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 17.09 | 1.82 | 0.24 | 7.73 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | |
|---|---|---|---|---|
| X, volume / capacity | 0.93 | 0.34 | 0.38 | 0.87 |
| d, Delay for Lane Group [s/veh] | 39.54 | 40.71 | 10.49 | 34.97 |
| Lane Group LOS | D | D | B | C |
| Critical Lane Group | Yes | Yes | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 14.95 | 0.80 | 3.22 | 9.87 |
| 50th-Percentile Queue Length [ft/ln] | 373.63 | 19.94 | 80.56 | 246.78 |
| 95th-Percentile Queue Length [veh/ln] | 21.29 | 1.44 | 5.80 | 15.02 |
| 95th-Percentile Queue Length [ft/ln] | 532.13 | 35.90 | 145.01 | 375.60 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.54 | 39.54 | 40.71 | 10.49 | 34.97 | 34.97 |
| Movement LOS | D | D | D | B | C | C |
| d_A, Approach Delay [s/veh] | 39.54 | | 13.36 | | 34.97 | |
| Approach LOS | D | | B | | C | |
| d_I, Intersection Delay [s/veh] | 31.41 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.826 | | | | | |

**Emissions**

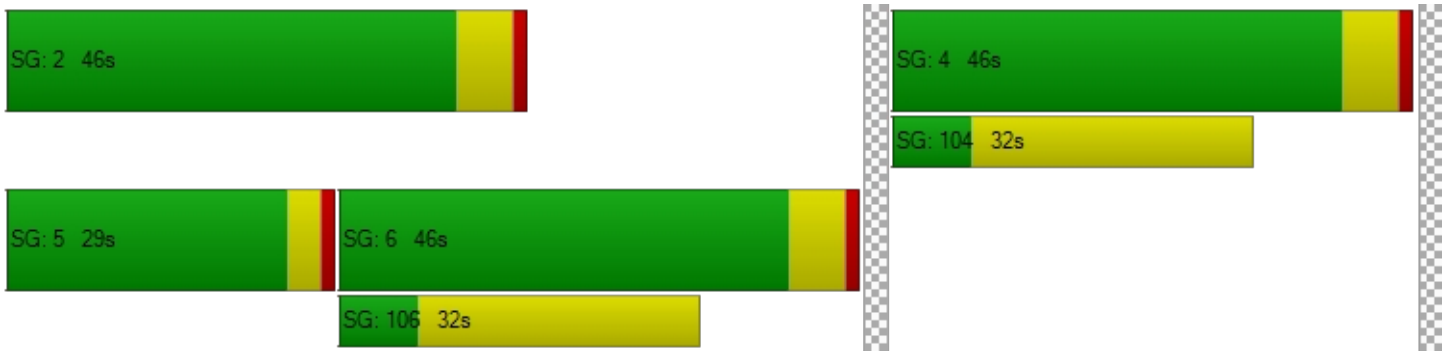
| | | | | |
|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 340.91 | 19.06 | 181.59 | 88.16 |
| Stops [stops/h] | 615.03 | 32.83 | 132.61 | 406.23 |
| Fuel consumption [US gal/h] | 24.84 | 1.38 | 8.65 | 9.19 |
| CO [g/h] | 1736.09 | 96.21 | 604.35 | 642.35 |
| NOx [g/h] | 337.78 | 18.72 | 117.58 | 124.98 |
| VOC [g/h] | 402.35 | 22.30 | 140.06 | 148.87 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.43 | 33.43 | 33.43 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.795 | 2.399 | 2.042 |
| Crosswalk LOS | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 915 | 915 | 915 |
| d_b, Bicycle Delay [s] | 12.88 | 12.88 | 12.88 |
| l_b,int, Bicycle LOS Score for Intersection | 2.688 | 2.220 | 2.329 |
| Bicycle LOS | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.767 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 100 | 244 | 78 | 191 | 413 | 157 | 63 | 334 | 51 | 89 | 92 | 367 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 244 | 78 | 191 | 413 | 157 | 63 | 334 | 51 | 89 | 92 | 367 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 64 | 20 | 50 | 108 | 41 | 16 | 87 | 13 | 23 | 24 | 96 |
| Total Analysis Volume [veh/h] | 104 | 254 | 81 | 199 | 430 | 164 | 66 | 348 | 53 | 93 | 96 | 382 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 31 | 31 | 12 | 35 | 7 | 27 | 27 | 7 | 28 | 28 |
| g / C, Green / Cycle | 0.09 | 0.33 | 0.33 | 0.13 | 0.37 | 0.07 | 0.29 | 0.29 | 0.08 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.14 | 0.05 | 0.11 | 0.33 | 0.04 | 0.11 | 0.11 | 0.05 | 0.05 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1777 | 1810 | 1870 | 1785 | 1782 | 1900 | 1586 |
| c, Capacity [veh/h] | 162 | 616 | 511 | 237 | 660 | 127 | 544 | 519 | 139 | 567 | 473 |
| d1, Uniform Delay [s] | 41.26 | 24.49 | 22.34 | 39.74 | 27.87 | 42.11 | 26.49 | 26.53 | 42.10 | 24.32 | 30.43 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.30 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.22 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.57 | 0.44 | 0.14 | 3.07 | 11.76 | 1.22 | 0.80 | 0.85 | 2.09 | 0.26 | 6.64 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.41 | 0.16 | 0.84 | 0.90 | 0.52 | 0.37 | 0.38 | 0.67 | 0.17 | 0.81 |
| d, Delay for Lane Group [s/veh] | 42.84 | 24.93 | 22.48 | 42.81 | 39.63 | 43.33 | 27.29 | 27.38 | 44.19 | 24.59 | 37.07 |
| Lane Group LOS | D | C | C | D | D | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.29 | 4.16 | 1.21 | 4.46 | 13.58 | 1.47 | 3.58 | 3.47 | 2.06 | 1.50 | 8.16 |
| 50th-Percentile Queue Length [ft/ln] | 57.29 | 104.10 | 30.24 | 111.52 | 339.53 | 36.81 | 89.56 | 86.85 | 51.58 | 37.60 | 203.88 |
| 95th-Percentile Queue Length [veh/ln] | 4.13 | 7.50 | 2.18 | 7.92 | 19.62 | 2.65 | 6.45 | 6.25 | 3.71 | 2.71 | 12.84 |
| 95th-Percentile Queue Length [ft/ln] | 103.13 | 187.39 | 54.43 | 198.11 | 490.62 | 66.25 | 161.21 | 156.33 | 92.84 | 67.69 | 320.96 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.84 | 24.93 | 22.48 | 42.81 | 39.63 | 39.63 | 43.33 | 27.33 | 27.38 | 44.19 | 24.59 | 37.07 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 28.72 | | | 40.43 | | | 29.60 | | | 36.13 | | |
| Approach LOS | C | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.85 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.767 | | | | | | | | | | | |

**Emissions**

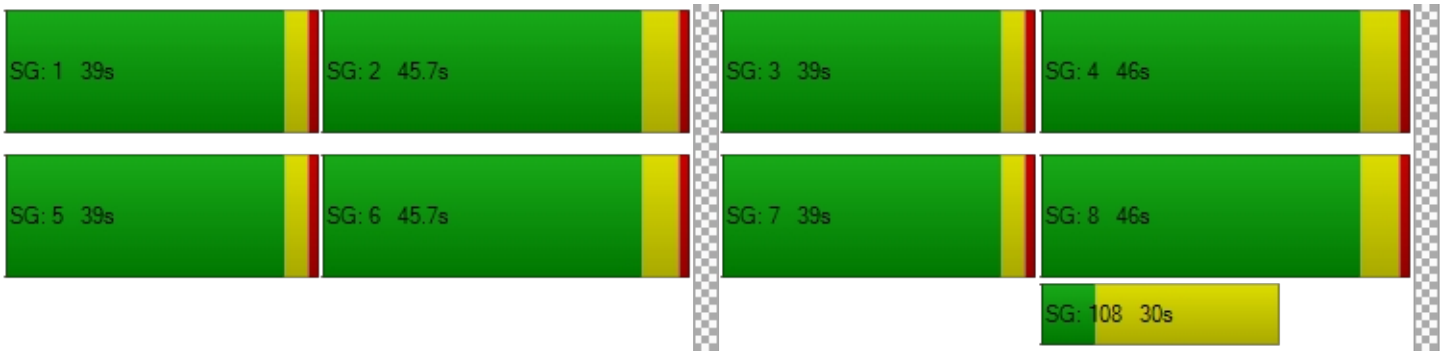
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 52.30 | 127.73 | 40.73 | 99.18 | 296.05 | 32.53 | 100.49 | 97.13 | 24.37 | 25.16 | 100.12 |
| Stops [stops/h] | 88.05 | 159.99 | 46.47 | 171.38 | 521.80 | 56.56 | 137.64 | 133.48 | 79.27 | 57.79 | 313.33 |
| Fuel consumption [US gal/h] | 3.79 | 7.66 | 2.34 | 7.26 | 21.43 | 2.30 | 6.08 | 5.89 | 2.87 | 2.21 | 11.04 |
| CO [g/h] | 265.20 | 535.16 | 163.89 | 507.76 | 1497.68 | 160.96 | 425.29 | 411.62 | 200.57 | 154.48 | 771.96 |
| NOx [g/h] | 51.60 | 104.12 | 31.89 | 98.79 | 291.39 | 31.32 | 82.75 | 80.09 | 39.02 | 30.06 | 150.20 |
| VOC [g/h] | 61.46 | 124.03 | 37.98 | 117.68 | 347.10 | 37.30 | 98.56 | 95.40 | 46.48 | 35.80 | 178.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.50 | 39.19 | 38.92 | 38.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.598 | 2.673 | 2.405 | 2.694 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 854 | 854 | 854 | 854 |
| d_b, Bicycle Delay [s] | 15.39 | 15.39 | 15.39 | 15.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.284 | 2.868 | 1.945 | 2.502 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 16.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.642 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 319 | 10 | 25 | 341 | 49 | 7 | 62 | 53 | 17 | 17 | 32 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 319 | 10 | 25 | 341 | 49 | 7 | 62 | 53 | 17 | 17 | 32 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 88 | 3 | 7 | 94 | 13 | 2 | 17 | 15 | 5 | 5 | 9 |
| Total Analysis Volume [veh/h] | 3 | 351 | 11 | 27 | 375 | 54 | 8 | 68 | 58 | 19 | 19 | 35 |
| Pedestrian Volume [ped/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 506 | 564 | 577 | 622 | 713 | 547 | 531 |
| Degree of Utilization, x | 0.01 | 0.64 | 0.05 | 0.60 | 0.08 | 0.25 | 0.14 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.02 | 4.56 | 0.15 | 4.03 | 0.24 | 0.96 | 0.47 |
| 95th-Percentile Queue Length [ft] | 0.45 | 113.93 | 3.68 | 100.85 | 6.12 | 23.93 | 11.86 |
| Approach Delay [s/veh] | 19.74 | | 15.41 | | | 11.72 | 10.86 |
| Approach LOS | C | | C | | | B | B |
| Intersection Delay [s/veh] | 16.14 | | | | | | |
| Intersection LOS | C | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.709 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 118 | 236 | 36 | 4 | 228 | 7 | 76 | 208 | 158 | 287 | 455 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 118 | 236 | 36 | 4 | 228 | 7 | 76 | 208 | 158 | 287 | 455 | 29 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 32 | 64 | 10 | 1 | 62 | 2 | 21 | 57 | 43 | 78 | 124 | 8 |
| Total Analysis Volume [veh/h] | 128 | 257 | 39 | 4 | 248 | 8 | 83 | 226 | 172 | 312 | 495 | 32 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 15 | 15 | 0 | 10 | 3 | 9 | 9 | 11 | 17 |
| g / C, Green / Cycle | 0.09 | 0.29 | 0.29 | 0.00 | 0.20 | 0.06 | 0.18 | 0.18 | 0.21 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.14 | 0.02 | 0.00 | 0.14 | 0.05 | 0.11 | 0.12 | 0.17 | 0.28 |
| s, saturation flow rate [veh/h] | 1765 | 1859 | 1578 | 1772 | 1876 | 1691 | 1868 | 1608 | 1794 | 1855 |
| c, Capacity [veh/h] | 168 | 548 | 465 | 8 | 382 | 106 | 332 | 286 | 378 | 605 |
| d1, Uniform Delay [s] | 22.60 | 14.79 | 13.07 | 25.43 | 18.80 | 23.67 | 19.51 | 19.60 | 19.29 | 16.24 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.68 | 0.89 | 0.11 | 18.12 | 2.89 | 4.79 | 1.49 | 1.91 | 1.75 | 4.23 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.47 | 0.08 | 0.51 | 0.67 | 0.79 | 0.63 | 0.66 | 0.82 | 0.87 |
| d, Delay for Lane Group [s/veh] | 25.28 | 15.68 | 13.18 | 43.55 | 21.69 | 28.45 | 21.00 | 21.51 | 21.05 | 20.47 |
| Lane Group LOS | C | B | B | D | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.40 | 2.06 | 0.27 | 0.08 | 2.80 | 0.99 | 2.06 | 1.87 | 3.06 | 5.12 |
| 50th-Percentile Queue Length [ft/ln] | 35.09 | 51.41 | 6.79 | 2.10 | 69.96 | 24.74 | 51.38 | 46.79 | 76.58 | 128.02 |
| 95th-Percentile Queue Length [veh/ln] | 2.53 | 3.70 | 0.49 | 0.15 | 5.04 | 1.78 | 3.70 | 3.37 | 5.51 | 8.83 |
| 95th-Percentile Queue Length [ft/ln] | 63.15 | 92.54 | 12.22 | 3.79 | 125.92 | 44.52 | 92.49 | 84.22 | 137.84 | 220.80 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.28 | 15.68 | 13.18 | 43.55 | 21.69 | 21.69 | 28.45 | 21.03 | 21.51 | 21.05 | 20.47 | 20.47 |
| Movement LOS | C | B | B | D | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 18.35 | | | 22.02 | | | 22.49 | | | 20.68 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.79 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.709 | | | | | | | | | | | |

**Emissions**

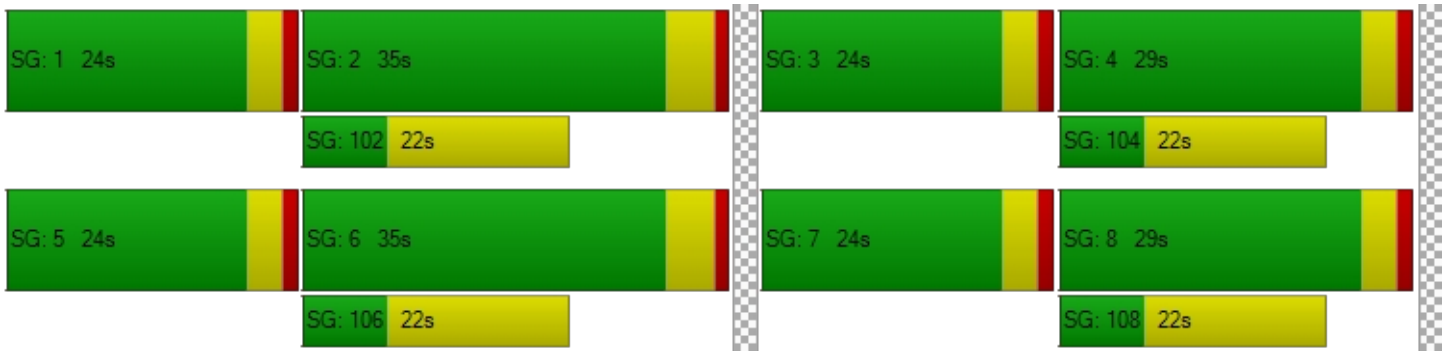
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.85 | 128.19 | 19.45 | 2.00 | 128.21 | 41.40 | 104.89 | 93.62 | 312.51 | 527.86 |
| Stops [stops/h] | 99.02 | 145.09 | 19.17 | 5.94 | 197.43 | 69.81 | 145.02 | 132.06 | 216.13 | 361.30 |
| Fuel consumption [US gal/h] | 4.08 | 7.02 | 1.01 | 0.15 | 7.50 | 2.77 | 6.30 | 5.67 | 14.74 | 24.78 |
| CO [g/h] | 285.06 | 490.58 | 70.58 | 10.54 | 524.16 | 193.46 | 440.18 | 396.53 | 1030.02 | 1732.19 |
| NOx [g/h] | 55.46 | 95.45 | 13.73 | 2.05 | 101.98 | 37.64 | 85.64 | 77.15 | 200.40 | 337.02 |
| VOC [g/h] | 66.07 | 113.70 | 16.36 | 2.44 | 121.48 | 44.84 | 102.02 | 91.90 | 238.72 | 401.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.70 | 15.70 | 15.70 | 15.70 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.606 | 2.113 | 2.593 | 2.504 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1176 | 1176 | 980 | 980 |
| d_b, Bicycle Delay [s] | 4.33 | 4.33 | 6.64 | 6.64 |
| l_b,int, Bicycle LOS Score for Intersection | 2.259 | 1.989 | 1.956 | 2.944 |
| Bicycle LOS | B | A | A | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 125.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.097 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 591 | 403 | 50 | 54 | 692 | 68 | 32 | 470 | 296 | 97 | 353 | 35 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 591 | 403 | 50 | 54 | 692 | 68 | 32 | 470 | 296 | 97 | 353 | 35 |
| Peak Hour Factor | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 | 0.8500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 174 | 119 | 15 | 16 | 204 | 20 | 9 | 138 | 87 | 29 | 104 | 10 |
| Total Analysis Volume [veh/h] | 695 | 474 | 59 | 64 | 814 | 80 | 38 | 553 | 348 | 114 | 415 | 41 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 42 | 42 | 8 | 28 | 28 | 6 | 33 | 33 | 9 | 36 | 36 |
| g / C, Green / Cycle | 0.20 | 0.39 | 0.39 | 0.07 | 0.26 | 0.26 | 0.06 | 0.31 | 0.31 | 0.08 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.39 | 0.14 | 0.04 | 0.04 | 0.23 | 0.05 | 0.02 | 0.29 | 0.22 | 0.06 | 0.12 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1561 | 1751 | 3555 | 1580 | 1810 | 1883 | 1596 | 1785 | 3589 | 1612 |
| c, Capacity [veh/h] | 350 | 1360 | 606 | 127 | 943 | 419 | 105 | 582 | 493 | 146 | 1195 | 537 |
| d1, Uniform Delay [s] | 43.35 | 23.33 | 20.96 | 48.08 | 37.69 | 30.61 | 48.79 | 36.37 | 32.85 | 48.49 | 27.09 | 24.59 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.45 | 0.26 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 454.94 | 0.15 | 0.07 | 3.08 | 2.50 | 0.22 | 2.07 | 24.76 | 4.36 | 8.68 | 0.17 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.99 | 0.35 | 0.10 | 0.50 | 0.86 | 0.19 | 0.36 | 0.95 | 0.71 | 0.78 | 0.35 | 0.08 |
| d, Delay for Lane Group [s/veh] | 498.28 | 23.48 | 21.03 | 51.16 | 40.19 | 30.83 | 50.86 | 61.13 | 37.21 | 57.16 | 27.27 | 24.65 |
| Lane Group LOS | F | C | C | D | D | C | D | E | D | E | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 53.06 | 4.06 | 0.91 | 1.76 | 10.40 | 1.63 | 1.04 | 17.89 | 8.49 | 3.26 | 3.86 | 0.70 |
| 50th-Percentile Queue Length [ft/ln] | 1326.45 | 101.52 | 22.84 | 43.96 | 259.93 | 40.82 | 26.03 | 447.27 | 212.23 | 81.48 | 96.58 | 17.41 |
| 95th-Percentile Queue Length [veh/ln] | 83.02 | 7.31 | 1.64 | 3.17 | 15.69 | 2.94 | 1.87 | 24.83 | 13.27 | 5.87 | 6.95 | 1.25 |
| 95th-Percentile Queue Length [ft/ln] | 2075.48 | 182.73 | 41.11 | 79.13 | 392.13 | 73.48 | 46.86 | 620.69 | 331.69 | 146.67 | 173.84 | 31.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 498.28 | 23.48 | 21.03 | 51.16 | 40.19 | 30.83 | 50.86 | 61.13 | 37.21 | 57.16 | 27.27 | 24.65 |
| Movement LOS | F | C | C | D | D | C | D | E | D | E | C | C |
| d_A, Approach Delay [s/veh] | 292.08 | | | 40.14 | | | 51.85 | | | 33.06 | | |
| Approach LOS | F | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 125.75 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.097 | | | | | | | | | | | |

**Emissions**

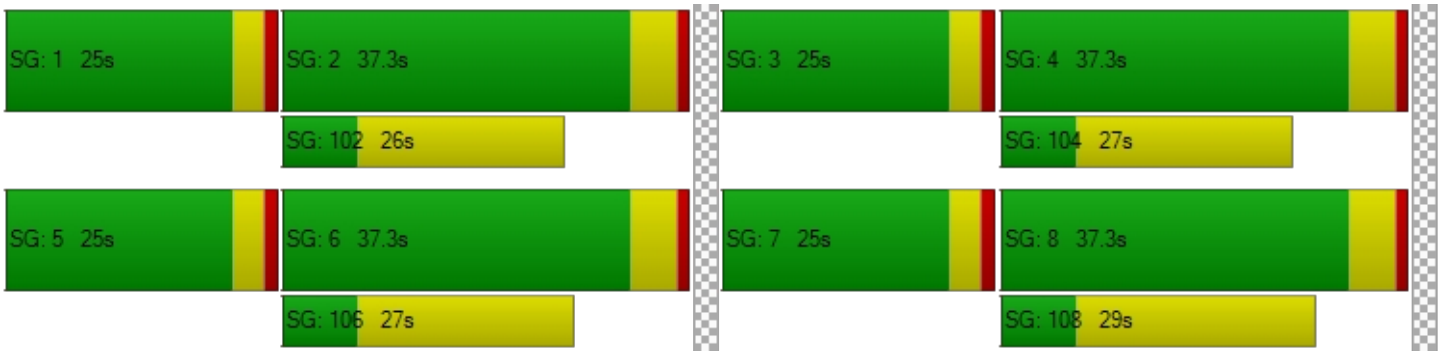
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 138.92 | 94.75 | 11.79 | 31.92 | 406.03 | 39.90 | 18.73 | 272.50 | 171.48 | 11.77 | 42.85 | 4.23 |
| Stops [stops/h] | 1776.22 | 271.88 | 30.58 | 58.86 | 696.14 | 54.66 | 34.86 | 598.93 | 284.19 | 109.11 | 258.65 | 23.31 |
| Fuel consumption [US gal/h] | 97.30 | 8.89 | 1.04 | 2.31 | 27.22 | 2.45 | 1.36 | 21.41 | 11.26 | 3.09 | 6.99 | 0.64 |
| CO [g/h] | 6801.53 | 621.64 | 72.49 | 161.16 | 1902.52 | 171.02 | 94.84 | 1496.26 | 787.38 | 215.72 | 488.41 | 44.78 |
| NOx [g/h] | 1323.33 | 120.95 | 14.10 | 31.36 | 370.16 | 33.27 | 18.45 | 291.12 | 153.20 | 41.97 | 95.03 | 8.71 |
| VOC [g/h] | 1576.32 | 144.07 | 16.80 | 37.35 | 440.93 | 39.63 | 21.98 | 346.77 | 182.48 | 49.99 | 113.19 | 10.38 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.33 | 43.33 | 43.33 | 43.33 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.072 | 2.707 | 2.723 | 2.673 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 595 | 595 | 595 | 595 |
| d_b, Bicycle Delay [s] | 26.53 | 26.53 | 26.53 | 26.53 |
| l_b,int, Bicycle LOS Score for Intersection | 2.573 | 2.350 | 3.109 | 2.030 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 42.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.901 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 434 | 991 | 0 | 0 | 421 | 714 | 0 | 0 | 0 | 165 | 0 | 36 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 434 | 991 | 0 | 0 | 421 | 714 | 0 | 0 | 0 | 165 | 0 | 36 |
| Peak Hour Factor | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 0.8600 | 0.8600 | 1.0000 | 1.0000 | 1.0000 | 0.8600 | 1.0000 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 126 | 288 | 0 | 0 | 122 | 208 | 0 | 0 | 0 | 48 | 0 | 10 |
| Total Analysis Volume [veh/h] | 505 | 1152 | 0 | 0 | 490 | 830 | 0 | 0 | 0 | 192 | 0 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 97 | 97 | 97 | 97 | | 97 | 97 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 20 | 71 | 45 | 45 | | 13 | 13 |
| g / C, Green / Cycle | 0.21 | 0.73 | 0.46 | 0.46 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.32 | 0.26 | 0.53 | | 0.11 | 0.03 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 568 | 2593 | 866 | 727 | | 249 | 218 |
| d1, Uniform Delay [s] | 37.57 | 5.37 | 19.05 | 26.16 | | 40.41 | 37.08 |
| k, delay calibration | 0.04 | 0.20 | 0.21 | 0.50 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.95 | 0.22 | 1.12 | 79.76 | | 10.26 | 0.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.89 | 0.44 | 0.57 | 1.14 | | 0.77 | 0.19 |
| d, Delay for Lane Group [s/veh] | 39.52 | 5.60 | 20.17 | 105.92 | | 50.68 | 37.98 |
| Lane Group LOS | D | A | C | F | | D | D |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.68 | 3.32 | 7.53 | 30.89 | | 4.85 | 0.89 |
| 50th-Percentile Queue Length [ft/ln] | 142.06 | 83.06 | 188.15 | 772.24 | | 121.18 | 22.13 |
| 95th-Percentile Queue Length [veh/ln] | 9.59 | 5.98 | 12.03 | 44.00 | | 8.46 | 1.59 |
| 95th-Percentile Queue Length [ft/ln] | 239.79 | 149.51 | 300.63 | 1100.02 | | 211.44 | 39.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.52 | 5.60 | 0.00 | 0.00 | 20.17 | 105.92 | 0.00 | 0.00 | 0.00 | 50.68 | 0.00 | 37.98 |
| Movement LOS | D | A | | | C | F | | | | D | | D |
| d_A, Approach Delay [s/veh] | 15.94 | | | 74.09 | | | 0.00 | | | 48.40 | | |
| Approach LOS | B | | | E | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.21 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.901 | | | | | | | | | | | |

**Emissions**

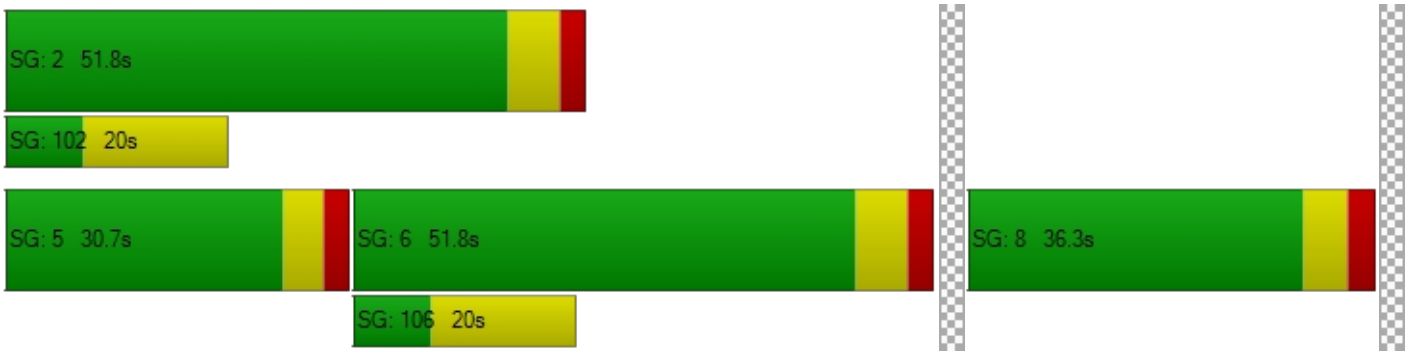
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 54.59 | 124.53 | 97.95 | 165.91 | | 16.50 | 3.61 |
| Stops [stops/h] | 420.92 | 246.12 | 278.75 | 1144.07 | | 179.52 | 32.79 |
| Fuel consumption [US gal/h] | 11.17 | 8.64 | 8.83 | 37.80 | | 5.87 | 1.05 |
| CO [g/h] | 780.51 | 604.01 | 617.54 | 2642.17 | | 410.06 | 73.70 |
| NOx [g/h] | 151.86 | 117.52 | 120.15 | 514.07 | | 79.78 | 14.34 |
| VOC [g/h] | 180.89 | 139.98 | 143.12 | 612.35 | | 95.04 | 17.08 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.94 | 45.94 | 38.22 | 38.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.034 | 3.061 | 2.369 | 1.927 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 926 | 926 | 0 | 617 |
| d_b, Bicycle Delay [s] | 14.02 | 14.02 | 48.60 | 23.23 |
| l_b,int, Bicycle LOS Score for Intersection | 2.927 | 2.649 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.711 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1168 | 94 | 13 | 605 | 0 | 235 | 0 | 377 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1168 | 94 | 13 | 605 | 0 | 235 | 0 | 377 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 0.9100 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 321 | 26 | 4 | 166 | 0 | 65 | 0 | 104 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1284 | 103 | 14 | 665 | 0 | 258 | 0 | 414 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 28 | 0 | 12 | 40 | 0 | 60 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 48 | 48 | 2 | 55 | 32 | 32 | |
| g / C, Green / Cycle | 0.48 | 0.48 | 0.02 | 0.55 | 0.32 | 0.32 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.19 | 0.07 | 0.26 | |
| s, saturation flow rate [veh/h] | 1877 | 1828 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 896 | 873 | 35 | 1985 | 1089 | 505 | |
| d1, Uniform Delay [s] | 21.63 | 21.98 | 48.34 | 12.17 | 25.25 | 31.55 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.23 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 6.46 | 7.38 | 2.75 | 0.46 | 0.24 | 6.95 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.79 | 0.40 | 0.34 | 0.24 | 0.82 | |
| d, Delay for Lane Group [s/veh] | 28.09 | 29.36 | 51.09 | 12.62 | 25.49 | 38.49 | |
| Lane Group LOS | C | C | D | B | C | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 13.89 | 14.27 | 0.36 | 3.72 | 2.12 | 9.33 | |
| 50th-Percentile Queue Length [ft/ln] | 347.21 | 356.68 | 9.01 | 93.06 | 53.04 | 233.37 | |
| 95th-Percentile Queue Length [veh/ln] | 20.00 | 20.46 | 0.65 | 6.70 | 3.82 | 14.35 | |
| 95th-Percentile Queue Length [ft/ln] | 500.00 | 511.55 | 16.22 | 167.52 | 95.46 | 358.63 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 28.68 | 29.36 | 51.09 | 12.62 | 0.00 | 25.49 | 0.00 | 38.49 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | D | | | |
| d_A, Approach Delay [s/veh] | 28.73 | | | 13.41 | | | 33.50 | | | 0.00 | | |
| Approach LOS | C | | | B | | | C | | | A | | |
| d_I, Intersection Delay [s/veh] | 26.10 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.711 | | | | | | | | | | | |

**Emissions**

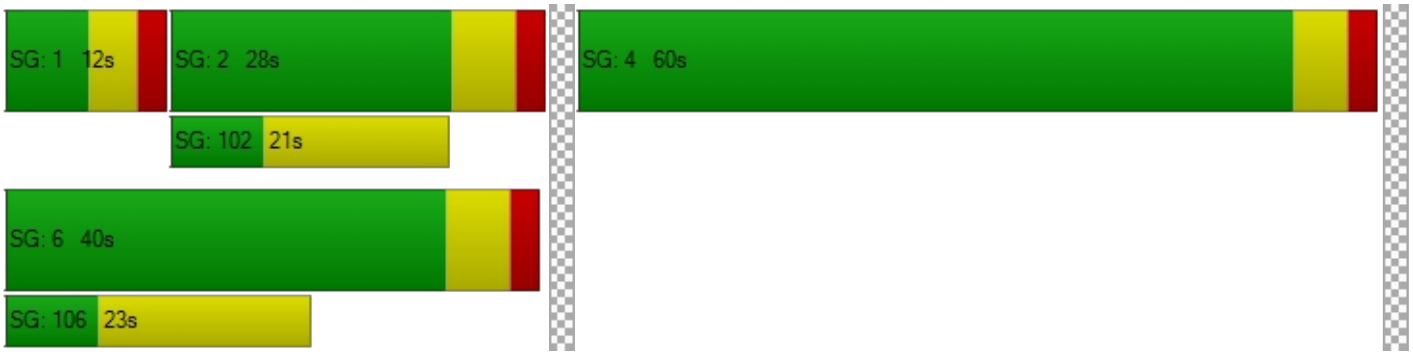
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 46.02 | 46.02 | 1.51 | 71.89 | 30.66 | 49.20 | |
| Stops [stops/h] | 500.20 | 513.85 | 12.98 | 268.14 | 152.81 | 336.20 | |
| Fuel consumption [US gal/h] | 10.53 | 10.84 | 0.36 | 7.51 | 5.20 | 11.13 | |
| CO [g/h] | 735.82 | 757.74 | 25.08 | 524.68 | 363.65 | 778.24 | |
| NOx [g/h] | 143.16 | 147.43 | 4.88 | 102.08 | 70.75 | 151.42 | |
| VOC [g/h] | 170.53 | 175.61 | 5.81 | 121.60 | 84.28 | 180.36 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 53.9 | 53.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.61 | 10.61 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.885 | 2.902 | 2.345 | 1.777 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 424 | 664 | 1078 | 0 |
| d_b, Bicycle Delay [s] | 31.03 | 22.29 | 10.61 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.704 | 2.120 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 22.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.093 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 12 | 0 | 189 | 9 | 5 | 445 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 0 | 189 | 9 | 5 | 445 |
| Peak Hour Factor | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 | 0.5800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 81 | 4 | 2 | 192 |
| Total Analysis Volume [veh/h] | 21 | 0 | 326 | 16 | 9 | 767 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 22.57 | 11.71 | 0.00 | 0.00 | 7.97 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.30 | 0.30 | 0.00 | 0.00 | 0.02 | 0.02 |
| 95th-Percentile Queue Length [ft/ln] | 7.60 | 7.60 | 0.00 | 0.00 | 0.38 | 0.38 |
| d_A, Approach Delay [s/veh] | 22.57 | | 0.00 | | 0.09 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.018 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 21 | 13 | 338 | 397 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 21 | 13 | 338 | 397 | 14 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 6 | 4 | 95 | 112 | 4 |
| Total Analysis Volume [veh/h] | 7 | 24 | 15 | 380 | 446 | 16 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.03 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.71 | 9.98 | 8.33 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 0.16 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.90 | 3.90 | 1.04 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.05 | | 0.32 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.53 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.311 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 81 | 20 | 378 | 37 | 5 | 362 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 81 | 20 | 378 | 37 | 5 | 362 |
| Peak Hour Factor | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 | 0.7600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 7 | 124 | 12 | 2 | 119 |
| Total Analysis Volume [veh/h] | 107 | 26 | 497 | 49 | 7 | 476 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.31 | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.36 | 14.68 | 0.00 | 0.00 | 8.58 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.51 | 1.51 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 37.87 | 37.87 | 0.00 | 0.00 | 0.52 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.25 | | 0.00 | | 0.12 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.25 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 50.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.813 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 33 | 252 | 198 | 12 | 331 | 62 | 104 | 328 | 47 | 410 | 280 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 33 | 252 | 198 | 12 | 331 | 62 | 104 | 328 | 47 | 410 | 280 | 3 |
| Peak Hour Factor | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 | 0.7700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 82 | 64 | 4 | 107 | 20 | 34 | 106 | 15 | 133 | 91 | 1 |
| Total Analysis Volume [veh/h] | 43 | 327 | 257 | 16 | 430 | 81 | 135 | 426 | 61 | 532 | 364 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 15 | 0 | 16 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lag | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 2.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 41 | 41 | 5 | 37 | 12 | 23 | 23 | 36 | 47 | 47 |
| g / C, Green / Cycle | 0.09 | 0.34 | 0.34 | 0.04 | 0.31 | 0.10 | 0.19 | 0.19 | 0.30 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.17 | 0.17 | 0.01 | 0.28 | 0.08 | 0.12 | 0.04 | 0.30 | 0.10 | 0.00 |
| s, saturation flow rate [veh/h] | 1409 | 1900 | 1519 | 1810 | 1848 | 1738 | 3520 | 1602 | 1752 | 3566 | 1615 |
| c, Capacity [veh/h] | 134 | 648 | 518 | 69 | 572 | 176 | 666 | 303 | 523 | 1378 | 624 |
| d1, Uniform Delay [s] | 50.92 | 31.61 | 31.50 | 56.23 | 39.74 | 52.75 | 45.06 | 41.18 | 42.26 | 25.26 | 22.74 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.36 | 0.04 | 0.23 | 0.23 | 0.49 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.51 | 0.66 | 0.80 | 0.63 | 14.53 | 2.61 | 2.19 | 0.69 | 43.11 | 0.22 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.32 | 0.50 | 0.50 | 0.23 | 0.89 | 0.77 | 0.64 | 0.20 | 1.02 | 0.26 | 0.01 |
| d, Delay for Lane Group [s/veh] | 51.43 | 32.27 | 32.30 | 56.86 | 54.27 | 55.36 | 47.25 | 41.87 | 85.38 | 25.48 | 22.75 |
| Lane Group LOS | D | C | C | E | D | E | D | D | F | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.23 | 7.68 | 6.04 | 0.48 | 16.59 | 3.97 | 5.85 | 1.54 | 20.92 | 3.43 | 0.07 |
| 50th-Percentile Queue Length [ft/ln] | 30.83 | 192.11 | 150.99 | 12.11 | 414.67 | 99.26 | 146.31 | 38.42 | 523.09 | 85.66 | 1.71 |
| 95th-Percentile Queue Length [veh/ln] | 2.22 | 12.23 | 10.07 | 0.87 | 23.27 | 7.15 | 9.82 | 2.77 | 28.73 | 6.17 | 0.12 |
| 95th-Percentile Queue Length [ft/ln] | 55.49 | 305.77 | 251.76 | 21.80 | 581.65 | 178.66 | 245.50 | 69.15 | 718.29 | 154.19 | 3.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.43 | 32.27 | 32.30 | 56.86 | 54.27 | 54.27 | 55.36 | 47.25 | 41.87 | 85.38 | 25.48 | 22.75 |
| Movement LOS | D | C | C | E | D | D | E | D | D | F | C | C |
| d_A, Approach Delay [s/veh] | 33.59 | | | 54.35 | | | 48.48 | | | 60.87 | | |
| Approach LOS | C | | | D | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 50.32 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.813 | | | | | | | | | | | |

**Emissions**

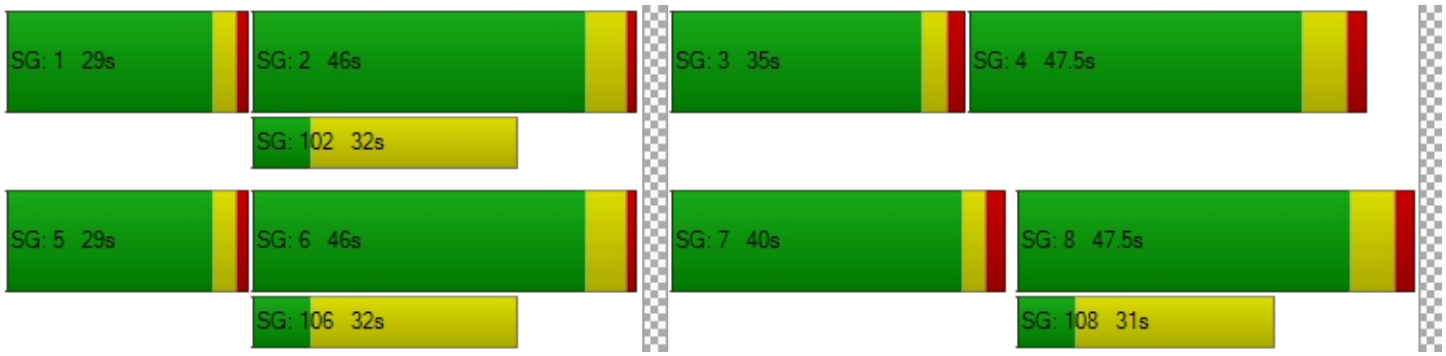
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.85 | 325.83 | 256.08 | 0.45 | 14.38 | 49.78 | 157.09 | 22.49 | 268.78 | 183.90 | 2.02 |
| Stops [stops/h] | 36.89 | 229.88 | 180.68 | 14.49 | 496.19 | 118.77 | 350.15 | 45.97 | 625.92 | 205.00 | 2.05 |
| Fuel consumption [US gal/h] | 2.42 | 16.83 | 13.23 | 0.28 | 8.98 | 5.01 | 14.73 | 1.98 | 27.85 | 11.19 | 0.12 |
| CO [g/h] | 168.99 | 1176.47 | 924.72 | 19.83 | 627.46 | 350.27 | 1029.73 | 138.30 | 1946.77 | 782.35 | 8.22 |
| NOx [g/h] | 32.88 | 228.90 | 179.92 | 3.86 | 122.08 | 68.15 | 200.35 | 26.91 | 378.77 | 152.22 | 1.60 |
| VOC [g/h] | 39.16 | 272.66 | 214.31 | 4.60 | 145.42 | 81.18 | 238.65 | 32.05 | 451.18 | 181.32 | 1.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.67 | 53.85 | 49.67 | 49.67 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.636 | 2.280 | 2.767 | 2.900 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 665 | 665 | 665 | 665 |
| d_b, Bicycle Delay [s] | 26.82 | 26.82 | 26.82 | 26.82 |
| l_b,int, Bicycle LOS Score for Intersection | 2.594 | 2.429 | 2.073 | 2.302 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.732 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 92 | 441 | 58 | 2 | 585 | 332 | 88 | 83 | 85 | 236 | 387 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 92 | 441 | 58 | 2 | 585 | 332 | 88 | 83 | 85 | 236 | 387 | 14 |
| Peak Hour Factor | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 | 0.8200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 134 | 18 | 1 | 178 | 101 | 27 | 25 | 26 | 72 | 118 | 4 |
| Total Analysis Volume [veh/h] | 112 | 538 | 71 | 2 | 713 | 405 | 107 | 101 | 104 | 288 | 472 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 35 | 35 | 0 | 27 | 27 | 8 | 18 | 18 | 15 | 25 | 25 |
| g / C, Green / Cycle | 0.10 | 0.41 | 0.41 | 0.00 | 0.32 | 0.32 | 0.10 | 0.21 | 0.21 | 0.18 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.15 | 0.04 | 0.00 | 0.20 | 0.25 | 0.06 | 0.06 | 0.07 | 0.16 | 0.25 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1609 | 1810 | 3592 | 1593 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 175 | 1463 | 667 | 9 | 1152 | 511 | 176 | 380 | 332 | 328 | 552 | 411 |
| d1, Uniform Delay [s] | 36.68 | 17.10 | 15.16 | 41.94 | 24.35 | 26.15 | 36.61 | 28.08 | 28.38 | 33.65 | 28.21 | 21.40 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.24 | 0.04 | 0.13 | 0.13 | 0.12 | 0.23 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.46 | 0.21 | 0.09 | 4.49 | 0.73 | 6.01 | 1.28 | 0.46 | 0.67 | 8.42 | 7.74 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.37 | 0.11 | 0.22 | 0.62 | 0.79 | 0.61 | 0.27 | 0.31 | 0.88 | 0.85 | 0.04 |
| d, Delay for Lane Group [s/veh] | 38.14 | 17.30 | 15.25 | 46.42 | 25.08 | 32.17 | 37.89 | 28.55 | 29.05 | 42.07 | 35.95 | 21.45 |
| Lane Group LOS | D | B | B | D | C | C | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.15 | 3.20 | 0.76 | 0.05 | 5.52 | 7.44 | 2.14 | 1.73 | 1.81 | 6.12 | 9.39 | 0.23 |
| 50th-Percentile Queue Length [ft/ln] | 53.63 | 79.90 | 18.88 | 1.26 | 137.95 | 186.12 | 53.54 | 43.16 | 45.18 | 153.08 | 234.76 | 5.75 |
| 95th-Percentile Queue Length [veh/ln] | 3.86 | 5.75 | 1.36 | 0.09 | 9.37 | 11.92 | 3.86 | 3.11 | 3.25 | 10.18 | 14.42 | 0.41 |
| 95th-Percentile Queue Length [ft/ln] | 96.53 | 143.83 | 33.98 | 2.27 | 234.26 | 298.00 | 96.38 | 77.68 | 81.32 | 254.53 | 360.40 | 10.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.14 | 17.30 | 15.25 | 46.42 | 25.08 | 32.17 | 37.89 | 28.55 | 29.05 | 42.07 | 35.95 | 21.45 |
| Movement LOS | D | B | B | D | C | C | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 20.34 | | | 27.68 | | | 31.92 | | | 37.90 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.03 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.732 | | | | | | | | | | | |

**Emissions**

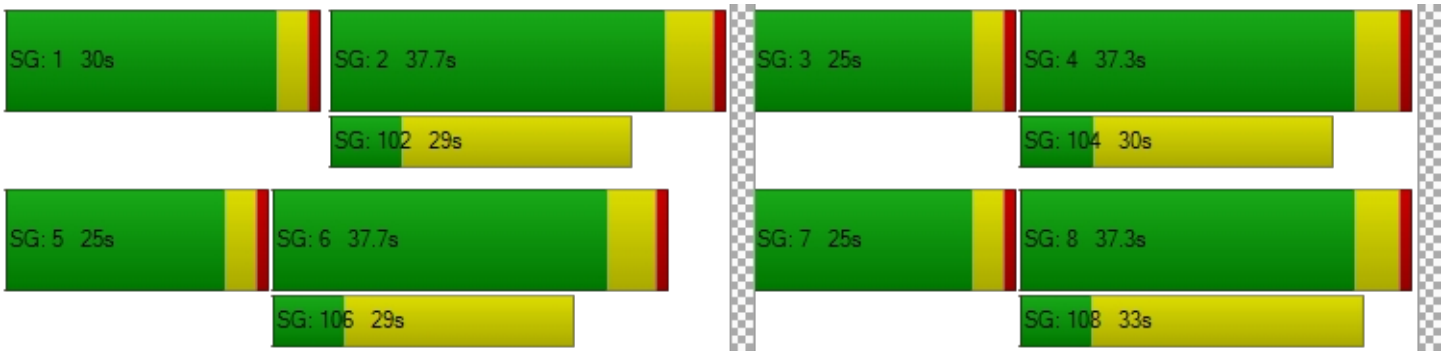
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 51.27 | 246.27 | 32.50 | 1.99 | 710.46 | 403.56 | 107.17 | 101.16 | 104.17 | 144.46 | 236.76 | 8.53 |
| Stops [stops/h] | 91.44 | 272.49 | 32.19 | 2.15 | 470.43 | 317.37 | 91.30 | 73.59 | 77.04 | 261.02 | 400.29 | 9.80 |
| Fuel consumption [US gal/h] | 3.99 | 14.32 | 1.80 | 0.12 | 34.65 | 21.04 | 5.74 | 5.16 | 5.33 | 10.66 | 16.55 | 0.49 |
| CO [g/h] | 278.89 | 1001.28 | 126.02 | 8.29 | 2422.16 | 1470.50 | 401.32 | 360.53 | 372.47 | 745.32 | 1156.53 | 34.14 |
| NOx [g/h] | 54.26 | 194.81 | 24.52 | 1.61 | 471.26 | 286.11 | 78.08 | 70.15 | 72.47 | 145.01 | 225.02 | 6.64 |
| VOC [g/h] | 64.63 | 232.06 | 29.21 | 1.92 | 561.36 | 340.80 | 93.01 | 83.56 | 86.32 | 172.74 | 268.04 | 7.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.94 | 31.94 | 31.94 | 31.94 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.944 | 2.932 | 2.444 | 2.475 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 758 | 758 | 758 | 758 |
| d_b, Bicycle Delay [s] | 16.29 | 16.29 | 16.29 | 16.29 |
| l_b,int, Bicycle LOS Score for Intersection | 2.154 | 2.484 | 2.074 | 2.842 |
| Bicycle LOS | B | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 16.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 208 | 495 | 269 | 78 | 843 | 25 | 42 | 46 | 389 | 231 | 37 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 208 | 495 | 269 | 78 | 843 | 25 | 42 | 46 | 389 | 231 | 37 | 79 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 57 | 136 | 74 | 21 | 232 | 7 | 12 | 13 | 107 | 63 | 10 | 22 |
| Total Analysis Volume [veh/h] | 229 | 544 | 296 | 86 | 926 | 27 | 46 | 51 | 427 | 254 | 41 | 87 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 190 | | | 537 | | | 1291 | | | 857 | | |
| Exiting Flow Rate [veh/h] | 1633 | | | 710 | | | 302 | | | 443 | | |
| Demand Flow Rate [veh/h] | 208 | 495 | 269 | 78 | 843 | 25 | 42 | 46 | 389 | 231 | 37 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 229 | 544 | 296 | 86 | 926 | 27 | 46 | 51 | 427 | 254 | 41 | 87 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.96 | 0.98 | 0.99 | 0.96 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 526 | 592 | 496 | 559 | 101 | 431 | 210 | 184 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1195 | 1195 | 824 | 900 | 412 | 475 | 614 | 686 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1142 | 1145 | 811 | 888 | 397 | 470 | 593 | 671 |
| X, volume / capacity | 0.44 | 0.50 | 0.60 | 0.62 | 0.24 | 0.91 | 0.34 | 0.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | B | B | B | F | B | A |
| 95th-Percentile Queue Length [veh] | 2.29 | 2.83 | 4.12 | 4.44 | 0.95 | 10.26 | 1.51 | 1.08 |
| 95th-Percentile Queue Length [ft] | 57.32 | 70.79 | 103.08 | 111.01 | 23.71 | 256.48 | 37.72 | 26.98 |
| Approach Delay [s/veh] | 8.27 | | 13.74 | | 44.28 | | 9.85 | |
| Approach LOS | A | | B | | E | | A | |
| Intersection Delay [s/veh] | 16.61 | | | | | | | |
| Intersection LOS | C | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.694 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 803 | 542 | 0 | 699 | 752 | 0 | 0 | 0 | 51 | 0 | 139 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 803 | 542 | 0 | 699 | 752 | 0 | 0 | 0 | 51 | 0 | 139 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 223 | 151 | 0 | 194 | 209 | 0 | 0 | 0 | 14 | 0 | 39 |
| Total Analysis Volume [veh/h] | 0 | 892 | 602 | 0 | 777 | 836 | 0 | 0 | 0 | 57 | 0 | 154 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 53 | 53 | 53 | | 53 | 53 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 32 | 32 | 32 | | 8 | 8 |
| g / C, Green / Cycle | 0.61 | 0.61 | 0.61 | | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.22 | 0.52 | | 0.03 | 0.10 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2175 | 2172 | 988 | | 259 | 233 |
| d1, Uniform Delay [s] | 5.28 | 5.06 | 8.21 | | 19.86 | 21.28 |
| k, delay calibration | 0.20 | 0.20 | 0.31 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.23 | 0.19 | 5.78 | | 0.91 | 6.67 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.36 | 0.85 | | 0.22 | 0.66 |
| d, Delay for Lane Group [s/veh] | 5.51 | 5.25 | 13.99 | | 20.77 | 27.95 |
| Lane Group LOS | A | A | B | | C | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 1.10 | 5.23 | | 0.56 | 1.87 |
| 50th-Percentile Queue Length [ft/ln] | 32.96 | 27.47 | 130.65 | | 14.09 | 46.86 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 1.98 | 8.97 | | 1.01 | 3.37 |
| 95th-Percentile Queue Length [ft/ln] | 59.32 | 49.45 | 224.37 | | 25.36 | 84.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.51 | 0.00 | 0.00 | 5.25 | 13.99 | 0.00 | 0.00 | 0.00 | 20.77 | 0.00 | 27.95 |
| Movement LOS | | A | | | A | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 3.43 | | | 9.78 | | | 0.00 | | | 26.01 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 8.96 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.694 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.04 | 76.66 | 82.48 | | 4.03 | 10.89 |
| Stops [stops/h] | 180.41 | 150.38 | 357.57 | | 38.56 | 128.26 |
| Fuel consumption [US gal/h] | 6.74 | 5.33 | 9.65 | | 1.09 | 3.62 |
| CO [g/h] | 471.21 | 372.38 | 674.78 | | 76.33 | 253.23 |
| NOx [g/h] | 91.68 | 72.45 | 131.29 | | 14.85 | 49.27 |
| VOC [g/h] | 109.21 | 86.30 | 156.39 | | 17.69 | 58.69 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.30 | 23.30 | 16.46 | 16.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.788 | 3.061 | 2.092 | 2.036 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1330 | 1330 | 0 | 760 |
| d_b, Bicycle Delay [s] | 2.95 | 2.95 | 26.31 | 10.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.296 | 2.890 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.629 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 980 | 23 | 27 | 721 | 0 | 342 | 0 | 884 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 980 | 23 | 27 | 721 | 0 | 342 | 0 | 884 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 266 | 6 | 7 | 196 | 0 | 93 | 0 | 240 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1065 | 25 | 29 | 784 | 0 | 372 | 0 | 961 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 60 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 24 | 0 | 11 | 34 | 0 | 24 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 5 | 10 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 53 | 53 | 53 | 53 | 53 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | |
| g_i, Effective Green Time [s] | 19 | 19 | 2 | 27 | 14 | |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.03 | 0.51 | 0.26 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.29 | 0.29 | 0.02 | 0.22 | 0.21 | |
| s, saturation flow rate [veh/h] | 1873 | 1858 | 1758 | 3580 | 1749 | |
| c, Capacity [veh/h] | 690 | 684 | 58 | 1821 | 448 | |
| d1, Uniform Delay [s] | 14.95 | 15.00 | 25.24 | 8.21 | 18.67 | |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 2.08 | 2.17 | 6.43 | 0.16 | 4.05 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.80 | 0.50 | 0.43 | 0.83 | |
| d, Delay for Lane Group [s/veh] | 17.03 | 17.17 | 31.67 | 8.37 | 22.72 | |
| Lane Group LOS | B | B | C | A | C | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 4.81 | 4.84 | 0.42 | 1.88 | 3.78 | |
| 50th-Percentile Queue Length [ft/ln] | 120.18 | 120.93 | 10.46 | 47.03 | 94.49 | |
| 95th-Percentile Queue Length [veh/ln] | 8.40 | 8.44 | 0.75 | 3.39 | 6.80 | |
| 95th-Percentile Queue Length [ft/ln] | 210.08 | 211.10 | 18.83 | 84.65 | 170.08 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.10 | 17.17 | 31.67 | 8.37 | 0.00 | 22.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | C | A | | C | | | | | |
| d_A, Approach Delay [s/veh] | 17.10 | | | 9.20 | | | 22.72 | | | 0.00 | | |
| Approach LOS | B | | | A | | | C | | | A | | |
| d_I, Intersection Delay [s/veh] | 15.20 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.629 | | | | | | | | | | | |

**Emissions**

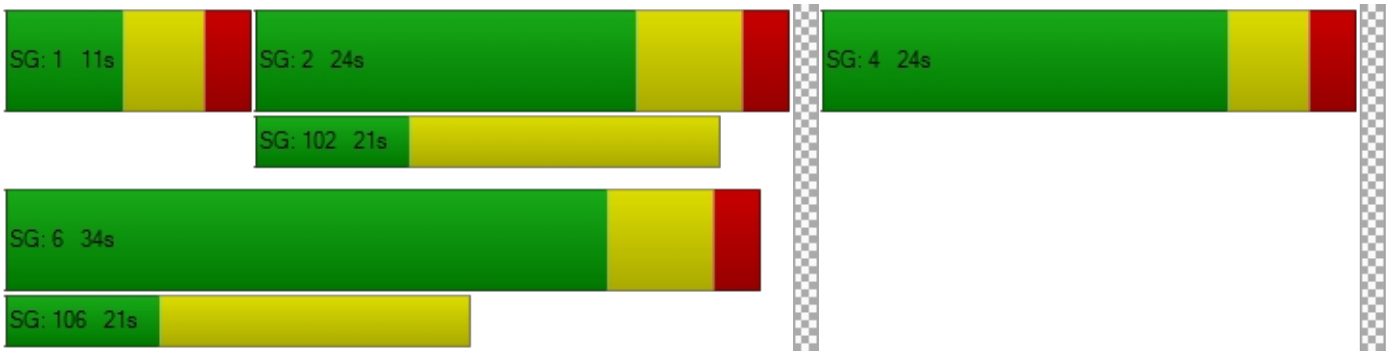
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 44.15 | 44.15 | 3.32 | 89.68 | 29.09 | |
| Stops [stops/h] | 326.71 | 328.74 | 28.44 | 255.68 | 256.87 | |
| Fuel consumption [US gal/h] | 7.46 | 7.51 | 0.65 | 7.59 | 7.46 | |
| CO [g/h] | 521.73 | 524.62 | 45.73 | 530.43 | 521.78 | |
| NOx [g/h] | 101.51 | 102.07 | 8.90 | 103.20 | 101.52 | |
| VOC [g/h] | 120.92 | 121.59 | 10.60 | 122.93 | 120.93 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.49 | 26.49 | 16.63 | 16.63 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.805 | 2.990 | 2.017 | 1.711 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 649 | 1027 | 691 | 0 |
| d_b, Bicycle Delay [s] | 12.08 | 6.27 | 11.35 | 26.49 |
| l_b,int, Bicycle LOS Score for Intersection | 2.459 | 2.230 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 268.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 692.569 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 282 | 41 | 38 | 232 | 65 | 154 | 237 | 271 | 31 | 27 | 275 | 113 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 282 | 41 | 38 | 232 | 65 | 154 | 237 | 271 | 31 | 27 | 275 | 113 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 94 | 14 | 13 | 77 | 22 | 51 | 79 | 90 | 10 | 9 | 92 | 38 |
| Total Analysis Volume [veh/h] | 376 | 55 | 51 | 309 | 87 | 205 | 316 | 361 | 41 | 36 | 367 | 151 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 10 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 18 | 9 | 18 | 16 | 27 | 27 | 3 | 13 | 13 |
| g / C, Green / Cycle | 0.16 | 0.25 | 0.13 | 0.25 | 0.22 | 0.37 | 0.37 | 0.04 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.74 | 0.04 | 0.25 | 0.19 | 0.19 | 0.12 | 0.03 | 0.02 | 0.11 | 0.10 |
| s, saturation flow rate [veh/h] | 586 | 1333 | 1233 | 1521 | 1629 | 3120 | 1344 | 1629 | 3217 | 1454 |
| c, Capacity [veh/h] | 184 | 331 | 99 | 376 | 365 | 1150 | 495 | 58 | 581 | 262 |
| d1, Uniform Delay [s] | 17.92 | 21.46 | 30.56 | 25.63 | 27.32 | 16.47 | 15.03 | 34.75 | 27.70 | 27.39 |
| k, delay calibration | 0.50 | 0.11 | 0.25 | 0.50 | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 620.36 | 0.21 | 974.74 | 14.51 | 7.32 | 0.15 | 0.07 | 10.25 | 1.14 | 1.99 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 2.34 | 0.15 | 3.14 | 0.78 | 0.87 | 0.31 | 0.08 | 0.62 | 0.63 | 0.58 |
| d, Delay for Lane Group [s/veh] | 638.28 | 21.67 | 1005.30 | 40.14 | 34.64 | 16.63 | 15.10 | 45.00 | 28.85 | 29.38 |
| Lane Group LOS | F | C | F | D | C | B | B | D | C | C |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 33.48 | 0.64 | 28.27 | 5.99 | 5.42 | 1.86 | 0.39 | 0.75 | 2.75 | 2.30 |
| 50th-Percentile Queue Length [ft/ln] | 837.03 | 15.96 | 706.81 | 149.68 | 135.57 | 46.58 | 9.77 | 18.63 | 68.65 | 57.60 |
| 95th-Percentile Queue Length [veh/ln] | 54.41 | 1.15 | 46.56 | 10.00 | 9.24 | 3.35 | 0.70 | 1.34 | 4.94 | 4.15 |
| 95th-Percentile Queue Length [ft/ln] | 1360.35 | 28.72 | 1164.02 | 250.00 | 231.04 | 83.84 | 17.58 | 33.54 | 123.58 | 103.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 638.28 | 638.28 | 21.67 | 1005.30 | 40.14 | 40.14 | 34.64 | 16.63 | 15.10 | 45.00 | 28.85 | 29.38 |
| Movement LOS | F | F | C | F | D | D | C | B | B | D | C | C |
| d_A, Approach Delay [s/veh] | 573.03 | | | 536.37 | | | 24.47 | | | 30.04 | | |
| Approach LOS | F | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 268.69 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 692.569 | | | | | | | | | | | |

**Emissions**

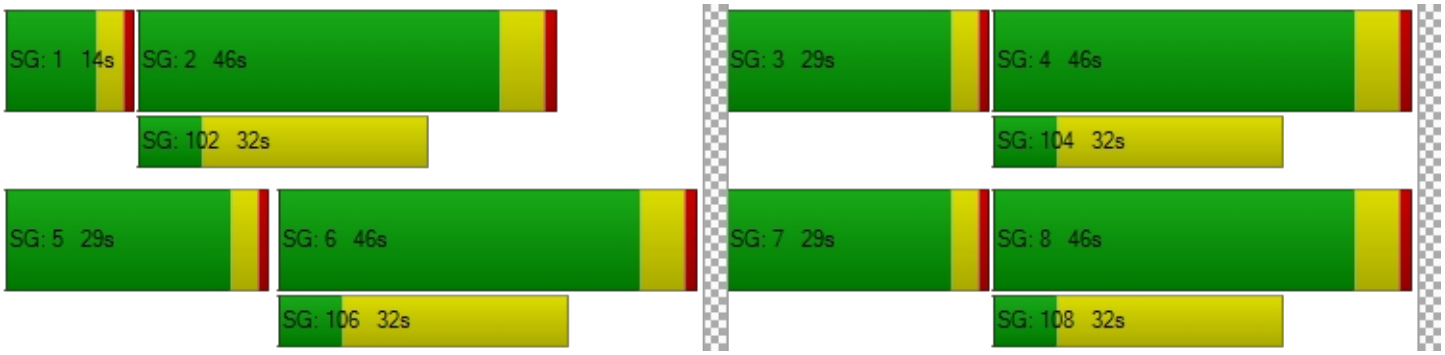
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 22.43 | 2.65 | 7.72 | 7.29 | 159.65 | 182.39 | 20.71 | 18.01 | 183.62 | 75.55 |
| Stops [stops/h] | 1652.45 | 31.50 | 1395.36 | 295.50 | 267.63 | 183.91 | 19.28 | 36.78 | 271.07 | 113.72 |
| Fuel consumption [US gal/h] | 77.28 | 0.71 | 71.23 | 4.32 | 11.68 | 10.15 | 1.12 | 1.50 | 12.46 | 5.18 |
| CO [g/h] | 5402.18 | 49.46 | 4978.74 | 301.81 | 816.58 | 709.66 | 77.98 | 104.67 | 871.26 | 361.97 |
| NOx [g/h] | 1051.07 | 9.62 | 968.68 | 58.72 | 158.88 | 138.07 | 15.17 | 20.37 | 169.52 | 70.43 |
| VOC [g/h] | 1252.01 | 11.46 | 1153.87 | 69.95 | 189.25 | 164.47 | 18.07 | 24.26 | 201.92 | 83.89 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.30 | 26.30 | 26.30 | 26.30 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.244 | 2.294 | 3.024 | 3.226 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1892 | 1097 | 1097 | 1097 |
| d_b, Bicycle Delay [s] | 0.11 | 7.44 | 7.44 | 7.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.355 | 2.551 | 2.152 | 2.017 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 15.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.747 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 9 | 1 | 1 | 4 | 563 | 120 | 2 | 3 | 0 | 4 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 9 | 1 | 1 | 4 | 563 | 120 | 2 | 3 | 0 | 4 | 1 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 3 | 0 | 0 | 1 | 174 | 37 | 1 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 7 | 11 | 1 | 1 | 5 | 695 | 148 | 2 | 4 | 0 | 5 | 1 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 699 | 938 | 643 | 643 |
| Degree of Utilization, x | 0.03 | 0.75 | 0.24 | 0.01 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.08 | 7.14 | 0.93 | 0.03 |
| 95th-Percentile Queue Length [ft] | 2.09 | 178.57 | 23.29 | 0.71 |
| Approach Delay [s/veh] | 8.29 | 17.22 | 10.36 | 8.65 |
| Approach LOS | A | C | B | A |
| Intersection Delay [s/veh] | 15.77 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.488 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 181 | 19 | 0 | 293 | 247 | 4 | 229 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 181 | 19 | 0 | 293 | 247 | 4 | 229 |
| Peak Hour Factor | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 | 0.7300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 62 | 7 | 0 | 100 | 85 | 1 | 78 |
| Total Analysis Volume [veh/h] | 248 | 26 | 0 | 401 | 338 | 5 | 314 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 0 | 13 | 13 | 0 | 13 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.00 | 0.38 | 0.38 | 0.01 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.02 | 0.00 | 0.12 | 0.22 | 0.00 | 0.17 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 1900 |
| c, Capacity [veh/h] | 452 | 413 | 1 | 1329 | 597 | 21 | 748 |
| d1, Uniform Delay [s] | 11.04 | 9.65 | 0.00 | 7.39 | 8.35 | 16.79 | 7.55 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 0.02 | 0.00 | 0.17 | 1.16 | 2.15 | 0.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.06 | 0.00 | 0.30 | 0.57 | 0.24 | 0.42 |
| d, Delay for Lane Group [s/veh] | 11.43 | 9.67 | 0.00 | 7.57 | 9.51 | 18.95 | 8.07 |
| Lane Group LOS | B | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.25 | 0.11 | 0.00 | 0.50 | 1.09 | 0.05 | 1.19 |
| 50th-Percentile Queue Length [ft/ln] | 31.34 | 2.83 | 0.00 | 12.57 | 27.22 | 1.13 | 29.76 |
| 95th-Percentile Queue Length [veh/ln] | 2.26 | 0.20 | 0.00 | 0.91 | 1.96 | 0.08 | 2.14 |
| 95th-Percentile Queue Length [ft/ln] | 56.42 | 5.09 | 0.00 | 22.63 | 49.00 | 2.03 | 53.57 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 11.43 | 9.67 | 0.00 | 7.57 | 9.51 | 18.95 | 8.07 |
| Movement LOS | B | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 11.26 | | 8.46 | | | 8.24 | |
| Approach LOS | B | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.98 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.488 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 185.60 | 19.46 | 0.00 | 200.63 | 169.11 | 6.49 | 407.63 |
| Stops [stops/h] | 132.11 | 11.91 | 0.00 | 105.97 | 114.73 | 4.75 | 125.45 |
| Fuel consumption [US gal/h] | 8.95 | 0.92 | 0.00 | 8.96 | 8.08 | 0.31 | 17.99 |
| CO [g/h] | 625.41 | 64.17 | 0.00 | 626.50 | 564.69 | 21.86 | 1257.44 |
| NOx [g/h] | 121.68 | 12.49 | 0.00 | 121.89 | 109.87 | 4.25 | 244.65 |
| VOC [g/h] | 144.95 | 14.87 | 0.00 | 145.20 | 130.87 | 5.07 | 291.42 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.85 | 13.58 | 13.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.221 | 2.767 | 2.275 |
| Crosswalk LOS | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1288 | 1873 | 1873 |
| d_b, Bicycle Delay [s] | 2.17 | 0.07 | 0.07 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 2.169 | 2.086 |
| Bicycle LOS | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 11.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.61 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 791 | 8 | 12 | 51 | 11 | 145 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 791 | 8 | 12 | 51 | 11 | 145 |
| Peak Hour Factor | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 | 0.8100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 244 | 2 | 4 | 16 | 3 | 45 |
| Total Analysis Volume [veh/h] | 977 | 10 | 15 | 63 | 14 | 179 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 17 | | 988 | | 16 | |
| Exiting Flow Rate [veh/h] | 201 | | 27 | | 1052 | |
| Demand Flow Rate [veh/h] | 791 | 8 | 12 | 51 | 11 | 145 |
| Adjusted Demand Flow Rate [veh/h] | 977 | 10 | 15 | 63 | 14 | 179 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 0.99 | 1.00 | 0.97 | 0.98 | 0.85 | 0.96 |
| Entry Flow Rate [veh/h] | 988 | 10 | 38 | 43 | 17 | 187 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1330 | 1401 | 578 | 578 | 1400 | 1400 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1316 | 1401 | 561 | 567 | 1184 | 1345 |
| X, volume / capacity | 0.74 | 0.01 | 0.07 | 0.07 | 0.01 | 0.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 7.38 | 0.02 | 0.21 | 0.24 | 0.04 | 0.46 |
| 95th-Percentile Queue Length [ft] | 184.49 | 0.54 | 5.23 | 5.88 | 0.90 | 11.48 |
| Approach Delay [s/veh] | 13.77 | | 7.21 | | 3.71 | |
| Approach LOS | B | | A | | A | |
| Intersection Delay [s/veh] | 11.82 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 54.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.696 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 114 | 38 | 12 | 2 | 112 | 708 | 136 | 212 | 54 | 44 | 562 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 354 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 114 | 38 | 12 | 2 | 112 | 354 | 136 | 212 | 54 | 44 | 562 | 12 |
| Peak Hour Factor | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 | 0.7800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 12 | 4 | 1 | 36 | 113 | 44 | 68 | 17 | 14 | 180 | 4 |
| Total Analysis Volume [veh/h] | 146 | 49 | 15 | 3 | 144 | 454 | 174 | 272 | 69 | 56 | 721 | 15 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 11 | 40 | 40 | 1 | 30 | 30 | 10 | 34 | 34 | 8 | 32 | 32 |
| g / C, Green / Cycle | 0.10 | 0.36 | 0.36 | 0.01 | 0.27 | 0.27 | 0.09 | 0.30 | 0.30 | 0.07 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.02 | 0.01 | 0.00 | 0.08 | 0.28 | 0.05 | 0.08 | 0.04 | 0.03 | 0.20 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 176 | 1110 | 566 | 15 | 485 | 425 | 287 | 971 | 466 | 125 | 1005 | 450 |
| d1, Uniform Delay [s] | 50.00 | 23.83 | 23.68 | 55.66 | 33.12 | 41.53 | 49.65 | 30.44 | 29.19 | 50.17 | 36.47 | 29.35 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.47 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.61 | 0.04 | 0.05 | 6.01 | 0.98 | 61.43 | 2.07 | 1.00 | 0.93 | 2.52 | 6.01 | 0.19 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.04 | 0.03 | 0.19 | 0.30 | 1.07 | 0.61 | 0.28 | 0.15 | 0.45 | 0.72 | 0.03 |
| d, Delay for Lane Group [s/veh] | 59.61 | 23.87 | 23.72 | 61.67 | 34.10 | 102.96 | 51.72 | 31.43 | 30.12 | 52.69 | 42.48 | 29.54 |
| Lane Group LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.51 | 0.44 | 0.27 | 0.11 | 3.28 | 18.92 | 2.45 | 2.98 | 1.50 | 1.60 | 9.71 | 0.32 |
| 50th-Percentile Queue Length [ft/ln] | 112.71 | 10.94 | 6.75 | 2.76 | 82.06 | 472.99 | 61.16 | 74.42 | 37.58 | 40.09 | 242.82 | 8.03 |
| 95th-Percentile Queue Length [veh/ln] | 7.99 | 0.79 | 0.49 | 0.20 | 5.91 | 27.10 | 4.40 | 5.36 | 2.71 | 2.89 | 14.82 | 0.58 |
| 95th-Percentile Queue Length [ft/ln] | 199.77 | 19.69 | 12.15 | 4.97 | 147.72 | 677.50 | 110.10 | 133.96 | 67.65 | 72.17 | 370.60 | 14.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 59.61 | 23.87 | 23.72 | 61.67 | 34.10 | 102.96 | 51.72 | 31.43 | 30.12 | 52.69 | 42.48 | 29.54 |
| Movement LOS | E | C | C | E | C | F | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 48.71 | | | 86.26 | | | 38.11 | | | 42.96 | | |
| Approach LOS | D | | | F | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 54.64 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.696 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.53 | 4.20 | 1.29 | 0.82 | 39.34 | 124.02 | 24.05 | 37.59 | 9.54 | 69.84 | 899.24 | 18.71 |
| Stops [stops/h] | 143.71 | 27.89 | 8.60 | 3.52 | 104.63 | 603.07 | 155.97 | 189.78 | 47.92 | 51.12 | 619.21 | 10.23 |
| Fuel consumption [US gal/h] | 3.08 | 0.57 | 0.17 | 0.09 | 3.20 | 17.95 | 3.68 | 4.34 | 1.08 | 3.76 | 46.67 | 0.92 |
| CO [g/h] | 215.33 | 39.51 | 12.09 | 6.35 | 223.44 | 1254.61 | 257.42 | 303.07 | 75.51 | 262.69 | 3262.37 | 64.09 |
| NOx [g/h] | 41.90 | 7.69 | 2.35 | 1.24 | 43.47 | 244.10 | 50.08 | 58.97 | 14.69 | 51.11 | 634.74 | 12.47 |
| VOC [g/h] | 49.91 | 9.16 | 2.80 | 1.47 | 51.79 | 290.77 | 59.66 | 70.24 | 17.50 | 60.88 | 756.09 | 14.85 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 46.01 | 46.01 | 46.01 | 46.01 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.404 | 3.047 | 2.910 | 2.640 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 354 | 531 | 708 | 708 |
| d_b, Bicycle Delay [s] | 38.24 | 30.45 | 23.55 | 23.55 |
| l_b,int, Bicycle LOS Score for Intersection | 1.733 | 3.135 | 1.984 | 2.213 |
| Bicycle LOS | A | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.386 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 58 | 2 | 123 | 136 | 240 | 45 | 171 | 13 | 2 | 322 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 58 | 2 | 123 | 136 | 240 | 45 | 171 | 13 | 2 | 322 | 96 |
| Peak Hour Factor | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 | 0.8400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 17 | 1 | 37 | 40 | 71 | 13 | 51 | 4 | 1 | 96 | 29 |
| Total Analysis Volume [veh/h] | 36 | 69 | 2 | 146 | 162 | 286 | 54 | 204 | 15 | 2 | 383 | 114 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 14 | 9 | 18 | 18 | 7 | 18 | 18 | 0 | 12 | 12 |
| g / C, Green / Cycle | 0.07 | 0.19 | 0.13 | 0.25 | 0.25 | 0.09 | 0.26 | 0.26 | 0.01 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.04 | 0.04 | 0.09 | 0.18 | 0.02 | 0.06 | 0.01 | 0.00 | 0.11 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1762 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 128 | 337 | 455 | 467 | 403 | 314 | 893 | 415 | 11 | 623 | 489 |
| d1, Uniform Delay [s] | 31.68 | 24.59 | 28.40 | 22.20 | 24.65 | 30.17 | 21.16 | 20.11 | 35.68 | 27.55 | 25.64 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.44 | 1.06 | 0.15 | 2.51 | 12.39 | 0.10 | 0.28 | 0.08 | 3.04 | 2.11 | 0.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.28 | 0.21 | 0.32 | 0.35 | 0.71 | 0.17 | 0.23 | 0.04 | 0.19 | 0.62 | 0.23 |
| d, Delay for Lane Group [s/veh] | 32.13 | 25.65 | 28.54 | 24.71 | 37.05 | 30.27 | 21.44 | 20.18 | 38.72 | 29.66 | 26.16 |
| Lane Group LOS | C | C | C | C | D | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.59 | 1.08 | 1.04 | 2.31 | 5.28 | 0.42 | 1.33 | 0.19 | 0.04 | 2.76 | 0.75 |
| 50th-Percentile Queue Length [ft/ln] | 14.79 | 27.06 | 26.08 | 57.76 | 131.95 | 10.57 | 33.32 | 4.75 | 1.00 | 69.12 | 18.76 |
| 95th-Percentile Queue Length [veh/ln] | 1.06 | 1.95 | 1.88 | 4.16 | 9.05 | 0.76 | 2.40 | 0.34 | 0.07 | 4.98 | 1.35 |
| 95th-Percentile Queue Length [ft/ln] | 26.62 | 48.71 | 46.94 | 103.98 | 226.15 | 19.03 | 59.97 | 8.55 | 1.80 | 124.42 | 33.77 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.13 | 25.65 | 25.65 | 28.54 | 24.71 | 37.05 | 30.27 | 21.44 | 20.18 | 38.72 | 29.66 | 26.16 |
| Movement LOS | C | C | C | C | C | D | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.83 | | | 31.59 | | | 23.12 | | | 28.90 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.84 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.386 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.67 | 5.26 | 189.53 | 210.31 | 371.28 | 67.35 | 254.43 | 18.71 | 0.35 | 66.25 | 19.72 |
| Stops [stops/h] | 29.59 | 54.15 | 104.37 | 115.59 | 264.05 | 42.30 | 133.33 | 9.51 | 2.00 | 276.64 | 75.08 |
| Fuel consumption [US gal/h] | 0.51 | 0.89 | 8.80 | 9.63 | 18.64 | 3.34 | 12.10 | 0.88 | 0.08 | 11.85 | 3.26 |
| CO [g/h] | 35.55 | 61.95 | 614.94 | 673.25 | 1303.13 | 233.38 | 845.84 | 61.81 | 5.58 | 828.32 | 227.69 |
| NOx [g/h] | 6.92 | 12.05 | 119.64 | 130.99 | 253.54 | 45.41 | 164.57 | 12.03 | 1.09 | 161.16 | 44.30 |
| VOC [g/h] | 8.24 | 14.36 | 142.52 | 156.03 | 302.01 | 54.09 | 196.03 | 14.33 | 1.29 | 191.97 | 52.77 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.82 | 25.82 | 25.82 | 25.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.021 | 2.666 | 2.718 | 2.838 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 556 | 556 | 834 | 834 |
| d_b, Bicycle Delay [s] | 18.76 | 18.76 | 12.23 | 12.23 |
| l_b,int, Bicycle LOS Score for Intersection | 1.736 | 2.540 | 1.785 | 1.971 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.149 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 125 | 0 | 274 | 346 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 125 | 0 | 274 | 346 | 1 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 31 | 0 | 69 | 87 | 0 |
| Total Analysis Volume [veh/h] | 0 | 125 | 0 | 274 | 346 | 1 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.78 | 10.03 | 7.98 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 0.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 13.04 | 13.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.03 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.68 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.228 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 229 | 0 | 0 | 26 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 229 | 0 | 0 | 26 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 57 | 0 | 0 | 7 | 0 | 0 |
| Total Analysis Volume [veh/h] | 229 | 0 | 0 | 26 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.63 | 9.42 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.88 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 21.90 | 21.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.63 | | 0.00 | | 3.63 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 8.65 | | | | | |
| Intersection LOS | A | | | | | |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro Scenario 16 Near Term PM Plus Proj Improved
Report File: \...\Near Term Plus Proj Improved PM.pdf 8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Left | 0.587 | 25.4 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Thru | 0.502 | 24.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Right | 0.678 | 33.3 | C |
| 4 | Minnewawa Ave & International Ave | All-way stop | HCM 7th Edition | NB Thru | 0.689 | 16.1 | C |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | EB Left | 0.548 | 22.3 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.703 | 30.5 | C |
| 7 | Clovis Ave & International Ave | Unknown | ? | | ? | ? | ? |
| 8 | Clovis Ave & Behymer Ave | Unknown | ? | | ? | ? | ? |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.544 | 24.0 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.740 | 33.2 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Left | 0.715 | 31.8 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | WB Thru | 0.934 | 56.2 | E |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Thru | 0.830 | 34.2 | C |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.577 | 13.9 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | All-way stop | HCM 7th Edition | EB Thru | 0.734 | 18.7 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.833 | 37.4 | D |
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.695 | 27.1 | C |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.820 | 43.1 | D |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 1.005 | 109.3 | F |
| 21 | Fowler Ave & Perrin Ave | Signalized | HCM 7th Edition | NB Right | 0.837 | 31.1 | C |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.625 | 21.6 | C |
| 23 | Fowler Ave & Teague Ave | All-way stop | HCM 7th Edition | SB Thru | 0.872 | 27.7 | D |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.758 | 23.2 | C |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.668 | 20.9 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.572 | 14.3 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.757 | 30.1 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.031 | 21.3 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.002 | 12.2 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.086 | 12.0 | B |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.840 | 36.1 | D |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.669 | 23.0 | C |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 9.8 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.423 | 4.9 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | NB Right | 0.852 | 45.3 | D |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.560 | 177.6 | F |
| 37 | Locan Ave & Nees Ave | All-way stop | HCM 7th Edition | EB Left | 0.771 | 18.3 | C |
| 38 | Locan Ave & Owens Mountain Pkwy | Unknown | ? | | ? | ? | ? |
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.547 | 10.4 | B |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | WB Right | | 7.8 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | EB Left | 0.566 | 54.9 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.212 | 24.1 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.188 | 10.3 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.112 | 9.5 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.587 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 50.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 280 | 616 | 30 | 184 | 296 | 90 | 9 | 117 | 245 | 11 | 111 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 280 | 616 | 30 | 184 | 296 | 90 | 9 | 117 | 245 | 11 | 111 | 65 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 80 | 175 | 9 | 52 | 84 | 26 | 3 | 33 | 70 | 3 | 32 | 18 |
| Total Analysis Volume [veh/h] | 318 | 700 | 34 | 209 | 336 | 102 | 10 | 133 | 278 | 13 | 126 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 9 | 23 | 23 | 10 | 23 | 23 | 1 | 17 | 17 | 2 | 16 | 16 |
| g / C, Green / Cycle | 0.12 | 0.32 | 0.32 | 0.14 | 0.32 | 0.32 | 0.02 | 0.23 | 0.23 | 0.03 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.19 | 0.02 | 0.12 | 0.07 | 0.06 | 0.01 | 0.07 | 0.17 | 0.01 | 0.07 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 3618 | 1615 | 1810 | 5159 | 1615 | 1810 | 1900 | 1604 | 1810 | 1864 | 1615 |
| c, Capacity [veh/h] | 424 | 1146 | 512 | 255 | 1668 | 522 | 37 | 436 | 368 | 47 | 423 | 366 |
| d1, Uniform Delay [s] | 30.82 | 20.98 | 17.29 | 30.25 | 17.76 | 17.72 | 34.98 | 23.13 | 26.02 | 34.66 | 23.25 | 22.72 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.01 | 1.72 | 0.18 | 2.49 | 0.19 | 0.59 | 1.45 | 0.92 | 7.21 | 1.20 | 0.67 | 0.46 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.61 | 0.07 | 0.82 | 0.20 | 0.20 | 0.27 | 0.30 | 0.75 | 0.28 | 0.30 | 0.20 |
| d, Delay for Lane Group [s/veh] | 31.83 | 22.70 | 17.46 | 32.74 | 17.95 | 18.31 | 36.43 | 24.05 | 33.23 | 35.85 | 23.92 | 23.18 |
| Lane Group LOS | C | C | B | C | B | B | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.48 | 4.58 | 0.37 | 3.36 | 1.20 | 1.15 | 0.18 | 1.82 | 4.74 | 0.23 | 1.79 | 1.03 |
| 50th-Percentile Queue Length [ft/ln] | 62.12 | 114.59 | 9.25 | 83.98 | 30.11 | 28.82 | 4.42 | 45.38 | 118.58 | 5.85 | 44.71 | 25.70 |
| 95th-Percentile Queue Length [veh/ln] | 4.47 | 8.09 | 0.67 | 6.05 | 2.17 | 2.08 | 0.32 | 3.27 | 8.32 | 0.42 | 3.22 | 1.85 |
| 95th-Percentile Queue Length [ft/ln] | 111.82 | 202.37 | 16.65 | 151.16 | 54.19 | 51.88 | 7.96 | 81.68 | 207.88 | 10.53 | 80.48 | 46.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.83 | 22.70 | 17.46 | 32.74 | 17.95 | 18.31 | 36.43 | 24.05 | 33.23 | 35.85 | 23.92 | 23.18 |
| Movement LOS | C | C | B | C | B | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.29 | | | 22.79 | | | 30.41 | | | 24.39 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.44 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.587 | | | | | | | | | | | |

**Emissions**

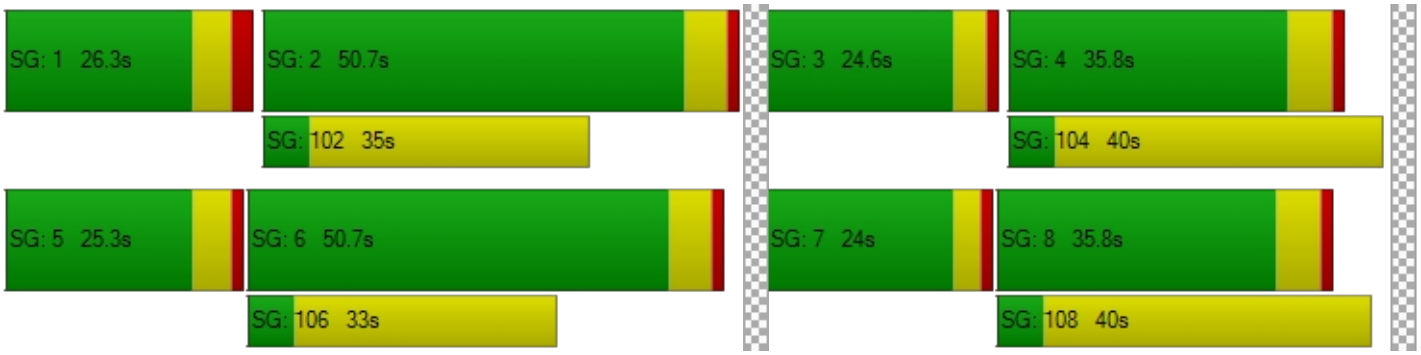
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 160.53 | 353.36 | 17.16 | 20.59 | 33.10 | 10.05 | 1.00 | 13.25 | 27.69 | 13.49 | 130.73 | 76.78 |
| Stops [stops/h] | 247.43 | 456.43 | 18.42 | 167.24 | 179.87 | 57.40 | 8.81 | 90.37 | 236.16 | 11.65 | 89.04 | 51.19 |
| Fuel consumption [US gal/h] | 11.23 | 22.07 | 0.98 | 4.65 | 5.10 | 1.60 | 0.22 | 2.23 | 5.77 | 0.71 | 6.49 | 3.79 |
| CO [g/h] | 785.24 | 1542.95 | 68.39 | 324.97 | 356.28 | 111.67 | 15.22 | 155.78 | 403.00 | 49.94 | 453.43 | 265.10 |
| NOx [g/h] | 152.78 | 300.20 | 13.31 | 63.23 | 69.32 | 21.73 | 2.96 | 30.31 | 78.41 | 9.72 | 88.22 | 51.58 |
| VOC [g/h] | 181.99 | 357.59 | 15.85 | 75.31 | 82.57 | 25.88 | 3.53 | 36.10 | 93.40 | 11.57 | 105.09 | 61.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.71 | 27.71 | 27.71 | 27.71 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.057 | 2.917 | 2.573 | 2.265 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1245 | 1245 | 830 | 830 |
| d_b, Bicycle Delay [s] | 5.16 | 5.16 | 12.38 | 12.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.428 | 1.915 | 2.254 | 1.911 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.502 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 879 | 154 | 109 | 464 | 47 | 19 | 99 | 150 | 67 | 156 | 111 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 879 | 154 | 109 | 464 | 47 | 19 | 99 | 150 | 67 | 156 | 111 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 239 | 42 | 30 | 126 | 13 | 5 | 27 | 41 | 18 | 42 | 30 |
| Total Analysis Volume [veh/h] | 97 | 955 | 167 | 118 | 504 | 51 | 21 | 108 | 163 | 73 | 170 | 121 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 29 | 29 | 7 | 29 | 29 | 3 | 14 | 14 | 6 | 16 |
| g / C, Green / Cycle | 0.09 | 0.36 | 0.36 | 0.09 | 0.37 | 0.37 | 0.04 | 0.18 | 0.18 | 0.08 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.18 | 0.10 | 0.07 | 0.10 | 0.03 | 0.01 | 0.06 | 0.10 | 0.04 | 0.16 |
| s, saturation flow rate [veh/h] | 1781 | 5176 | 1615 | 1810 | 5135 | 1615 | 1810 | 1882 | 1605 | 1810 | 1770 |
| c, Capacity [veh/h] | 159 | 1884 | 588 | 169 | 1892 | 595 | 69 | 345 | 294 | 147 | 365 |
| d1, Uniform Delay [s] | 34.85 | 19.70 | 17.92 | 34.91 | 17.57 | 16.36 | 37.21 | 28.13 | 29.51 | 34.95 | 29.96 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.41 | 0.69 | 0.85 | 1.93 | 0.24 | 0.20 | 0.93 | 0.62 | 1.97 | 0.97 | 8.61 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.61 | 0.51 | 0.28 | 0.70 | 0.27 | 0.09 | 0.31 | 0.31 | 0.55 | 0.50 | 0.80 |
| d, Delay for Lane Group [s/veh] | 36.26 | 20.39 | 18.77 | 36.84 | 17.82 | 16.56 | 38.14 | 28.75 | 31.48 | 35.92 | 38.57 |
| Lane Group LOS | D | C | B | D | B | B | D | C | C | D | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.73 | 4.11 | 2.04 | 2.13 | 1.93 | 0.57 | 0.40 | 1.74 | 2.82 | 1.36 | 5.96 |
| 50th-Percentile Queue Length [ft/ln] | 43.27 | 102.68 | 51.04 | 53.29 | 48.18 | 14.14 | 9.93 | 43.49 | 70.53 | 33.99 | 148.99 |
| 95th-Percentile Queue Length [veh/ln] | 3.12 | 7.39 | 3.67 | 3.84 | 3.47 | 1.02 | 0.71 | 3.13 | 5.08 | 2.45 | 9.96 |
| 95th-Percentile Queue Length [ft/ln] | 77.88 | 184.82 | 91.87 | 95.92 | 86.72 | 25.46 | 17.87 | 78.28 | 126.96 | 61.18 | 249.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.26 | 20.39 | 18.77 | 36.84 | 17.82 | 16.56 | 38.14 | 28.75 | 31.48 | 35.92 | 38.57 | 38.57 |
| Movement LOS | D | C | B | D | B | B | D | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 21.43 | | | 21.06 | | | 30.95 | | | 38.04 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 24.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.502 | | | | | | | | | | | |

**Emissions**

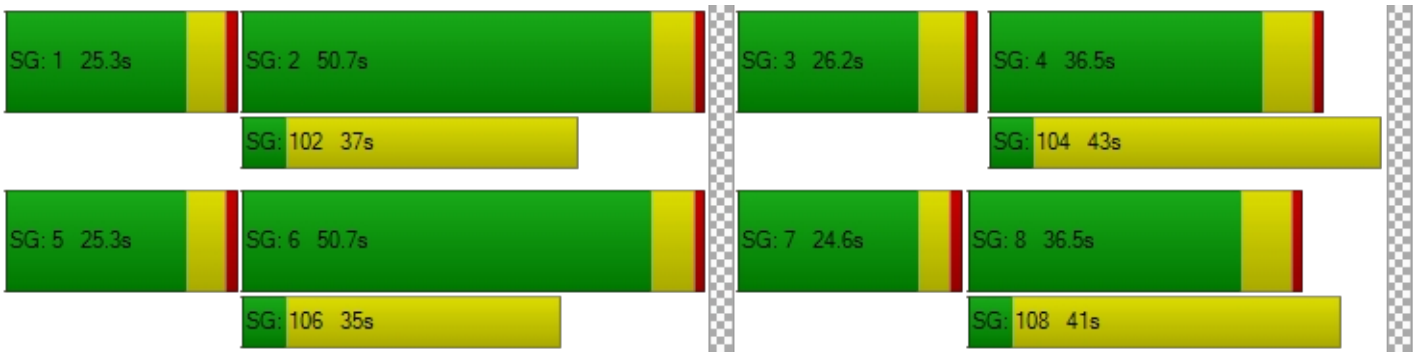
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 98.27 | 967.48 | 169.18 | 59.57 | 254.42 | 25.75 | 2.28 | 11.75 | 17.73 | 75.73 | 301.89 |
| Stops [stops/h] | 78.59 | 559.48 | 92.70 | 96.79 | 262.53 | 25.69 | 18.03 | 78.99 | 128.11 | 61.74 | 270.62 |
| Fuel consumption [US gal/h] | 5.21 | 44.95 | 7.73 | 4.37 | 14.38 | 1.43 | 0.42 | 1.83 | 2.94 | 3.99 | 16.21 |
| CO [g/h] | 364.38 | 3142.03 | 540.09 | 305.13 | 1004.98 | 99.85 | 29.49 | 127.82 | 205.36 | 279.07 | 1132.85 |
| NOx [g/h] | 70.90 | 611.32 | 105.08 | 59.37 | 195.53 | 19.43 | 5.74 | 24.87 | 39.96 | 54.30 | 220.41 |
| VOC [g/h] | 84.45 | 728.19 | 125.17 | 70.72 | 232.91 | 23.14 | 6.83 | 29.62 | 47.59 | 64.68 | 262.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.15 | 31.15 | 31.15 | 31.15 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.119 | 3.080 | 2.325 | 2.181 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1135 | 1135 | 757 | 757 |
| d_b, Bicycle Delay [s] | 7.41 | 7.41 | 15.32 | 15.32 |
| l_b,int, Bicycle LOS Score for Intersection | 2.230 | 1.930 | 2.041 | 2.160 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.678 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 235 | 960 | 579 | 77 | 957 | 121 | 224 | 257 | 121 | 239 | 250 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 235 | 960 | 579 | 77 | 957 | 121 | 224 | 257 | 121 | 239 | 250 | 27 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 267 | 161 | 21 | 266 | 34 | 62 | 71 | 34 | 66 | 69 | 8 |
| Total Analysis Volume [veh/h] | 261 | 1067 | 643 | 86 | 1063 | 134 | 249 | 286 | 134 | 266 | 278 | 30 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 9 | 35 | 35 | 7 | 33 | 33 | 8 | 12 | 12 | 9 | 13 | 13 |
| g / C, Green / Cycle | 0.10 | 0.40 | 0.40 | 0.08 | 0.38 | 0.38 | 0.10 | 0.13 | 0.13 | 0.10 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.21 | 0.40 | 0.02 | 0.21 | 0.08 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.02 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1592 | 3514 | 3600 | 1580 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 355 | 2056 | 640 | 284 | 1936 | 602 | 343 | 482 | 211 | 361 | 552 | 246 |
| d1, Uniform Delay [s] | 38.36 | 20.07 | 26.46 | 38.06 | 21.47 | 18.57 | 38.54 | 35.84 | 35.98 | 38.31 | 34.21 | 32.18 |
| k, delay calibration | 0.04 | 0.35 | 0.47 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.12 | 0.66 | 35.74 | 0.22 | 0.79 | 0.60 | 1.11 | 2.75 | 7.22 | 1.12 | 0.98 | 0.30 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.52 | 1.00 | 0.30 | 0.55 | 0.22 | 0.73 | 0.59 | 0.63 | 0.74 | 0.50 | 0.12 |
| d, Delay for Lane Group [s/veh] | 39.48 | 20.73 | 62.20 | 38.28 | 22.26 | 19.17 | 39.65 | 38.58 | 43.20 | 39.42 | 35.19 | 32.48 |
| Lane Group LOS | D | C | F | D | C | B | D | D | D | D | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.61 | 4.99 | 17.89 | 0.83 | 5.21 | 1.76 | 2.49 | 2.87 | 2.96 | 2.66 | 2.61 | 0.54 |
| 50th-Percentile Queue Length [ft/ln] | 65.24 | 124.67 | 447.13 | 20.72 | 130.19 | 43.95 | 62.32 | 71.87 | 73.88 | 66.46 | 65.37 | 13.40 |
| 95th-Percentile Queue Length [veh/ln] | 4.70 | 8.65 | 24.90 | 1.49 | 8.95 | 3.16 | 4.49 | 5.17 | 5.32 | 4.78 | 4.71 | 0.97 |
| 95th-Percentile Queue Length [ft/ln] | 117.43 | 216.23 | 622.58 | 37.29 | 223.76 | 79.10 | 112.18 | 129.36 | 132.98 | 119.62 | 117.67 | 24.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.48 | 20.73 | 62.20 | 38.28 | 22.26 | 19.17 | 39.65 | 38.58 | 43.20 | 39.42 | 35.19 | 32.48 |
| Movement LOS | D | C | F | D | C | B | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 36.74 | | | 23.01 | | | 39.91 | | | 37.01 | | |
| Approach LOS | D | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.33 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.678 | | | | | | | | | | | |

**Emissions**

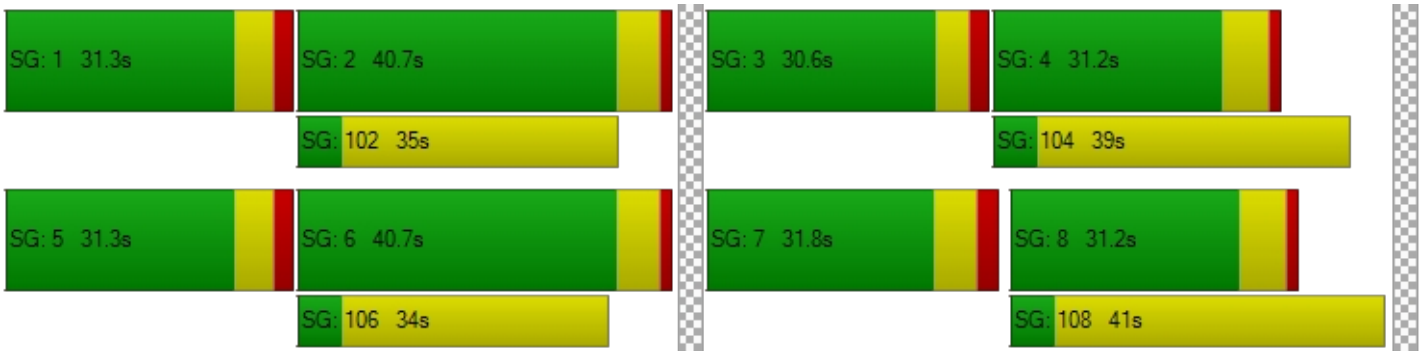
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.59 | 174.09 | 104.91 | 87.12 | 1076.89 | 135.75 | 32.54 | 37.37 | 17.51 | 275.59 | 288.03 | 31.08 |
| Stops [stops/h] | 214.26 | 614.16 | 734.21 | 68.04 | 641.34 | 72.16 | 204.66 | 236.03 | 121.31 | 218.25 | 214.68 | 22.01 |
| Fuel consumption [US gal/h] | 6.81 | 19.76 | 22.92 | 4.63 | 50.72 | 6.18 | 6.24 | 7.12 | 3.63 | 14.71 | 14.93 | 1.58 |
| CO [g/h] | 476.16 | 1381.20 | 1602.21 | 323.78 | 3545.59 | 431.75 | 436.20 | 497.70 | 253.49 | 1028.45 | 1043.72 | 110.23 |
| NOx [g/h] | 92.64 | 268.73 | 311.73 | 63.00 | 689.84 | 84.00 | 84.87 | 96.83 | 49.32 | 200.10 | 203.07 | 21.45 |
| VOC [g/h] | 110.36 | 320.11 | 371.33 | 75.04 | 821.72 | 100.06 | 101.09 | 115.35 | 58.75 | 238.35 | 241.89 | 25.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2604.79 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.31 | 35.31 | 35.31 | 35.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.469 | 3.324 | 2.906 | 3.048 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 798 | 798 | 570 | 570 |
| d_b, Bicycle Delay [s] | 15.83 | 15.83 | 22.48 | 22.41 |
| l_b,int, Bicycle LOS Score for Intersection | 2.644 | 2.265 | 2.112 | 2.033 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 16.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.689 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 198 | 218 | 2 | 1 | 269 | 11 | 20 | 0 | 286 | 2 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 198 | 218 | 2 | 1 | 269 | 11 | 20 | 0 | 286 | 2 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 54 | 59 | 1 | 0 | 73 | 3 | 5 | 0 | 78 | 1 | 0 | 0 |
| Total Analysis Volume [veh/h] | 215 | 237 | 2 | 1 | 292 | 12 | 22 | 0 | 311 | 2 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 659 | 647 | 669 | 518 |
| Degree of Utilization, x | 0.69 | 0.47 | 0.50 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 5.47 | 2.53 | 2.79 | 0.01 |
| 95th-Percentile Queue Length [ft] | 136.68 | 63.16 | 69.75 | 0.29 |
| Approach Delay [s/veh] | 19.64 | 13.43 | 13.60 | 9.97 |
| Approach LOS | C | B | B | A |
| Intersection Delay [s/veh] | 16.05 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.548 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | No | | | No | | | No | | | No | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 78 | 192 | 83 | 227 | 326 | 5 | 4 | 307 | 49 | 23 | 288 | 252 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 192 | 83 | 227 | 326 | 5 | 4 | 307 | 49 | 23 | 288 | 252 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 52 | 23 | 62 | 89 | 1 | 1 | 83 | 13 | 6 | 78 | 68 |
| Total Analysis Volume [veh/h] | 85 | 209 | 90 | 247 | 354 | 5 | 4 | 334 | 53 | 25 | 313 | 274 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 15 | 11 | 22 | 0 | 16 | 16 | 2 | 17 | 17 |
| g / C, Green / Cycle | 0.07 | 0.25 | 0.19 | 0.37 | 0.01 | 0.27 | 0.27 | 0.03 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.19 | 0.15 | 0.21 | 0.00 | 0.20 | 0.04 | 0.02 | 0.18 | 0.19 |
| s, saturation flow rate [veh/h] | 1629 | 1615 | 1629 | 1692 | 1629 | 1702 | 1411 | 1629 | 1705 | 1454 |
| c, Capacity [veh/h] | 109 | 407 | 305 | 629 | 9 | 453 | 376 | 47 | 494 | 421 |
| d1, Uniform Delay [s] | 27.63 | 20.67 | 23.44 | 15.07 | 29.84 | 20.16 | 16.83 | 28.84 | 18.61 | 18.72 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 11.10 | 2.59 | 5.14 | 0.82 | 31.88 | 2.36 | 0.17 | 9.19 | 1.35 | 1.71 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.73 | 0.81 | 0.57 | 0.45 | 0.74 | 0.14 | 0.54 | 0.63 | 0.65 |
| d, Delay for Lane Group [s/veh] | 38.73 | 23.26 | 28.58 | 15.88 | 61.72 | 22.51 | 17.00 | 38.02 | 19.96 | 20.42 |
| Lane Group LOS | D | C | C | B | E | C | B | D | B | C |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.47 | 3.81 | 3.54 | 3.60 | 0.13 | 4.18 | 0.53 | 0.46 | 3.62 | 3.23 |
| 50th-Percentile Queue Length [ft/ln] | 36.84 | 95.27 | 88.53 | 90.02 | 3.34 | 104.54 | 13.31 | 11.43 | 90.54 | 80.63 |
| 95th-Percentile Queue Length [veh/ln] | 2.65 | 6.86 | 6.37 | 6.48 | 0.24 | 7.53 | 0.96 | 0.82 | 6.52 | 5.81 |
| 95th-Percentile Queue Length [ft/ln] | 66.32 | 171.49 | 159.36 | 162.04 | 6.01 | 188.16 | 23.96 | 20.57 | 162.98 | 145.14 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.73 | 23.26 | 23.26 | 28.58 | 15.88 | 15.88 | 61.72 | 22.51 | 17.00 | 38.02 | 19.96 | 20.42 |
| Movement LOS | D | C | C | C | B | B | E | C | B | D | B | C |
| d_A, Approach Delay [s/veh] | 26.68 | | | 21.06 | | | 22.17 | | | 20.91 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.31 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.548 | | | | | | | | | | | |

**Emissions**

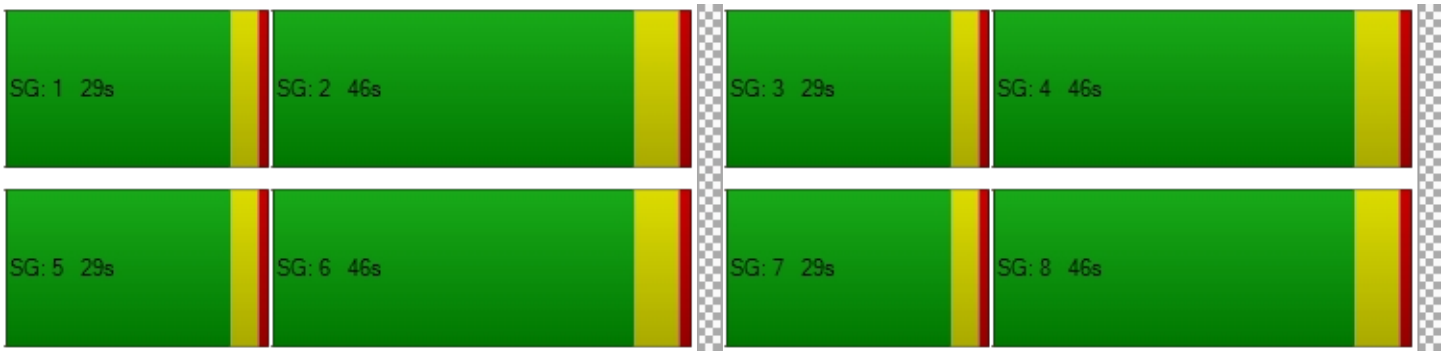
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 85.40 | 300.41 | 124.34 | 180.71 | 4.15 | 346.50 | 54.98 | 15.35 | 192.13 | 168.19 |
| Stops [stops/h] | 88.42 | 228.64 | 212.47 | 216.04 | 8.01 | 250.87 | 31.95 | 27.42 | 217.29 | 193.51 |
| Fuel consumption [US gal/h] | 4.67 | 15.05 | 7.73 | 9.79 | 0.27 | 17.18 | 2.62 | 0.98 | 10.38 | 9.13 |
| CO [g/h] | 326.72 | 1051.66 | 540.24 | 684.57 | 18.55 | 1200.92 | 183.38 | 68.27 | 725.66 | 638.32 |
| NOx [g/h] | 63.57 | 204.61 | 105.11 | 133.19 | 3.61 | 233.66 | 35.68 | 13.28 | 141.19 | 124.19 |
| VOC [g/h] | 75.72 | 243.73 | 125.20 | 158.65 | 4.30 | 278.33 | 42.50 | 15.82 | 168.18 | 147.94 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | F | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1333 | 1333 | 1333 | 1333 |
| d_b, Bicycle Delay [s] | 3.33 | 3.33 | 3.33 | 3.33 |
| l_b,int, Bicycle LOS Score for Intersection | 2.193 | 2.560 | 2.205 | 2.569 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.703 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 422 | 289 | 43 | 84 | 258 | 38 | 90 | 346 | 144 | 22 | 211 | 50 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 422 | 289 | 43 | 84 | 258 | 38 | 90 | 346 | 144 | 22 | 211 | 50 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 113 | 78 | 12 | 23 | 69 | 10 | 24 | 93 | 39 | 6 | 57 | 13 |
| Total Analysis Volume [veh/h] | 454 | 311 | 46 | 90 | 277 | 41 | 97 | 372 | 155 | 24 | 227 | 54 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 22 | 30 | 30 | 9 | 18 | 10 | 19 | 19 | 5 | 14 | 14 |
| g / C, Green / Cycle | 0.28 | 0.38 | 0.38 | 0.12 | 0.22 | 0.12 | 0.24 | 0.24 | 0.06 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.16 | 0.03 | 0.05 | 0.17 | 0.05 | 0.10 | 0.10 | 0.01 | 0.12 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1886 | 1615 | 1810 | 1849 | 1810 | 3618 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 500 | 716 | 613 | 218 | 414 | 223 | 864 | 386 | 104 | 328 | 279 |
| d1, Uniform Delay [s] | 27.48 | 18.11 | 15.57 | 32.00 | 28.60 | 31.93 | 25.39 | 25.20 | 35.40 | 30.55 | 27.83 |
| k, delay calibration | 0.29 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 15.01 | 0.42 | 0.05 | 1.25 | 3.03 | 1.33 | 0.34 | 0.68 | 1.12 | 2.60 | 0.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.91 | 0.43 | 0.08 | 0.41 | 0.77 | 0.43 | 0.43 | 0.40 | 0.23 | 0.69 | 0.19 |
| d, Delay for Lane Group [s/veh] | 42.48 | 18.53 | 15.62 | 33.25 | 31.63 | 33.26 | 25.73 | 25.87 | 36.53 | 33.15 | 28.16 |
| Lane Group LOS | D | B | B | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 9.49 | 3.80 | 0.48 | 1.55 | 5.48 | 1.65 | 2.70 | 2.27 | 0.44 | 3.91 | 0.82 |
| 50th-Percentile Queue Length [ft/ln] | 237.24 | 94.88 | 12.02 | 38.85 | 137.00 | 41.33 | 67.39 | 56.70 | 11.00 | 97.74 | 20.54 |
| 95th-Percentile Queue Length [veh/ln] | 14.54 | 6.83 | 0.87 | 2.80 | 9.32 | 2.98 | 4.85 | 4.08 | 0.79 | 7.04 | 1.48 |
| 95th-Percentile Queue Length [ft/ln] | 363.54 | 170.79 | 21.64 | 69.93 | 232.98 | 74.39 | 121.30 | 102.05 | 19.81 | 175.94 | 36.98 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.48 | 18.53 | 15.62 | 33.25 | 31.63 | 31.63 | 33.26 | 25.73 | 25.87 | 36.53 | 33.15 | 28.16 |
| Movement LOS | D | B | B | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 31.77 | | | 31.99 | | | 26.94 | | | 32.53 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.52 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.703 | | | | | | | | | | | |

**Emissions**

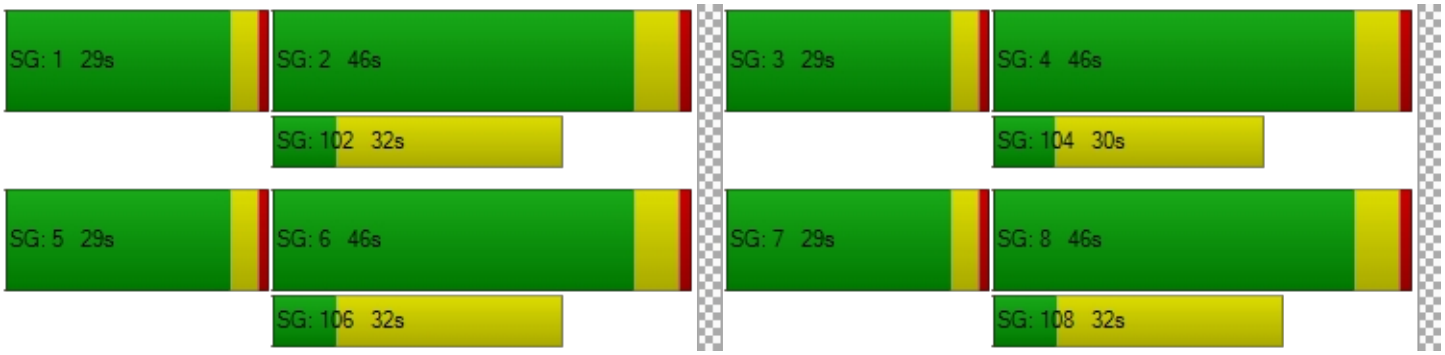
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 54.35 | 37.23 | 5.51 | 90.42 | 319.50 | 100.50 | 385.42 | 160.59 | 12.02 | 113.68 | 27.04 |
| Stops [stops/h] | 435.17 | 174.04 | 22.05 | 71.26 | 251.30 | 75.81 | 247.21 | 104.00 | 20.18 | 179.29 | 37.68 |
| Fuel consumption [US gal/h] | 11.20 | 4.61 | 0.61 | 4.59 | 16.12 | 5.19 | 18.65 | 7.79 | 0.89 | 8.09 | 1.79 |
| CO [g/h] | 782.79 | 322.44 | 42.58 | 321.15 | 1127.01 | 362.49 | 1303.60 | 544.55 | 62.26 | 565.50 | 125.37 |
| NOx [g/h] | 152.30 | 62.73 | 8.28 | 62.48 | 219.27 | 70.53 | 253.63 | 105.95 | 12.11 | 110.03 | 24.39 |
| VOC [g/h] | 181.42 | 74.73 | 9.87 | 74.43 | 261.19 | 84.01 | 302.12 | 126.20 | 14.43 | 131.06 | 29.05 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.02 | 29.02 | 29.02 | 29.02 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.587 | 2.357 | 2.810 | 2.556 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1019 | 1019 | 1019 | 1019 |
| d_b, Bicycle Delay [s] | 9.44 | 9.44 | 9.44 | 9.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.898 | 2.233 | 2.074 | 2.063 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 254 | 0 | 0 | 136 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 254 | 0 | 0 | 136 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 0 | 0 | 34 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 254 | 0 | 0 | 136 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.544 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 612 | 39 | 180 | 10 | 24 | 26 | 37 | 266 | 255 | 261 | 123 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 612 | 39 | 180 | 10 | 24 | 26 | 37 | 266 | 255 | 261 | 123 | 7 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 161 | 10 | 47 | 3 | 6 | 7 | 10 | 70 | 67 | 69 | 32 | 2 |
| Total Analysis Volume [veh/h] | 644 | 41 | 189 | 11 | 25 | 27 | 39 | 280 | 268 | 275 | 129 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 16 | 21 | 21 | 4 | 8 | 8 | 7 | 17 | 17 | 12 | 22 | 22 |
| g / C, Green / Cycle | 0.24 | 0.30 | 0.30 | 0.05 | 0.12 | 0.12 | 0.10 | 0.25 | 0.25 | 0.17 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.02 | 0.12 | 0.00 | 0.01 | 0.02 | 0.01 | 0.08 | 0.17 | 0.08 | 0.04 | 0.00 |
| s, saturation flow rate [veh/h] | 3514 | 1879 | 1594 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1612 |
| c, Capacity [veh/h] | 833 | 568 | 482 | 179 | 421 | 188 | 351 | 905 | 403 | 547 | 1145 | 510 |
| d1, Uniform Delay [s] | 24.77 | 17.29 | 19.18 | 31.41 | 27.33 | 27.60 | 28.48 | 21.18 | 23.45 | 26.36 | 16.84 | 16.31 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.59 | 0.12 | 1.16 | 0.05 | 0.30 | 1.77 | 0.05 | 0.28 | 2.78 | 0.27 | 0.06 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.07 | 0.39 | 0.06 | 0.06 | 0.14 | 0.11 | 0.31 | 0.67 | 0.50 | 0.11 | 0.01 |
| d, Delay for Lane Group [s/veh] | 25.36 | 17.41 | 20.35 | 31.46 | 27.63 | 29.37 | 28.53 | 21.47 | 26.23 | 26.63 | 16.90 | 16.32 |
| Lane Group LOS | C | B | C | C | C | C | C | C | C | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.46 | 0.43 | 2.27 | 0.09 | 0.20 | 0.48 | 0.27 | 1.65 | 3.74 | 2.00 | 0.70 | 0.07 |
| 50th-Percentile Queue Length [ft/ln] | 111.52 | 10.83 | 56.87 | 2.16 | 4.89 | 12.02 | 6.74 | 41.34 | 93.48 | 49.92 | 17.44 | 1.86 |
| 95th-Percentile Queue Length [veh/ln] | 7.92 | 0.78 | 4.09 | 0.16 | 0.35 | 0.87 | 0.49 | 2.98 | 6.73 | 3.59 | 1.26 | 0.13 |
| 95th-Percentile Queue Length [ft/ln] | 198.11 | 19.49 | 102.37 | 3.88 | 8.80 | 21.64 | 12.14 | 74.41 | 168.26 | 89.86 | 31.40 | 3.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.36 | 17.41 | 20.35 | 31.46 | 27.63 | 29.37 | 28.53 | 21.47 | 26.23 | 26.63 | 16.90 | 16.32 |
| Movement LOS | C | B | C | C | C | C | C | C | C | C | B | B |
| d_A, Approach Delay [s/veh] | 23.90 | | | 29.05 | | | 24.11 | | | 23.40 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.03 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.544 | | | | | | | | | | | |

**Emissions**

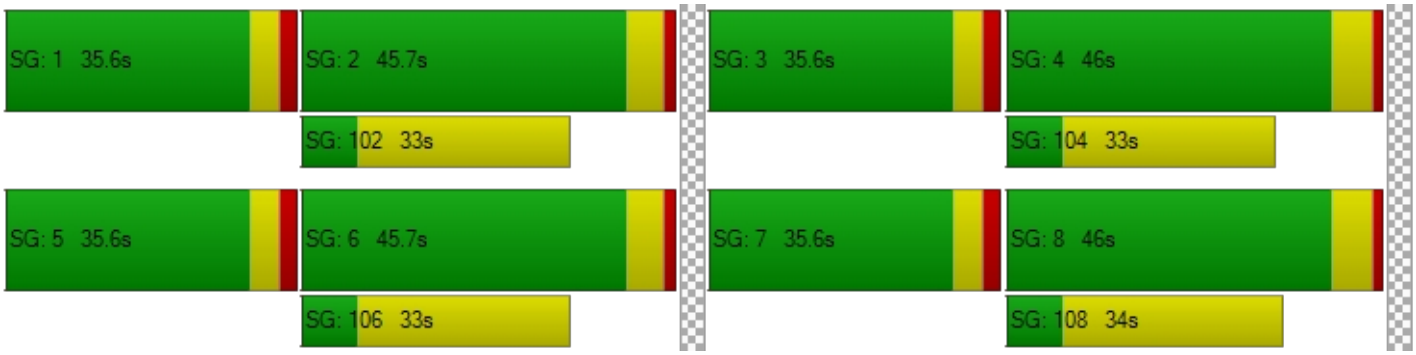
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 655.68 | 41.74 | 192.43 | 11.37 | 25.84 | 27.91 | 19.53 | 140.22 | 134.21 | 137.86 | 64.67 | 3.51 |
| Stops [stops/h] | 463.03 | 22.48 | 118.06 | 8.96 | 20.29 | 24.95 | 28.00 | 171.63 | 194.06 | 207.27 | 72.43 | 3.87 |
| Fuel consumption [US gal/h] | 31.56 | 1.86 | 8.85 | 0.59 | 1.32 | 1.45 | 1.31 | 8.55 | 8.90 | 8.31 | 3.51 | 0.19 |
| CO [g/h] | 2205.72 | 129.70 | 618.37 | 41.10 | 92.02 | 101.23 | 91.59 | 597.89 | 622.39 | 580.91 | 245.07 | 13.22 |
| NOx [g/h] | 429.15 | 25.24 | 120.31 | 8.00 | 17.90 | 19.70 | 17.82 | 116.33 | 121.09 | 113.02 | 47.68 | 2.57 |
| VOC [g/h] | 511.20 | 30.06 | 143.31 | 9.53 | 21.33 | 23.46 | 21.23 | 138.57 | 144.24 | 134.63 | 56.80 | 3.06 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 7103.37 | 0.00 | 6134.69 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 24.55 | 24.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.881 | 2.600 | 2.902 | 2.704 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1153 | 1153 | 1153 | 1153 |
| d_b, Bicycle Delay [s] | 6.22 | 6.22 | 6.22 | 6.22 |
| l_b,int, Bicycle LOS Score for Intersection | 2.281 | 1.612 | 2.044 | 1.899 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.740 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 87 | 833 | 60 | 71 | 405 | 27 | 34 | 630 | 247 | 52 | 626 | 197 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 87 | 833 | 60 | 71 | 405 | 27 | 34 | 630 | 247 | 52 | 626 | 197 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 219 | 16 | 19 | 107 | 7 | 9 | 166 | 65 | 14 | 165 | 52 |
| Total Analysis Volume [veh/h] | 92 | 877 | 63 | 75 | 426 | 28 | 36 | 663 | 260 | 55 | 659 | 207 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 32 | 32 | 9 | 32 | 32 | 6 | 39 | 39 | 8 | 40 | 40 |
| g / C, Green / Cycle | 0.09 | 0.31 | 0.31 | 0.09 | 0.31 | 0.31 | 0.06 | 0.37 | 0.37 | 0.08 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.24 | 0.04 | 0.04 | 0.12 | 0.02 | 0.02 | 0.18 | 0.16 | 0.03 | 0.35 | 0.13 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1563 | 1801 | 3595 | 1613 | 1810 | 3612 | 1606 | 1810 | 1883 | 1615 |
| c, Capacity [veh/h] | 162 | 1121 | 486 | 154 | 1102 | 495 | 113 | 1345 | 598 | 139 | 729 | 625 |
| d1, Uniform Delay [s] | 45.30 | 32.56 | 25.68 | 45.29 | 28.30 | 25.39 | 46.53 | 25.03 | 24.38 | 45.61 | 30.01 | 22.38 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.41 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.15 | 1.87 | 0.18 | 0.89 | 0.34 | 0.07 | 0.59 | 0.43 | 0.76 | 0.68 | 14.31 | 0.45 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.57 | 0.78 | 0.13 | 0.49 | 0.39 | 0.06 | 0.32 | 0.49 | 0.43 | 0.40 | 0.90 | 0.33 |
| d, Delay for Lane Group [s/veh] | 46.46 | 34.43 | 25.86 | 46.17 | 28.64 | 25.46 | 47.12 | 25.46 | 25.14 | 46.28 | 44.33 | 22.84 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | D | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.25 | 9.72 | 1.09 | 1.82 | 4.01 | 0.48 | 0.88 | 5.97 | 4.62 | 1.33 | 17.17 | 3.42 |
| 50th-Percentile Queue Length [ft/ln] | 56.13 | 242.95 | 27.31 | 45.46 | 100.33 | 11.93 | 21.97 | 149.16 | 115.60 | 33.27 | 429.32 | 85.57 |
| 95th-Percentile Queue Length [veh/ln] | 4.04 | 14.83 | 1.97 | 3.27 | 7.22 | 0.86 | 1.58 | 9.97 | 8.15 | 2.40 | 23.97 | 6.16 |
| 95th-Percentile Queue Length [ft/ln] | 101.04 | 370.76 | 49.16 | 81.82 | 180.59 | 21.47 | 39.54 | 249.31 | 203.76 | 59.88 | 599.22 | 154.02 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 46.46 | 34.43 | 25.86 | 46.17 | 28.64 | 25.46 | 47.12 | 25.46 | 25.14 | 46.28 | 44.33 | 22.84 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 34.98 | | | 30.96 | | | 26.19 | | | 39.61 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.15 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.740 | | | | | | | | | | | |

**Emissions**

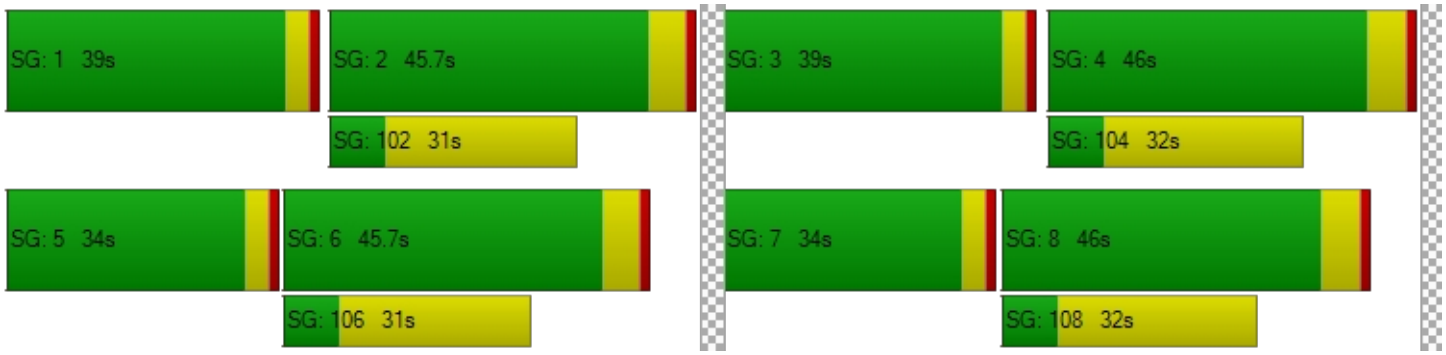
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.30 | 460.45 | 33.08 | 76.36 | 433.72 | 28.51 | 3.11 | 57.35 | 22.49 | 33.10 | 396.60 | 124.58 |
| Stops [stops/h] | 78.02 | 675.40 | 37.97 | 63.19 | 278.91 | 16.58 | 30.53 | 414.67 | 160.68 | 46.24 | 596.75 | 118.94 |
| Fuel consumption [US gal/h] | 3.50 | 30.33 | 1.94 | 4.11 | 20.82 | 1.33 | 0.83 | 10.56 | 4.10 | 2.23 | 26.96 | 6.71 |
| CO [g/h] | 244.33 | 2119.79 | 135.42 | 287.13 | 1455.17 | 92.85 | 58.12 | 737.89 | 286.53 | 155.70 | 1884.39 | 469.09 |
| NOx [g/h] | 47.54 | 412.43 | 26.35 | 55.87 | 283.12 | 18.07 | 11.31 | 143.57 | 55.75 | 30.29 | 366.63 | 91.27 |
| VOC [g/h] | 56.63 | 491.28 | 31.39 | 66.55 | 337.25 | 21.52 | 13.47 | 171.01 | 66.41 | 36.09 | 436.73 | 108.72 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.38 | 41.38 | 41.38 | 41.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.892 | 2.945 | 2.883 | 2.810 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 772 | 772 | 772 | 772 |
| d_b, Bicycle Delay [s] | 19.52 | 19.52 | 19.52 | 19.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.411 | 1.996 | 2.351 | 3.079 |
| Bicycle LOS | B | A | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.715 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 177 | 736 | 156 | 49 | 675 | 14 | 29 | 520 | 202 | 16 | 291 | 134 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 177 | 736 | 156 | 49 | 675 | 14 | 29 | 520 | 202 | 16 | 291 | 134 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 200 | 42 | 13 | 183 | 4 | 8 | 141 | 55 | 4 | 79 | 36 |
| Total Analysis Volume [veh/h] | 192 | 800 | 170 | 53 | 734 | 15 | 32 | 565 | 220 | 17 | 316 | 146 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 29 | 29 | 9 | 25 | 25 | 6 | 31 | 31 | 4 | 29 | 29 |
| g / C, Green / Cycle | 0.14 | 0.32 | 0.32 | 0.10 | 0.29 | 0.29 | 0.06 | 0.35 | 0.35 | 0.04 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.26 | 0.27 | 0.03 | 0.20 | 0.20 | 0.02 | 0.30 | 0.14 | 0.01 | 0.17 | 0.09 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1760 | 1810 | 1874 | 1860 | 1810 | 1874 | 1583 | 1761 | 1876 | 1583 |
| c, Capacity [veh/h] | 245 | 614 | 571 | 180 | 541 | 537 | 116 | 662 | 559 | 73 | 619 | 523 |
| d1, Uniform Delay [s] | 36.85 | 27.30 | 27.43 | 36.80 | 27.86 | 27.87 | 39.25 | 26.37 | 21.35 | 40.88 | 23.77 | 21.73 |
| k, delay calibration | 0.11 | 0.27 | 0.28 | 0.11 | 0.14 | 0.14 | 0.11 | 0.35 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.50 | 6.37 | 7.43 | 0.90 | 2.02 | 2.04 | 1.26 | 9.58 | 0.45 | 1.63 | 0.65 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.81 | 0.82 | 0.29 | 0.69 | 0.69 | 0.27 | 0.85 | 0.39 | 0.23 | 0.51 | 0.28 |
| d, Delay for Lane Group [s/veh] | 42.35 | 33.67 | 34.86 | 37.70 | 29.88 | 29.91 | 40.51 | 35.96 | 21.80 | 42.51 | 24.42 | 22.02 |
| Lane Group LOS | D | C | C | D | C | C | D | D | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.14 | 9.86 | 9.49 | 1.05 | 6.79 | 6.75 | 0.67 | 11.66 | 3.19 | 0.37 | 4.98 | 2.10 |
| 50th-Percentile Queue Length [ft/ln] | 103.57 | 246.53 | 237.13 | 26.28 | 169.86 | 168.81 | 16.73 | 291.40 | 79.72 | 9.34 | 124.38 | 52.39 |
| 95th-Percentile Queue Length [veh/ln] | 7.46 | 15.01 | 14.54 | 1.89 | 11.07 | 11.01 | 1.20 | 17.26 | 5.74 | 0.67 | 8.63 | 3.77 |
| 95th-Percentile Queue Length [ft/ln] | 186.43 | 375.29 | 363.40 | 47.30 | 276.73 | 275.35 | 30.11 | 431.38 | 143.49 | 16.81 | 215.82 | 94.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.35 | 34.12 | 34.86 | 37.70 | 29.89 | 29.91 | 40.51 | 35.96 | 21.80 | 42.51 | 24.42 | 22.02 |
| Movement LOS | D | C | C | D | C | C | D | D | C | D | C | C |
| d_A, Approach Delay [s/veh] | 35.59 | | | 30.41 | | | 32.33 | | | 24.33 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.84 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.715 | | | | | | | | | | | |

**Emissions**

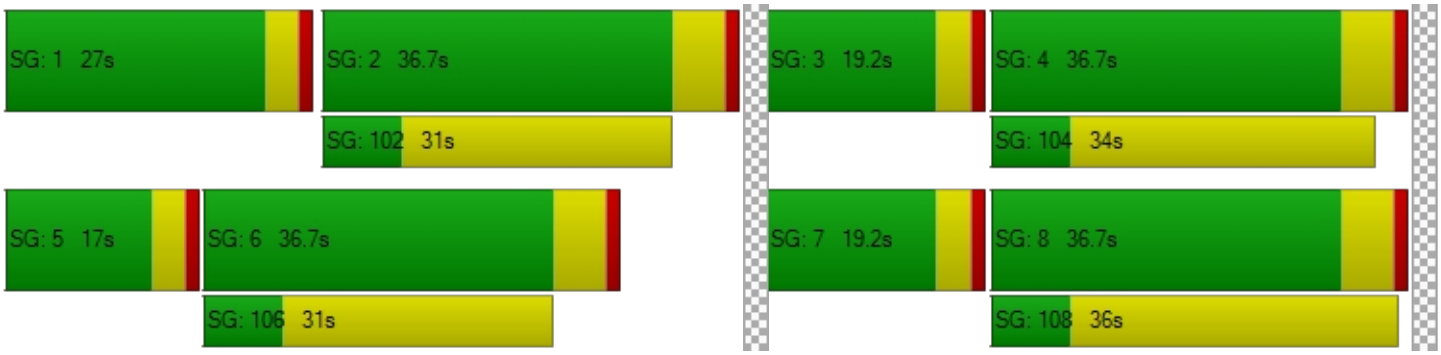
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.01 | 265.35 | 250.01 | 27.83 | 197.30 | 195.95 | 3.21 | 56.64 | 22.06 | 8.09 | 150.40 | 69.49 |
| Stops [stops/h] | 169.66 | 403.84 | 388.43 | 43.04 | 278.24 | 276.52 | 27.40 | 477.33 | 130.58 | 15.30 | 203.73 | 85.83 |
| Fuel consumption [US gal/h] | 7.26 | 17.54 | 16.74 | 1.90 | 12.51 | 12.43 | 0.71 | 12.01 | 3.36 | 0.61 | 9.26 | 4.10 |
| CO [g/h] | 507.53 | 1225.95 | 1169.94 | 132.50 | 874.26 | 868.61 | 49.94 | 839.56 | 234.56 | 42.96 | 647.18 | 286.80 |
| NOx [g/h] | 98.75 | 238.53 | 227.63 | 25.78 | 170.10 | 169.00 | 9.72 | 163.35 | 45.64 | 8.36 | 125.92 | 55.80 |
| VOC [g/h] | 117.62 | 284.13 | 271.14 | 30.71 | 202.62 | 201.31 | 11.57 | 194.58 | 54.36 | 9.96 | 149.99 | 66.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.64 | 33.64 | 33.64 | 33.64 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.971 | 2.819 | 2.619 | 2.593 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 705 | 705 | 705 | 705 |
| d_b, Bicycle Delay [s] | 18.42 | 18.42 | 18.42 | 18.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.518 | 2.221 | 2.908 | 2.350 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 56.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.934 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 650.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 589 | 480 | 290 | 368 | 341 | 366 | 668 | 1678 | 438 | 330 | 1545 | 216 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 334 | 0 | 0 | 294 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 589 | 480 | 290 | 368 | 341 | 32 | 668 | 1678 | 144 | 330 | 1545 | 216 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 155 | 126 | 76 | 97 | 90 | 8 | 176 | 442 | 38 | 87 | 407 | 57 |
| Total Analysis Volume [veh/h] | 620 | 505 | 305 | 387 | 359 | 34 | 703 | 1766 | 152 | 347 | 1626 | 227 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Overlap | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 7 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | 6,7 | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 35 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 3.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 39 | 44 | 0 | 18 | 23 | 0 | 24 | 51 | 39 | 19 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 14 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 2.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | No | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | No | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 35 | 31 | 31 | 18 | 14 | 14 | 29 | 56 | 95 | 15 | 42 | 42 |
| g / C, Green / Cycle | 0.26 | 0.23 | 0.23 | 0.13 | 0.10 | 0.10 | 0.22 | 0.41 | 0.70 | 0.11 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.26 | 0.14 | 0.19 | 0.11 | 0.07 | 0.01 | 0.20 | 0.34 | 0.09 | 0.10 | 0.32 | 0.14 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2763 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 604 | 820 | 366 | 449 | 522 | 280 | 750 | 2128 | 1123 | 386 | 1589 | 495 |
| d1, Uniform Delay [s] | 50.58 | 47.13 | 50.04 | 58.06 | 59.09 | 55.65 | 52.51 | 35.66 | 6.78 | 59.80 | 47.08 | 37.91 |
| k, delay calibration | 0.04 | 0.04 | 0.15 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 18.31 | 0.28 | 6.75 | 1.95 | 1.82 | 0.22 | 2.66 | 3.93 | 0.25 | 3.08 | 28.65 | 3.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.03 | 0.62 | 0.83 | 0.86 | 0.69 | 0.12 | 0.94 | 0.83 | 0.14 | 0.90 | 1.02 | 0.46 |
| d, Delay for Lane Group [s/veh] | 68.90 | 47.41 | 56.79 | 60.01 | 60.92 | 55.86 | 55.17 | 39.59 | 7.03 | 62.88 | 75.73 | 40.95 |
| Lane Group LOS | F | D | E | E | E | E | E | D | A | E | F | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 11.58 | 7.62 | 10.41 | 6.51 | 4.00 | 0.53 | 11.77 | 17.44 | 1.38 | 5.96 | 21.50 | 6.38 |
| 50th-Percentile Queue Length [ft/ln] | 289.56 | 190.41 | 260.31 | 162.84 | 100.00 | 13.29 | 294.26 | 435.99 | 34.55 | 148.88 | 537.50 | 159.57 |
| 95th-Percentile Queue Length [veh/ln] | 17.43 | 12.14 | 15.70 | 10.70 | 7.20 | 0.96 | 17.40 | 24.29 | 2.49 | 9.96 | 29.55 | 10.53 |
| 95th-Percentile Queue Length [ft/ln] | 435.73 | 303.56 | 392.61 | 267.48 | 180.01 | 23.93 | 434.93 | 607.21 | 62.18 | 248.93 | 738.78 | 263.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 68.90 | 47.41 | 56.79 | 60.01 | 60.92 | 55.86 | 55.17 | 39.59 | 7.03 | 62.88 | 75.73 | 40.95 |
| Movement LOS | F | D | E | E | E | E | E | D | A | E | F | D |
| d_A, Approach Delay [s/veh] | 58.73 | | | 60.25 | | | 41.88 | | | 70.11 | | |
| Approach LOS | E | | | E | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 56.18 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.934 | | | | | | | | | | | |

**Emissions**

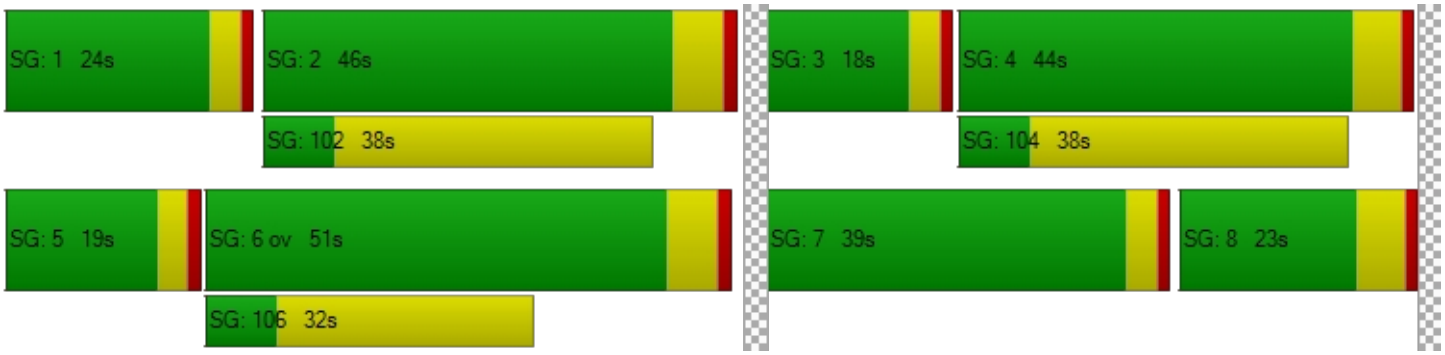
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.32 | 36.92 | 22.30 | 205.61 | 190.74 | 18.06 | 79.99 | 200.95 | 17.30 | 173.18 | 811.49 | 113.29 |
| Stops [stops/h] | 612.88 | 403.01 | 275.48 | 344.66 | 317.50 | 28.14 | 622.83 | 1384.21 | 36.56 | 315.11 | 1706.48 | 168.87 |
| Fuel consumption [US gal/h] | 16.34 | 10.15 | 7.03 | 16.06 | 14.94 | 1.36 | 18.38 | 38.32 | 1.26 | 14.29 | 74.09 | 7.87 |
| CO [g/h] | 1141.87 | 709.73 | 491.35 | 1122.52 | 1043.99 | 94.75 | 1284.59 | 2678.82 | 88.41 | 999.12 | 5178.74 | 550.43 |
| NOx [g/h] | 222.17 | 138.09 | 95.60 | 218.40 | 203.12 | 18.43 | 249.93 | 521.20 | 17.20 | 194.39 | 1007.59 | 107.09 |
| VOC [g/h] | 264.64 | 164.49 | 113.87 | 260.15 | 241.96 | 21.96 | 297.72 | 620.84 | 20.49 | 231.56 | 1200.22 | 127.57 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 17.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 57.48 | 57.48 | 51.83 | 57.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.165 | 3.912 | 4.293 | 3.626 |
| Crosswalk LOS | C | D | E | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 563 | 254 | 661 | 588 |
| d_b, Bicycle Delay [s] | 35.12 | 51.89 | 30.48 | 33.91 |
| l_b,int, Bicycle LOS Score for Intersection | 2.346 | 2.172 | 3.163 | 2.770 |
| Bicycle LOS | B | B | C | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.830 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 645 | 0 | 1288 | 0 | 0 | 0 | 0 | 1504 | 488 | 0 | 2129 | 265 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 645 | 0 | 1288 | 0 | 0 | 0 | 0 | 1504 | 488 | 0 | 2129 | 265 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 172 | 0 | 343 | 0 | 0 | 0 | 0 | 400 | 130 | 0 | 566 | 70 |
| Total Analysis Volume [veh/h] | 686 | 0 | 1370 | 0 | 0 | 0 | 0 | 1600 | 519 | 0 | 2265 | 282 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 52 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 72 | 72 | | 46 | 46 | 46 |
| g / C, Green / Cycle | 0.54 | 0.54 | | 0.35 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.48 | | 0.31 | 0.26 | 0.18 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 2301 | 1547 | | 1799 | 3003 | 559 |
| d1, Uniform Delay [s] | 16.37 | 26.46 | | 40.51 | 37.91 | 33.89 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.18 | 4.44 | | 7.06 | 1.81 | 3.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.30 | 0.89 | | 0.89 | 0.75 | 0.50 |
| d, Delay for Lane Group [s/veh] | 16.55 | 30.90 | | 47.56 | 39.72 | 37.11 |
| Lane Group LOS | B | C | | D | D | D |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.50 | 17.72 | | 16.87 | 12.78 | 7.44 |
| 50th-Percentile Queue Length [ft/ln] | 87.53 | 442.99 | | 421.79 | 319.50 | 186.11 |
| 95th-Percentile Queue Length [veh/ln] | 6.30 | 24.62 | | 23.61 | 18.64 | 11.92 |
| 95th-Percentile Queue Length [ft/ln] | 157.55 | 615.58 | | 590.20 | 466.07 | 297.98 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 16.55 | 0.00 | 30.90 | 0.00 | 0.00 | 0.00 | 0.00 | 47.56 | 0.00 | 0.00 | 39.72 | 37.11 |
| Movement LOS | B | | C | | | | | D | | | D | D |
| d_A, Approach Delay [s/veh] | 26.11 | | | 0.00 | | | 36.45 | | | 39.43 | | |
| Approach LOS | C | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.25 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.830 | | | | | | | | | | | |

**Emissions**

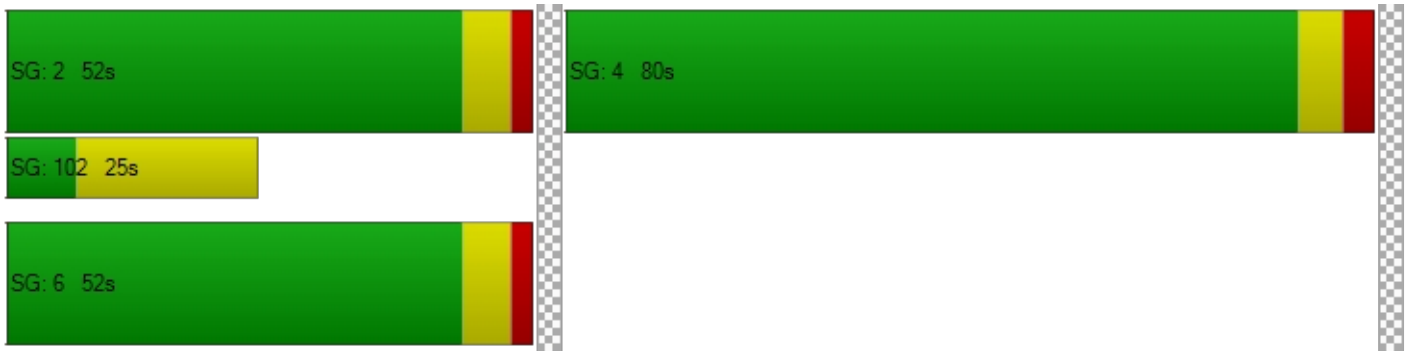
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 89.92 | 179.59 | | 251.77 | 257.72 | 32.09 |
| Stops [stops/h] | 286.61 | 967.05 | | 1381.15 | 1743.65 | 203.14 |
| Fuel consumption [US gal/h] | 10.64 | 32.58 | | 41.29 | 48.82 | 5.76 |
| CO [g/h] | 743.88 | 2277.66 | | 2886.00 | 3412.59 | 402.29 |
| NOx [g/h] | 144.73 | 443.15 | | 561.51 | 663.97 | 78.27 |
| VOC [g/h] | 172.40 | 527.87 | | 668.86 | 790.90 | 93.23 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.42 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.084 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1102 | 0 | 685 | 685 | |
| d_b, Bicycle Delay [s] | 13.30 | 65.96 | 28.51 | 28.51 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.440 | 2.400 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.577 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 72 | 0 | 457 | 0 | 1932 | 569 | 0 | 2118 | 717 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 72 | 0 | 457 | 0 | 1932 | 569 | 0 | 2118 | 717 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 19 | 0 | 122 | 0 | 514 | 151 | 0 | 563 | 191 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 77 | 0 | 486 | 0 | 2055 | 605 | 0 | 2253 | 763 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 91 | 0 | 0 | 0 | 39 | 0 | 0 | 39 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 29 | 29 | 87 | 87 | 87 |
| g / C, Green / Cycle | | 0.22 | 0.22 | 0.67 | 0.67 | 0.67 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.17 | 0.30 | 0.38 | 0.33 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 785 | 637 | 4596 | 1070 | 4625 |
| d1, Uniform Delay [s] | | 40.04 | 47.20 | 9.99 | 11.28 | 10.39 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.13 | 4.68 | 0.32 | 2.17 | 0.37 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.10 | 0.76 | 0.45 | 0.57 | 0.49 |
| d, Delay for Lane Group [s/veh] | | 40.17 | 51.88 | 10.31 | 13.44 | 10.76 |
| Lane Group LOS | | D | D | B | B | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.00 | 7.78 | 6.19 | 8.73 | 7.06 |
| 50th-Percentile Queue Length [ft/ln] | | 25.10 | 194.38 | 154.69 | 218.30 | 176.45 |
| 95th-Percentile Queue Length [veh/ln] | | 1.81 | 12.35 | 10.27 | 13.58 | 11.41 |
| 95th-Percentile Queue Length [ft/ln] | | 45.17 | 308.71 | 256.67 | 339.45 | 285.37 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 40.17 | 0.00 | 51.88 | 0.00 | 10.31 | 13.44 | 0.00 | 10.76 | 0.00 |
| Movement LOS | | | | D | | D | | B | B | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 50.28 | | | 11.02 | | | 8.16 | | |
| Approach LOS | A | | | D | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 13.88 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.577 | | | | | | | | | | | |

**Emissions**

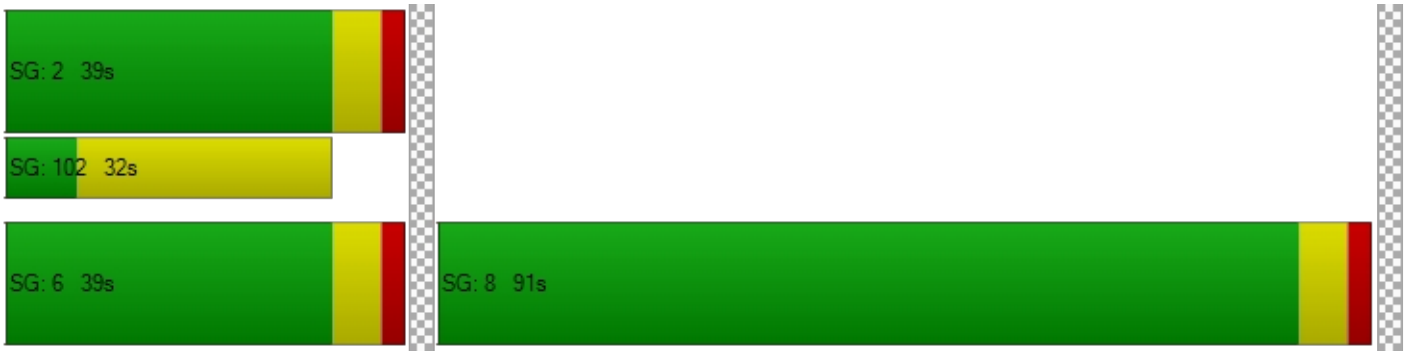
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 11.87 | 74.89 | 198.99 | 58.58 | 354.53 |
| Stops [stops/h] | | 55.63 | 430.86 | 685.75 | 241.94 | 782.21 |
| Fuel consumption [US gal/h] | | 1.43 | 10.59 | 19.66 | 6.67 | 26.81 |
| CO [g/h] | | 99.62 | 740.51 | 1374.15 | 466.33 | 1874.18 |
| NOx [g/h] | | 19.38 | 144.08 | 267.36 | 90.73 | 364.65 |
| VOC [g/h] | | 23.09 | 171.62 | 318.47 | 108.08 | 434.36 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.027 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 1296 | 496 | 496 | |
| d_b, Bicycle Delay [s] | 64.97 | 8.05 | 36.76 | 36.76 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.657 | 2.489 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 18.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.734 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 41 | 193 | 79 | 3 | 102 | 42 | 64 | 256 | 95 | 70 | 149 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 41 | 193 | 79 | 3 | 102 | 42 | 64 | 256 | 95 | 70 | 149 | 4 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 51 | 21 | 1 | 27 | 11 | 17 | 68 | 25 | 19 | 40 | 1 |
| Total Analysis Volume [veh/h] | 44 | 205 | 84 | 3 | 109 | 45 | 68 | 272 | 101 | 74 | 159 | 4 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 570 | 533 | 601 | 548 |
| Degree of Utilization, x | 0.58 | 0.29 | 0.73 | 0.43 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 3.75 | 1.22 | 6.30 | 2.17 |
| 95th-Percentile Queue Length [ft] | 93.80 | 30.53 | 157.60 | 54.19 |
| Approach Delay [s/veh] | 17.85 | 12.55 | 23.76 | 14.49 |
| Approach LOS | C | B | C | B |
| Intersection Delay [s/veh] | 18.69 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.833 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 317 | 387 | 117 | 17 | 240 | 66 | 75 | 303 | 331 | 35 | 481 | 35 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 317 | 387 | 117 | 17 | 240 | 66 | 75 | 303 | 331 | 35 | 481 | 35 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 91 | 111 | 34 | 5 | 69 | 19 | 22 | 87 | 95 | 10 | 138 | 10 |
| Total Analysis Volume [veh/h] | 364 | 445 | 134 | 20 | 276 | 76 | 86 | 348 | 380 | 40 | 553 | 40 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 2 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 0 | | | 3 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 47 | 47 | 2 | 25 | 7 | 31 | 31 | 3 | 27 | 27 |
| g / C, Green / Cycle | 0.25 | 0.48 | 0.48 | 0.02 | 0.25 | 0.07 | 0.31 | 0.31 | 0.03 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.26 | 0.09 | 0.01 | 0.21 | 0.05 | 0.20 | 0.26 | 0.03 | 0.18 | 0.18 |
| s, saturation flow rate [veh/h] | 1586 | 1710 | 1454 | 1629 | 1647 | 1629 | 1703 | 1441 | 1577 | 1710 | 1670 |
| c, Capacity [veh/h] | 390 | 815 | 693 | 35 | 415 | 109 | 525 | 444 | 53 | 470 | 459 |
| d1, Uniform Delay [s] | 36.81 | 18.49 | 15.06 | 48.39 | 35.53 | 45.88 | 30.03 | 32.45 | 47.82 | 31.82 | 31.84 |
| k, delay calibration | 0.38 | 0.20 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.21 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 26.08 | 1.06 | 0.13 | 13.98 | 5.17 | 11.88 | 1.45 | 8.81 | 19.09 | 1.44 | 1.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.93 | 0.55 | 0.19 | 0.57 | 0.85 | 0.79 | 0.66 | 0.86 | 0.75 | 0.64 | 0.64 |
| d, Delay for Lane Group [s/veh] | 62.90 | 19.55 | 15.20 | 62.37 | 40.70 | 57.76 | 31.47 | 41.27 | 66.91 | 33.26 | 33.33 |
| Lane Group LOS | E | B | B | E | D | E | C | D | E | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 11.01 | 6.82 | 1.64 | 0.61 | 8.27 | 2.38 | 7.03 | 9.13 | 1.23 | 6.19 | 6.07 |
| 50th-Percentile Queue Length [ft/ln] | 275.15 | 170.42 | 40.99 | 15.30 | 206.84 | 59.54 | 175.76 | 228.37 | 30.83 | 154.65 | 151.67 |
| 95th-Percentile Queue Length [veh/ln] | 16.45 | 11.10 | 2.95 | 1.10 | 12.99 | 4.29 | 11.38 | 14.09 | 2.22 | 10.26 | 10.11 |
| 95th-Percentile Queue Length [ft/ln] | 411.16 | 277.46 | 73.78 | 27.53 | 324.77 | 107.17 | 284.47 | 352.29 | 55.50 | 256.62 | 252.66 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 62.90 | 19.55 | 15.20 | 62.37 | 40.70 | 40.70 | 57.76 | 31.47 | 41.27 | 66.91 | 33.29 | 33.33 |
| Movement LOS | E | B | B | E | D | D | E | C | D | E | C | C |
| d_A, Approach Delay [s/veh] | 35.66 | | | 41.86 | | | 38.82 | | | 35.42 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 37.37 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.833 | | | | | | | | | | | |

**Emissions**

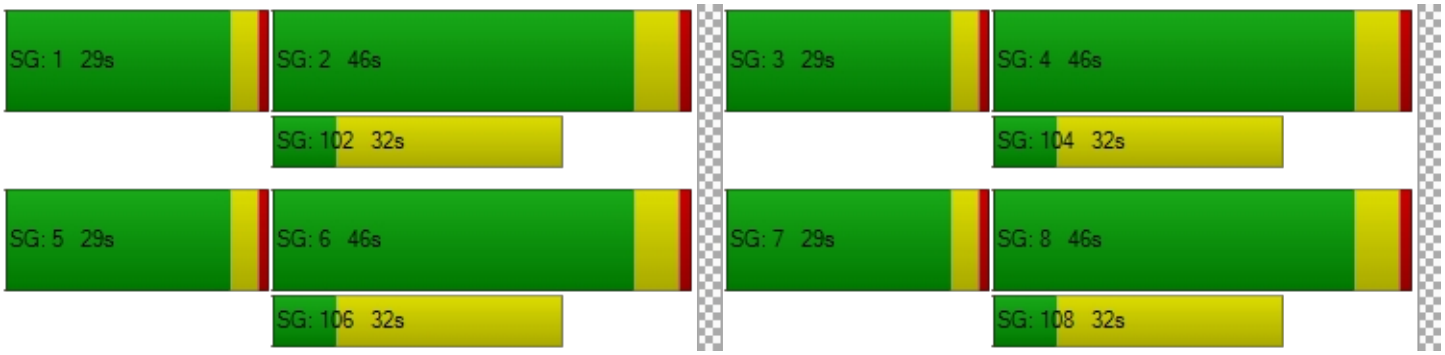
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 181.00 | 221.27 | 66.63 | 20.14 | 354.39 | 51.76 | 209.43 | 228.69 | 19.95 | 149.43 | 146.34 |
| Stops [stops/h] | 397.52 | 246.21 | 59.22 | 22.10 | 298.83 | 86.02 | 253.93 | 329.93 | 44.54 | 223.43 | 219.13 |
| Fuel consumption [US gal/h] | 15.81 | 12.42 | 3.43 | 1.22 | 18.78 | 3.85 | 12.57 | 15.13 | 1.78 | 9.93 | 9.73 |
| CO [g/h] | 1104.79 | 867.91 | 240.09 | 85.20 | 1312.61 | 269.42 | 878.30 | 1057.74 | 124.58 | 693.97 | 680.17 |
| NOx [g/h] | 214.95 | 168.86 | 46.71 | 16.58 | 255.39 | 52.42 | 170.88 | 205.80 | 24.24 | 135.02 | 132.34 |
| VOC [g/h] | 256.05 | 201.15 | 55.64 | 19.75 | 304.21 | 62.44 | 203.55 | 245.14 | 28.87 | 160.84 | 157.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.44 | 39.44 | 39.44 | 39.44 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.784 | 2.405 | 2.833 | 2.637 |
| Crosswalk LOS | C | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 803 | 803 | 803 | 803 |
| d_b, Bicycle Delay [s] | 17.86 | 17.86 | 17.86 | 17.86 |
| l_b,int, Bicycle LOS Score for Intersection | 3.116 | 2.173 | 2.231 | 2.082 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.695 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 84 | 521 | 121 | 143 | 421 | 32 | 167 | 397 | 225 | 42 | 386 | 178 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 84 | 521 | 121 | 143 | 421 | 32 | 167 | 397 | 225 | 42 | 386 | 178 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 137 | 32 | 38 | 111 | 8 | 44 | 104 | 59 | 11 | 102 | 47 |
| Total Analysis Volume [veh/h] | 88 | 548 | 127 | 151 | 443 | 34 | 176 | 418 | 237 | 44 | 406 | 187 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 19 | 19 | 10 | 20 | 20 | 10 | 25 | 25 | 6 | 21 | 21 |
| g / C, Green / Cycle | 0.11 | 0.25 | 0.25 | 0.13 | 0.27 | 0.27 | 0.13 | 0.33 | 0.33 | 0.08 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.19 | 0.19 | 0.08 | 0.13 | 0.13 | 0.10 | 0.22 | 0.15 | 0.02 | 0.22 | 0.12 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1743 | 1810 | 1868 | 1814 | 1810 | 1892 | 1549 | 1810 | 1874 | 1581 |
| c, Capacity [veh/h] | 204 | 468 | 437 | 233 | 497 | 482 | 237 | 619 | 507 | 150 | 523 | 441 |
| d1, Uniform Delay [s] | 31.45 | 26.27 | 26.30 | 31.54 | 23.58 | 23.60 | 31.86 | 22.13 | 20.31 | 32.83 | 25.27 | 22.39 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.44 | 2.36 | 2.57 | 3.01 | 0.74 | 0.77 | 4.54 | 1.29 | 0.67 | 1.07 | 2.52 | 0.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.74 | 0.75 | 0.65 | 0.49 | 0.49 | 0.74 | 0.68 | 0.47 | 0.29 | 0.78 | 0.42 |
| d, Delay for Lane Group [s/veh] | 32.89 | 28.63 | 28.87 | 34.55 | 24.32 | 24.37 | 36.40 | 23.42 | 20.98 | 33.90 | 27.79 | 23.04 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.50 | 5.65 | 5.33 | 2.64 | 3.41 | 3.34 | 3.18 | 5.93 | 3.06 | 0.76 | 6.41 | 2.55 |
| 50th-Percentile Queue Length [ft/ln] | 37.59 | 141.24 | 133.30 | 65.91 | 85.17 | 83.50 | 79.48 | 148.25 | 76.61 | 18.92 | 160.23 | 63.64 |
| 95th-Percentile Queue Length [veh/ln] | 2.71 | 9.55 | 9.12 | 4.75 | 6.13 | 6.01 | 5.72 | 9.92 | 5.52 | 1.36 | 10.56 | 4.58 |
| 95th-Percentile Queue Length [ft/ln] | 67.66 | 238.69 | 227.98 | 118.64 | 153.30 | 150.29 | 143.06 | 248.09 | 137.90 | 34.06 | 264.03 | 114.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.89 | 28.72 | 28.87 | 34.55 | 24.34 | 24.37 | 36.40 | 23.42 | 20.98 | 33.90 | 27.79 | 23.04 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 29.22 | | | 26.80 | | | 25.48 | | | 26.82 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.07 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.695 | | | | | | | | | | | |

**Emissions**

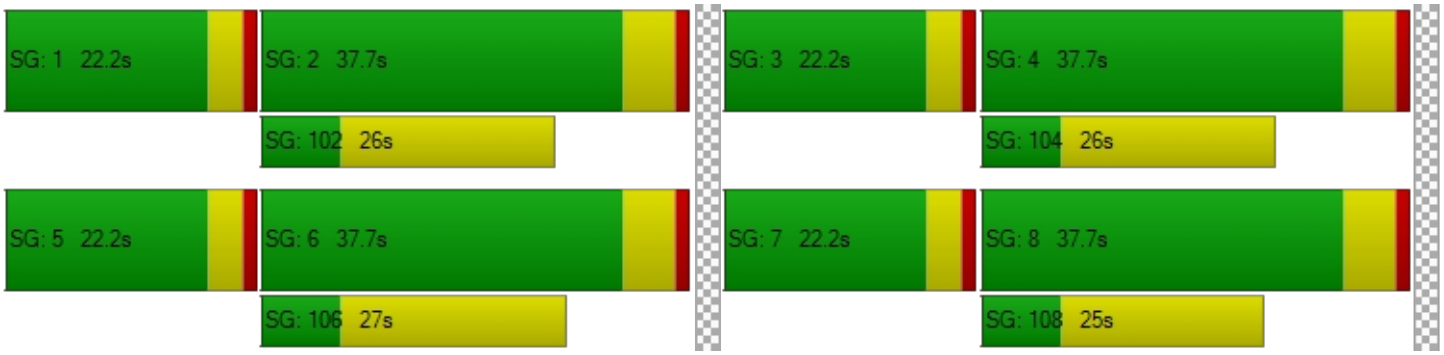
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 47.55 | 188.15 | 176.60 | 75.08 | 119.90 | 117.29 | 83.77 | 198.94 | 112.80 | 21.68 | 200.07 | 92.15 |
| Stops [stops/h] | 71.24 | 267.65 | 252.62 | 124.91 | 161.40 | 158.23 | 150.61 | 280.94 | 145.19 | 35.86 | 303.65 | 120.60 |
| Fuel consumption [US gal/h] | 2.99 | 11.40 | 10.73 | 5.19 | 7.31 | 7.16 | 6.05 | 12.30 | 6.68 | 1.49 | 12.93 | 5.53 |
| CO [g/h] | 209.15 | 796.69 | 749.85 | 362.68 | 510.95 | 500.33 | 422.72 | 860.12 | 467.18 | 104.34 | 903.74 | 386.89 |
| NOx [g/h] | 40.69 | 155.01 | 145.89 | 70.56 | 99.41 | 97.35 | 82.25 | 167.35 | 90.90 | 20.30 | 175.84 | 75.27 |
| VOC [g/h] | 48.47 | 184.64 | 173.78 | 84.05 | 118.42 | 115.96 | 97.97 | 199.34 | 108.27 | 24.18 | 209.45 | 89.67 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.79 | 27.79 | 27.79 | 27.79 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.677 | 2.741 | 2.619 | 2.609 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 842 | 842 | 842 | 842 |
| d_b, Bicycle Delay [s] | 12.73 | 12.74 | 12.74 | 12.74 |
| l_b,int, Bicycle LOS Score for Intersection | 2.189 | 2.078 | 2.931 | 2.611 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 43.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.820 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 320 | 380 | 157 | 389 | 253 | 181 | 321 | 1424 | 572 | 178 | 1333 | 92 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 320 | 380 | 157 | 389 | 253 | 181 | 321 | 1424 | 572 | 178 | 1333 | 92 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 83 | 99 | 41 | 101 | 66 | 47 | 84 | 371 | 149 | 46 | 347 | 24 |
| Total Analysis Volume [veh/h] | 333 | 396 | 164 | 405 | 264 | 189 | 334 | 1483 | 596 | 185 | 1389 | 96 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 30 | 37 | 0 | 29 | 36 | 0 | 17 | 49 | 0 | 17 | 49 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 26 | 27 | 27 | 18 | 20 | 20 | 13 | 57 | 57 | 13 | 57 | 57 |
| g / C, Green / Cycle | 0.20 | 0.21 | 0.21 | 0.14 | 0.15 | 0.15 | 0.10 | 0.43 | 0.43 | 0.10 | 0.43 | 0.43 |
| (v / s)_i Volume / Saturation Flow Rate | 0.20 | 0.11 | 0.10 | 0.12 | 0.07 | 0.12 | 0.10 | 0.29 | 0.37 | 0.05 | 0.27 | 0.06 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 321 | 732 | 328 | 491 | 539 | 241 | 348 | 2243 | 697 | 345 | 2234 | 700 |
| d1, Uniform Delay [s] | 53.08 | 46.91 | 46.47 | 55.27 | 51.65 | 54.23 | 59.30 | 29.72 | 33.70 | 56.68 | 29.03 | 22.54 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 25.46 | 0.50 | 0.95 | 1.37 | 0.55 | 4.53 | 7.05 | 1.55 | 12.78 | 0.48 | 1.31 | 0.41 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.04 | 0.54 | 0.50 | 0.83 | 0.49 | 0.79 | 0.96 | 0.66 | 0.86 | 0.54 | 0.62 | 0.14 |
| d, Delay for Lane Group [s/veh] | 78.54 | 47.41 | 47.42 | 56.64 | 52.20 | 58.76 | 66.35 | 31.27 | 46.48 | 57.16 | 30.34 | 22.95 |
| Lane Group LOS | F | D | D | E | D | E | E | C | D | E | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 6.35 | 5.80 | 4.81 | 6.66 | 4.08 | 6.37 | 5.91 | 12.70 | 19.40 | 2.91 | 11.17 | 1.83 |
| 50th-Percentile Queue Length [ft/ln] | 158.84 | 145.07 | 120.14 | 166.55 | 102.02 | 159.37 | 147.81 | 317.53 | 484.99 | 72.64 | 279.14 | 45.83 |
| 95th-Percentile Queue Length [veh/ln] | 10.67 | 9.75 | 8.40 | 10.90 | 7.35 | 10.52 | 9.90 | 18.55 | 26.62 | 5.23 | 16.65 | 3.30 |
| 95th-Percentile Queue Length [ft/ln] | 266.81 | 243.83 | 210.02 | 272.38 | 183.64 | 262.89 | 247.50 | 463.65 | 665.57 | 130.76 | 416.14 | 82.50 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 78.54 | 47.41 | 47.42 | 56.64 | 52.20 | 58.76 | 66.35 | 31.27 | 46.48 | 57.16 | 30.34 | 22.95 |
| Movement LOS | F | D | D | E | D | E | E | C | D | E | C | C |
| d_A, Approach Delay [s/veh] | 59.02 | | | 55.74 | | | 39.88 | | | 32.89 | | |
| Approach LOS | E | | | E | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 43.14 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.820 | | | | | | | | | | | |

**Emissions**

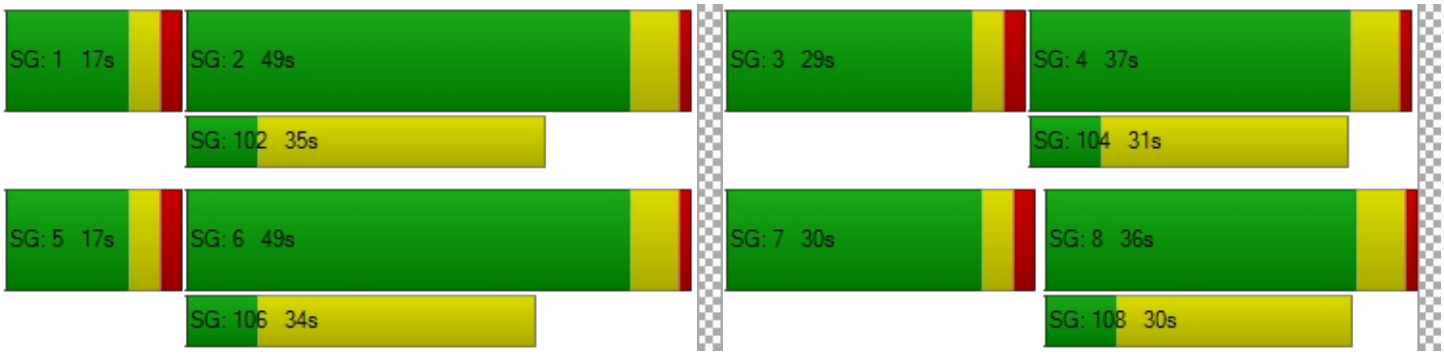
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 34.85 | 41.45 | 17.17 | 218.85 | 142.66 | 102.13 | 166.69 | 740.13 | 297.45 | 21.32 | 160.10 | 11.06 |
| Stops [stops/h] | 346.27 | 316.23 | 130.95 | 363.07 | 222.39 | 173.70 | 322.20 | 1038.28 | 528.62 | 158.36 | 912.75 | 49.96 |
| Fuel consumption [US gal/h] | 9.97 | 8.41 | 3.48 | 15.68 | 9.91 | 7.42 | 13.15 | 45.64 | 20.80 | 4.85 | 25.41 | 1.45 |
| CO [g/h] | 697.01 | 587.95 | 243.50 | 1096.25 | 692.41 | 518.91 | 919.29 | 3190.21 | 1454.06 | 339.12 | 1776.37 | 101.27 |
| NOx [g/h] | 135.61 | 114.39 | 47.38 | 213.29 | 134.72 | 100.96 | 178.86 | 620.70 | 282.91 | 65.98 | 345.62 | 19.70 |
| VOC [g/h] | 161.54 | 136.26 | 56.43 | 254.07 | 160.47 | 120.26 | 213.05 | 739.36 | 336.99 | 78.60 | 411.69 | 23.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.52 | 55.52 | 55.52 | 55.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.972 | 2.847 | 3.336 | 3.472 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 474 | 459 | 655 | 655 |
| d_b, Bicycle Delay [s] | 38.47 | 39.23 | 29.85 | 29.85 |
| l_b,int, Bicycle LOS Score for Intersection | 2.296 | 2.267 | 2.887 | 2.478 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 109.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.005 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 464 | 77 | 10 | 4 | 78 | 29 | 29 | 198 | 362 | 0 | 86 | 16 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 464 | 77 | 10 | 4 | 78 | 29 | 29 | 198 | 362 | 0 | 86 | 16 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 135 | 22 | 3 | 1 | 23 | 8 | 8 | 58 | 105 | 0 | 25 | 5 |
| Total Analysis Volume [veh/h] | 540 | 90 | 12 | 5 | 91 | 34 | 34 | 230 | 421 | 0 | 100 | 19 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 35 | 1 | 11 | 7 | 42 | 0 | 35 |
| g / C, Green / Cycle | 0.27 | 0.37 | 0.01 | 0.12 | 0.07 | 0.45 | 0.00 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.38 | 0.06 | 0.00 | 0.08 | 0.02 | 0.42 | 0.00 | 0.07 |
| s, saturation flow rate [veh/h] | 1436 | 1658 | 1629 | 1632 | 1629 | 1535 | 1629 | 1663 |
| c, Capacity [veh/h] | 380 | 611 | 25 | 195 | 114 | 683 | 2 | 625 |
| d1, Uniform Delay [s] | 34.68 | 20.03 | 45.87 | 39.62 | 41.65 | 25.23 | 0.00 | 19.80 |
| k, delay calibration | 0.50 | 0.12 | 0.04 | 0.15 | 0.04 | 0.47 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 203.75 | 0.14 | 1.40 | 4.94 | 0.53 | 23.63 | 0.00 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.42 | 0.17 | 0.20 | 0.64 | 0.30 | 0.95 | 0.00 | 0.19 |
| d, Delay for Lane Group [s/veh] | 238.43 | 20.17 | 47.27 | 44.57 | 42.19 | 48.86 | 0.00 | 20.04 |
| Lane Group LOS | F | C | D | D | D | D | A | C |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 29.63 | 1.43 | 0.12 | 2.91 | 0.76 | 17.62 | 0.00 | 1.76 |
| 50th-Percentile Queue Length [ft/ln] | 740.74 | 35.78 | 3.03 | 72.70 | 19.06 | 440.53 | 0.00 | 44.08 |
| 95th-Percentile Queue Length [veh/ln] | 45.90 | 2.58 | 0.22 | 5.23 | 1.37 | 24.51 | 0.00 | 3.17 |
| 95th-Percentile Queue Length [ft/ln] | 1147.43 | 64.40 | 5.46 | 130.85 | 34.30 | 612.64 | 0.00 | 79.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 238.43 | 20.17 | 20.17 | 47.27 | 44.57 | 44.57 | 42.19 | 48.86 | 48.86 | 0.00 | 20.04 | 20.04 |
| Movement LOS | F | C | C | D | D | D | D | D | D | A | C | C |
| d_A, Approach Delay [s/veh] | 203.75 | | | 44.67 | | | 48.53 | | | 20.04 | | |
| Approach LOS | F | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 109.29 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.005 | | | | | | | | | | | |

**Emissions**

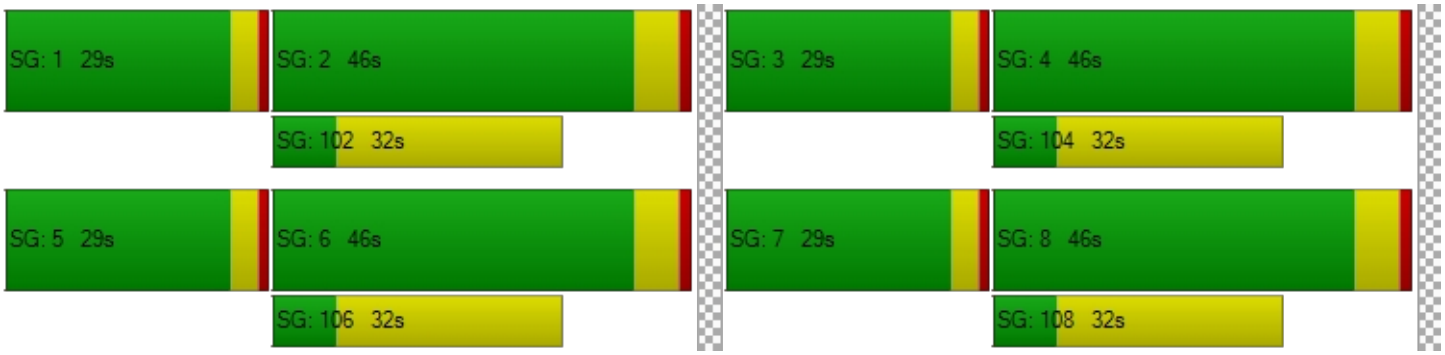
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 270.87 | 51.16 | 0.23 | 5.71 | 17.10 | 327.36 | 0.00 | 45.04 |
| Stops [stops/h] | 1132.13 | 54.68 | 4.63 | 111.11 | 29.13 | 673.30 | 0.00 | 67.37 |
| Fuel consumption [US gal/h] | 49.56 | 2.85 | 0.11 | 2.71 | 1.16 | 23.67 | 0.00 | 2.71 |
| CO [g/h] | 3464.05 | 199.38 | 7.94 | 189.49 | 80.85 | 1654.43 | 0.00 | 189.55 |
| NOx [g/h] | 673.98 | 38.79 | 1.54 | 36.87 | 15.73 | 321.89 | 0.00 | 36.88 |
| VOC [g/h] | 802.83 | 46.21 | 1.84 | 43.92 | 18.74 | 383.43 | 0.00 | 43.93 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.75 | 36.75 | 36.75 | 36.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.505 | 2.075 | 2.384 | 2.061 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 849 | 849 | 849 | 849 |
| d_b, Bicycle Delay [s] | 15.60 | 15.60 | 15.60 | 15.60 |
| l_b,int, Bicycle LOS Score for Intersection | 2.619 | 1.774 | 2.690 | 1.756 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.837 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 274 | 461 | 23 | 436 | 317 | 70 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 274 | 461 | 23 | 436 | 317 | 70 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 115 | 6 | 109 | 79 | 18 |
| Total Analysis Volume [veh/h] | 274 | 461 | 23 | 436 | 317 | 70 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 5 | 2 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 40 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 5.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 14 | 0 | 9 | 14 | 9 | 0 |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 11 | 0 | 11 | 9 | 10 | 0 |
| Vehicle Extension [s] | 4.0 | 0.0 | 2.0 | 4.2 | 3.2 | 0.0 |
| Minimum Recall | Yes | | No | Yes | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | L | C | C |
|---|---|---|---|---|
| C, Cycle Length [s] | 83 | 83 | 83 | 83 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 42 | 5 | 51 | 25 |
| g / C, Green / Cycle | 0.50 | 0.06 | 0.61 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.49 | 0.01 | 0.26 | 0.25 |
| s, saturation flow rate [veh/h] | 1515 | 1603 | 1683 | 1569 |
| c, Capacity [veh/h] | 764 | 89 | 1023 | 465 |
| d1, Uniform Delay [s] | 19.88 | 37.70 | 8.65 | 27.38 |
| k, delay calibration | 0.47 | 0.04 | 0.17 | 0.12 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 23.70 | 0.56 | 0.46 | 4.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | |
|---|---|---|---|---|
| X, volume / capacity | 0.96 | 0.26 | 0.43 | 0.83 |
| d, Delay for Lane Group [s/veh] | 43.59 | 38.26 | 9.11 | 31.66 |
| Lane Group LOS | D | D | A | C |
| Critical Lane Group | Yes | Yes | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 16.27 | 0.44 | 3.36 | 7.43 |
| 50th-Percentile Queue Length [ft/ln] | 406.66 | 11.00 | 83.97 | 185.77 |
| 95th-Percentile Queue Length [veh/ln] | 22.88 | 0.79 | 6.05 | 11.90 |
| 95th-Percentile Queue Length [ft/ln] | 572.02 | 19.81 | 151.15 | 297.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.59 | 43.59 | 38.26 | 9.11 | 31.66 | 31.66 |
| Movement LOS | D | D | D | A | C | C |
| d_A, Approach Delay [s/veh] | 43.59 | | 10.57 | | 31.66 | |
| Approach LOS | D | | B | | C | |
| d_I, Intersection Delay [s/veh] | 31.08 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.837 | | | | | |

**Emissions**

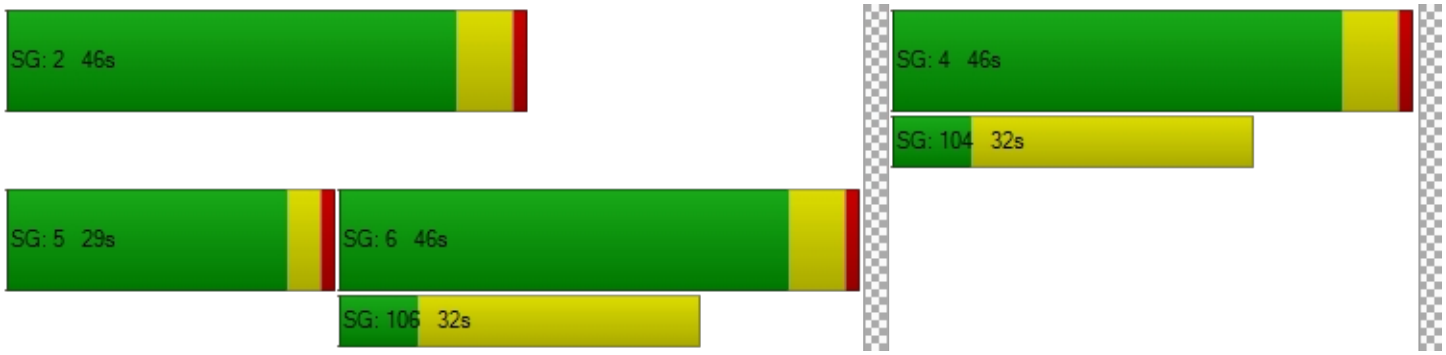
| | | | | |
|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 366.33 | 11.54 | 218.70 | 73.21 |
| Stops [stops/h] | 704.06 | 19.05 | 145.38 | 321.63 |
| Fuel consumption [US gal/h] | 27.83 | 0.81 | 10.11 | 7.28 |
| CO [g/h] | 1945.33 | 56.72 | 706.85 | 509.18 |
| NOx [g/h] | 378.49 | 11.04 | 137.53 | 99.07 |
| VOC [g/h] | 450.85 | 13.15 | 163.82 | 118.01 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.31 | 31.31 | 31.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.798 | 2.327 | 2.135 |
| Crosswalk LOS | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 962 | 962 | 962 |
| d_b, Bicycle Delay [s] | 11.21 | 11.21 | 11.21 |
| l_b,int, Bicycle LOS Score for Intersection | 2.772 | 2.317 | 2.198 |
| Bicycle LOS | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.625 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 2 | 497 | 30 | 154 | 337 | 111 | 102 | 193 | 68 | 109 | 129 | 125 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 497 | 30 | 154 | 337 | 111 | 102 | 193 | 68 | 109 | 129 | 125 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 129 | 8 | 40 | 88 | 29 | 27 | 50 | 18 | 28 | 34 | 33 |
| Total Analysis Volume [veh/h] | 2 | 518 | 31 | 160 | 351 | 116 | 106 | 201 | 71 | 114 | 134 | 130 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 21 | 21 | 8 | 29 | 7 | 10 | 10 | 7 | 10 | 10 |
| g / C, Green / Cycle | 0.00 | 0.34 | 0.34 | 0.13 | 0.47 | 0.11 | 0.16 | 0.16 | 0.11 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.28 | 0.02 | 0.09 | 0.26 | 0.06 | 0.07 | 0.08 | 0.06 | 0.07 | 0.08 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1806 | 1810 | 1900 | 1735 | 1787 | 1900 | 1605 |
| c, Capacity [veh/h] | 9 | 635 | 548 | 243 | 847 | 195 | 307 | 280 | 197 | 312 | 263 |
| d1, Uniform Delay [s] | 31.15 | 18.99 | 14.00 | 25.83 | 11.96 | 26.59 | 23.86 | 23.93 | 26.58 | 23.64 | 23.91 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.47 | 2.64 | 0.04 | 1.14 | 0.56 | 0.88 | 1.97 | 2.29 | 1.00 | 1.75 | 2.66 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.22 | 0.82 | 0.06 | 0.66 | 0.55 | 0.54 | 0.46 | 0.47 | 0.58 | 0.43 | 0.49 |
| d, Delay for Lane Group [s/veh] | 35.62 | 21.63 | 14.04 | 26.97 | 12.53 | 27.47 | 25.83 | 26.21 | 27.58 | 25.38 | 26.57 |
| Lane Group LOS | D | C | B | C | B | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.04 | 6.17 | 0.26 | 2.10 | 3.72 | 1.42 | 1.87 | 1.79 | 1.48 | 1.71 | 1.72 |
| 50th-Percentile Queue Length [ft/ln] | 0.97 | 154.21 | 6.45 | 52.48 | 93.06 | 35.58 | 46.80 | 44.78 | 37.04 | 42.64 | 42.99 |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 10.24 | 0.46 | 3.78 | 6.70 | 2.56 | 3.37 | 3.22 | 2.67 | 3.07 | 3.10 |
| 95th-Percentile Queue Length [ft/ln] | 1.75 | 256.04 | 11.62 | 94.46 | 167.52 | 64.04 | 84.24 | 80.60 | 66.67 | 76.75 | 77.39 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.62 | 21.63 | 14.04 | 26.97 | 12.53 | 12.53 | 27.47 | 25.95 | 26.21 | 27.58 | 25.38 | 26.57 |
| Movement LOS | D | C | B | C | B | B | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 21.25 | | | 16.21 | | | 26.42 | | | 26.45 | | |
| Approach LOS | C | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.64 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.625 | | | | | | | | | | | |

**Emissions**

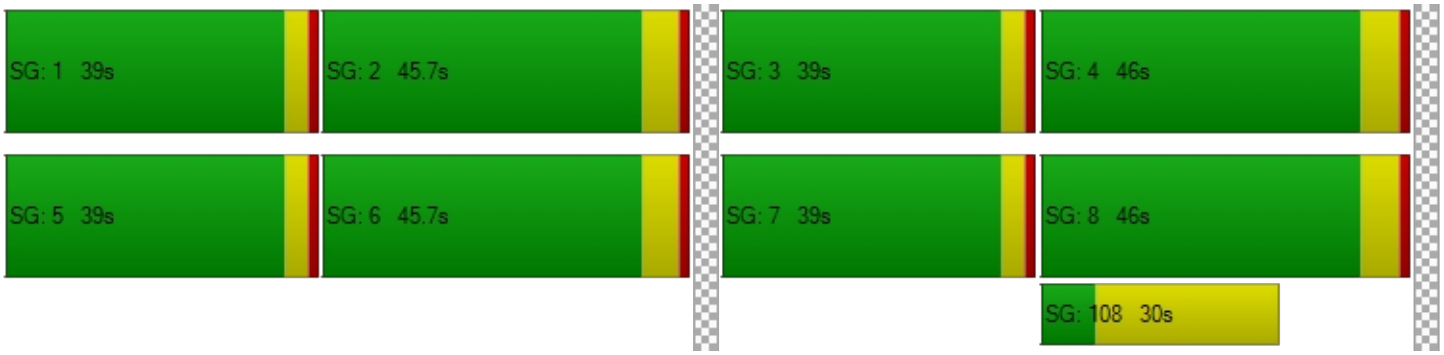
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.01 | 260.49 | 15.59 | 79.75 | 232.76 | 52.24 | 68.96 | 65.09 | 29.88 | 35.12 | 34.07 |
| Stops [stops/h] | 2.23 | 353.88 | 14.81 | 120.42 | 213.56 | 81.64 | 107.39 | 102.75 | 84.99 | 97.84 | 98.66 |
| Fuel consumption [US gal/h] | 0.08 | 15.61 | 0.81 | 5.11 | 11.82 | 3.27 | 4.26 | 4.05 | 2.95 | 3.37 | 3.36 |
| CO [g/h] | 5.36 | 1091.04 | 56.42 | 357.11 | 826.52 | 228.27 | 297.81 | 282.78 | 205.86 | 235.57 | 234.74 |
| NOx [g/h] | 1.04 | 212.28 | 10.98 | 69.48 | 160.81 | 44.41 | 57.94 | 55.02 | 40.05 | 45.83 | 45.67 |
| VOC [g/h] | 1.24 | 252.86 | 13.07 | 82.76 | 191.55 | 52.90 | 69.02 | 65.54 | 47.71 | 54.60 | 54.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.34 | 23.89 | 23.63 | 23.63 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.598 | 2.598 | 2.320 | 2.534 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1275 | 1275 | 1275 | 1275 |
| d_b, Bicycle Delay [s] | 4.12 | 4.12 | 4.12 | 4.12 |
| l_b,int, Bicycle LOS Score for Intersection | 2.469 | 2.594 | 1.871 | 2.183 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 27.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.872 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 57 | 400 | 1 | 10 | 519 | 8 | 60 | 11 | 6 | 5 | 49 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 57 | 400 | 1 | 10 | 519 | 8 | 60 | 11 | 6 | 5 | 49 | 24 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 104 | 0 | 3 | 135 | 2 | 16 | 3 | 2 | 1 | 13 | 6 |
| Total Analysis Volume [veh/h] | 59 | 417 | 1 | 10 | 541 | 8 | 63 | 11 | 6 | 5 | 51 | 25 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

**Lanes**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 505 | 551 | 559 | 621 | 708 | 474 | 493 |
| Degree of Utilization, x | 0.12 | 0.76 | 0.02 | 0.87 | 0.01 | 0.17 | 0.16 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.39 | 6.73 | 0.05 | 10.12 | 0.03 | 0.60 | 0.58 |
| 95th-Percentile Queue Length [ft] | 9.85 | 168.14 | 1.37 | 253.10 | 0.86 | 15.04 | 14.60 |
| Approach Delay [s/veh] | 24.95 | | 34.59 | | | 12.13 | 11.74 |
| Approach LOS | C | | D | | | B | B |
| Intersection Delay [s/veh] | 27.70 | | | | | | |
| Intersection LOS | D | | | | | | |

**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.758 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 240 | 289 | 201 | 29 | 409 | 23 | 13 | 290 | 132 | 117 | 347 | 20 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 240 | 289 | 201 | 29 | 409 | 23 | 13 | 290 | 132 | 117 | 347 | 20 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 79 | 55 | 8 | 111 | 6 | 4 | 79 | 36 | 32 | 94 | 5 |
| Total Analysis Volume [veh/h] | 261 | 314 | 218 | 32 | 445 | 25 | 14 | 315 | 143 | 127 | 377 | 22 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 29 | 29 | 2 | 20 | 1 | 11 | 11 | 6 | 16 |
| g / C, Green / Cycle | 0.17 | 0.46 | 0.46 | 0.03 | 0.31 | 0.01 | 0.17 | 0.17 | 0.09 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.17 | 0.14 | 0.02 | 0.25 | 0.01 | 0.13 | 0.13 | 0.07 | 0.21 |
| s, saturation flow rate [veh/h] | 1810 | 1882 | 1595 | 1810 | 1875 | 1810 | 1900 | 1687 | 1810 | 1882 |
| c, Capacity [veh/h] | 315 | 862 | 730 | 49 | 584 | 25 | 326 | 289 | 166 | 469 |
| d1, Uniform Delay [s] | 25.35 | 11.22 | 10.80 | 30.63 | 20.13 | 31.16 | 24.96 | 25.10 | 28.21 | 22.74 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.16 | 0.37 | 0.32 | 5.17 | 3.77 | 6.97 | 2.37 | 3.07 | 2.76 | 3.34 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.36 | 0.30 | 0.65 | 0.81 | 0.56 | 0.73 | 0.76 | 0.77 | 0.85 |
| d, Delay for Lane Group [s/veh] | 27.52 | 11.58 | 11.13 | 35.80 | 23.90 | 38.13 | 27.33 | 28.17 | 30.97 | 26.08 |
| Lane Group LOS | C | B | B | D | C | D | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.54 | 2.35 | 1.58 | 0.54 | 6.42 | 0.24 | 3.22 | 3.04 | 1.83 | 5.33 |
| 50th-Percentile Queue Length [ft/ln] | 88.57 | 58.68 | 39.40 | 13.39 | 160.41 | 6.09 | 80.54 | 75.89 | 45.68 | 133.29 |
| 95th-Percentile Queue Length [veh/ln] | 6.38 | 4.22 | 2.84 | 0.96 | 10.57 | 0.44 | 5.80 | 5.46 | 3.29 | 9.12 |
| 95th-Percentile Queue Length [ft/ln] | 159.43 | 105.62 | 70.92 | 24.10 | 264.27 | 10.96 | 144.98 | 136.61 | 82.22 | 227.96 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.52 | 11.58 | 11.13 | 35.80 | 23.90 | 23.90 | 38.13 | 27.53 | 28.17 | 30.97 | 26.08 | 26.08 |
| Movement LOS | C | B | B | D | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 16.70 | | | 24.66 | | | 28.04 | | | 27.26 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.758 | | | | | | | | | | | |

**Emissions**

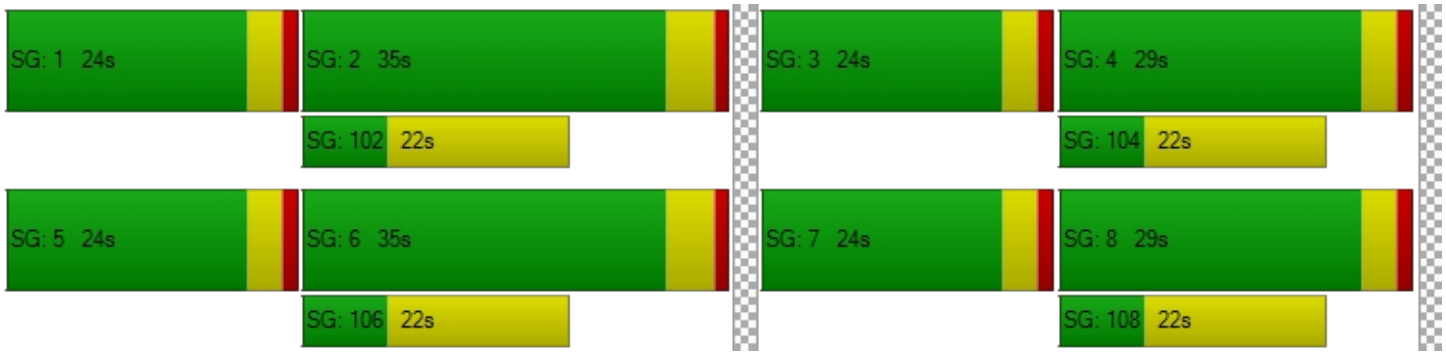
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 130.19 | 156.63 | 108.74 | 16.03 | 235.39 | 6.98 | 118.85 | 109.60 | 127.21 | 399.65 |
| Stops [stops/h] | 201.03 | 133.18 | 89.43 | 30.39 | 364.09 | 13.82 | 182.81 | 172.25 | 103.67 | 302.52 |
| Fuel consumption [US gal/h] | 8.42 | 7.77 | 5.33 | 1.06 | 13.99 | 0.52 | 7.67 | 7.16 | 6.45 | 19.58 |
| CO [g/h] | 588.82 | 542.78 | 372.77 | 74.15 | 977.72 | 36.34 | 536.26 | 500.36 | 450.84 | 1368.52 |
| NOx [g/h] | 114.56 | 105.60 | 72.53 | 14.43 | 190.23 | 7.07 | 104.34 | 97.35 | 87.72 | 266.26 |
| VOC [g/h] | 136.46 | 125.79 | 86.39 | 17.18 | 226.60 | 8.42 | 124.28 | 115.96 | 104.49 | 317.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.68 | 21.68 | 21.68 | 21.68 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.722 | 2.198 | 2.613 | 2.511 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 946 | 946 | 788 | 788 |
| d_b, Bicycle Delay [s] | 8.82 | 8.82 | 11.65 | 11.65 |
| l_b,int, Bicycle LOS Score for Intersection | 2.868 | 2.388 | 1.949 | 2.428 |
| Bicycle LOS | C | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.668 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 186 | 787 | 97 | 31 | 634 | 46 | 21 | 422 | 212 | 25 | 298 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 186 | 787 | 97 | 31 | 634 | 46 | 21 | 422 | 212 | 25 | 298 | 40 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 205 | 25 | 8 | 165 | 12 | 5 | 110 | 55 | 7 | 78 | 10 |
| Total Analysis Volume [veh/h] | 194 | 820 | 101 | 32 | 660 | 48 | 22 | 440 | 221 | 26 | 310 | 42 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 20 | 20 | 4 | 16 | 16 | 3 | 19 | 19 | 3 | 19 | 19 |
| g / C, Green / Cycle | 0.14 | 0.33 | 0.33 | 0.06 | 0.25 | 0.25 | 0.05 | 0.30 | 0.30 | 0.05 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.23 | 0.06 | 0.02 | 0.18 | 0.03 | 0.01 | 0.23 | 0.14 | 0.01 | 0.09 | 0.03 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1608 | 1810 | 3595 | 1594 | 1810 | 1888 | 1598 | 1810 | 3618 | 1593 |
| c, Capacity [veh/h] | 251 | 1182 | 528 | 112 | 902 | 400 | 84 | 567 | 480 | 96 | 1110 | 489 |
| d1, Uniform Delay [s] | 25.92 | 18.24 | 15.02 | 27.98 | 21.48 | 18.07 | 28.77 | 19.95 | 17.76 | 28.43 | 16.42 | 15.41 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.08 | 0.74 | 0.17 | 1.37 | 1.17 | 0.13 | 1.64 | 2.33 | 0.69 | 1.50 | 0.14 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.69 | 0.19 | 0.28 | 0.73 | 0.12 | 0.26 | 0.78 | 0.46 | 0.27 | 0.28 | 0.09 |
| d, Delay for Lane Group [s/veh] | 31.00 | 18.98 | 15.19 | 29.35 | 22.65 | 18.21 | 30.41 | 22.28 | 18.45 | 29.93 | 16.56 | 15.49 |
| Lane Group LOS | C | B | B | C | C | B | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.81 | 4.40 | 0.89 | 0.48 | 4.22 | 0.51 | 0.34 | 5.66 | 2.46 | 0.38 | 1.45 | 0.37 |
| 50th-Percentile Queue Length [ft/ln] | 70.36 | 109.91 | 22.32 | 11.94 | 105.53 | 12.84 | 8.54 | 141.53 | 61.47 | 9.45 | 36.26 | 9.34 |
| 95th-Percentile Queue Length [veh/ln] | 5.07 | 7.84 | 1.61 | 0.86 | 7.59 | 0.92 | 0.61 | 9.56 | 4.43 | 0.68 | 2.61 | 0.67 |
| 95th-Percentile Queue Length [ft/ln] | 126.65 | 195.88 | 40.18 | 21.48 | 189.76 | 23.11 | 15.37 | 239.08 | 110.65 | 17.02 | 65.27 | 16.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.00 | 18.98 | 15.19 | 29.35 | 22.65 | 18.21 | 30.41 | 22.28 | 18.45 | 29.93 | 16.56 | 15.49 |
| Movement LOS | C | B | B | C | C | B | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 20.73 | | | 22.65 | | | 21.30 | | | 17.36 | | |
| Approach LOS | C | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 20.91 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.668 | | | | | | | | | | | |

**Emissions**

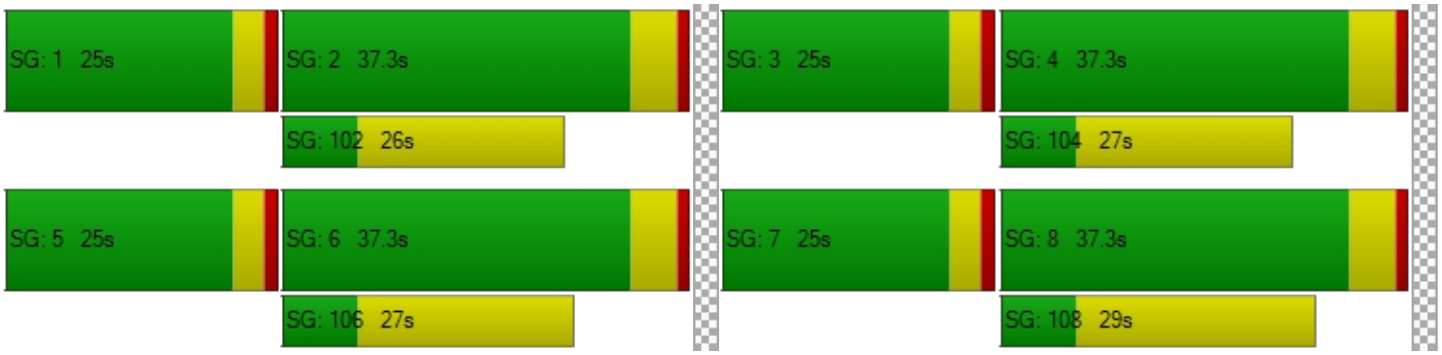
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.78 | 163.91 | 20.19 | 15.96 | 329.21 | 23.94 | 10.84 | 216.82 | 108.90 | 2.68 | 32.01 | 4.34 |
| Stops [stops/h] | 162.70 | 508.33 | 51.62 | 27.60 | 488.04 | 29.68 | 19.74 | 327.28 | 142.14 | 21.86 | 167.71 | 21.61 |
| Fuel consumption [US gal/h] | 4.58 | 15.11 | 1.65 | 1.00 | 19.29 | 1.33 | 0.69 | 12.73 | 6.10 | 0.52 | 4.23 | 0.55 |
| CO [g/h] | 319.85 | 1055.91 | 115.06 | 69.95 | 1348.44 | 92.79 | 48.33 | 889.76 | 426.26 | 36.50 | 295.46 | 38.42 |
| NOx [g/h] | 62.23 | 205.44 | 22.39 | 13.61 | 262.36 | 18.05 | 9.40 | 173.12 | 82.94 | 7.10 | 57.49 | 7.48 |
| VOC [g/h] | 74.13 | 244.72 | 26.67 | 16.21 | 312.51 | 21.51 | 11.20 | 206.21 | 98.79 | 8.46 | 68.48 | 8.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.11 | 21.11 | 21.11 | 21.11 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.925 | 2.696 | 2.520 | 2.558 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1028 | 1028 | 1028 | 1028 |
| d_b, Bicycle Delay [s] | 7.36 | 7.36 | 7.36 | 7.36 |
| l_b,int, Bicycle LOS Score for Intersection | 2.479 | 2.170 | 2.687 | 1.871 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.572 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 485 | 1105 | 0 | 0 | 521 | 306 | 0 | 0 | 0 | 120 | 0 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 485 | 1105 | 0 | 0 | 521 | 306 | 0 | 0 | 0 | 120 | 0 | 19 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 129 | 294 | 0 | 0 | 139 | 81 | 0 | 0 | 0 | 32 | 0 | 5 |
| Total Analysis Volume [veh/h] | 516 | 1176 | 0 | 0 | 554 | 326 | 0 | 0 | 0 | 128 | 0 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 11 | 40 | 23 | 23 | | 7 | 7 |
| g / C, Green / Cycle | 0.19 | 0.66 | 0.38 | 0.38 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.33 | 0.23 | 0.27 | | 0.07 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1648 | | 1787 | 1615 |
| c, Capacity [veh/h] | 660 | 2373 | 709 | 621 | | 218 | 197 |
| d1, Uniform Delay [s] | 23.21 | 5.16 | 15.26 | 15.95 | | 24.97 | 23.47 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.78 | 0.30 | 1.66 | 2.79 | | 5.27 | 0.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.50 | 0.62 | 0.71 | | 0.59 | 0.10 |
| d, Delay for Lane Group [s/veh] | 23.99 | 5.46 | 16.92 | 18.74 | | 30.24 | 23.95 |
| Lane Group LOS | C | A | B | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.09 | 1.94 | 4.25 | 4.59 | | 1.78 | 0.24 |
| 50th-Percentile Queue Length [ft/ln] | 77.23 | 48.59 | 106.37 | 114.69 | | 44.61 | 6.03 |
| 95th-Percentile Queue Length [veh/ln] | 5.56 | 3.50 | 7.64 | 8.10 | | 3.21 | 0.43 |
| 95th-Percentile Queue Length [ft/ln] | 139.01 | 87.47 | 190.94 | 202.51 | | 80.30 | 10.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.99 | 5.46 | 0.00 | 0.00 | 17.29 | 18.74 | 0.00 | 0.00 | 0.00 | 30.24 | 0.00 | 23.95 |
| Movement LOS | C | A | | | B | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 11.11 | | | 17.83 | | | 0.00 | | | 29.39 | | |
| Approach LOS | B | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 14.28 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.572 | | | | | | | | | | | |

**Emissions**

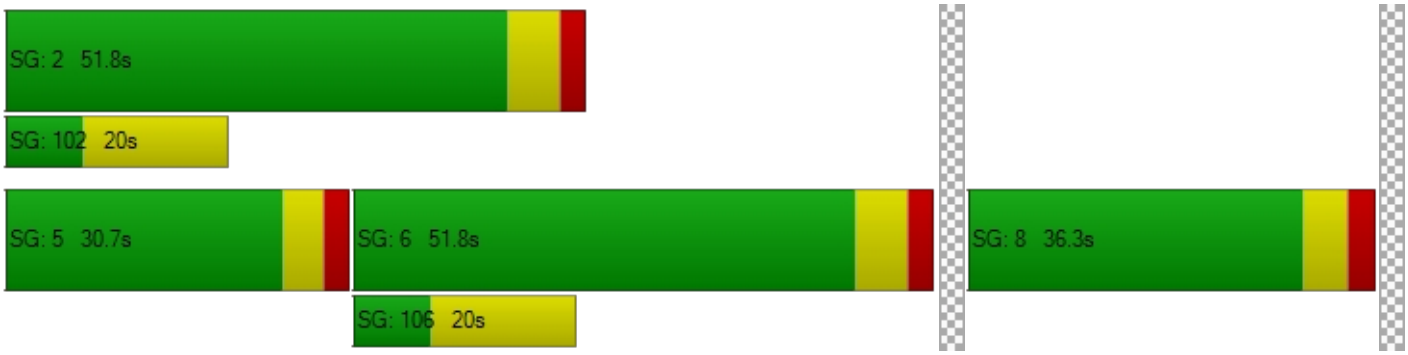
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 55.78 | 127.12 | 87.95 | 87.95 | | 11.00 | 1.72 |
| Stops [stops/h] | 370.33 | 233.02 | 255.04 | 274.99 | | 106.96 | 14.46 |
| Fuel consumption [US gal/h] | 9.04 | 8.56 | 7.70 | 8.11 | | 3.14 | 0.42 |
| CO [g/h] | 631.57 | 598.51 | 538.28 | 567.05 | | 219.65 | 29.61 |
| NOx [g/h] | 122.88 | 116.45 | 104.73 | 110.33 | | 42.74 | 5.76 |
| VOC [g/h] | 146.37 | 138.71 | 124.75 | 131.42 | | 50.91 | 6.86 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.39 | 27.39 | 20.04 | 20.04 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.022 | 2.880 | 2.103 | 1.825 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1499 | 1499 | 0 | 999 |
| d_b, Bicycle Delay [s] | 1.89 | 1.89 | 30.03 | 7.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.956 | 2.286 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.757 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1012 | 310 | 40 | 603 | 0 | 586 | 0 | 416 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1012 | 310 | 40 | 603 | 0 | 586 | 0 | 416 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 264 | 81 | 10 | 157 | 0 | 153 | 0 | 108 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1054 | 323 | 42 | 628 | 0 | 610 | 0 | 433 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 48 | 0 | 12 | 60 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 46 | 46 | 4 | 56 | 31 | 31 | |
| g / C, Green / Cycle | 0.46 | 0.46 | 0.04 | 0.56 | 0.31 | 0.31 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.39 | 0.02 | 0.18 | 0.18 | 0.27 | |
| s, saturation flow rate [veh/h] | 1889 | 1745 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 868 | 802 | 74 | 1991 | 1086 | 500 | |
| d1, Uniform Delay [s] | 22.96 | 24.10 | 46.97 | 11.81 | 28.66 | 32.38 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.34 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 7.36 | 11.54 | 2.58 | 0.42 | 0.98 | 13.11 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.86 | 0.57 | 0.32 | 0.56 | 0.87 | |
| d, Delay for Lane Group [s/veh] | 30.32 | 35.64 | 49.55 | 12.23 | 29.63 | 45.50 | |
| Lane Group LOS | C | D | D | B | C | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 14.41 | 15.83 | 1.04 | 3.43 | 5.72 | 10.76 | |
| 50th-Percentile Queue Length [ft/ln] | 360.23 | 395.85 | 26.11 | 85.74 | 143.01 | 269.06 | |
| 95th-Percentile Queue Length [veh/ln] | 20.63 | 22.36 | 1.88 | 6.17 | 9.64 | 16.14 | |
| 95th-Percentile Queue Length [ft/ln] | 515.87 | 559.00 | 46.99 | 154.34 | 241.07 | 403.57 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 32.16 | 35.64 | 49.55 | 12.23 | 0.00 | 29.63 | 0.00 | 45.50 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | D | D | B | | C | | D | | | |
| d_A, Approach Delay [s/veh] | 32.98 | | | 14.57 | | | 36.22 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 30.08 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.757 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.69 | 45.69 | 4.54 | 67.89 | 72.50 | 51.46 | |
| Stops [stops/h] | 518.97 | 570.28 | 37.61 | 247.05 | 412.05 | 387.62 | |
| Fuel consumption [US gal/h] | 10.98 | 12.23 | 1.05 | 6.96 | 13.76 | 12.93 | |
| CO [g/h] | 767.66 | 855.03 | 73.16 | 486.61 | 961.63 | 903.81 | |
| NOx [g/h] | 149.36 | 166.36 | 14.24 | 94.68 | 187.10 | 175.85 | |
| VOC [g/h] | 177.91 | 198.16 | 16.96 | 112.78 | 222.87 | 209.47 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 33.9 | 33.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.83 | 21.83 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.904 | 2.963 | 2.566 | 1.898 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 824 | 1064 | 678 | 0 |
| d_b, Bicycle Delay [s] | 17.27 | 10.94 | 21.83 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.696 | 2.112 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.031 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 463 | 4 | 2 | 367 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 463 | 4 | 2 | 367 |
| Peak Hour Factor | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 | 0.7500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 154 | 1 | 1 | 122 |
| Total Analysis Volume [veh/h] | 7 | 5 | 617 | 5 | 3 | 489 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 21.34 | 12.93 | 0.00 | 0.00 | 8.77 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.13 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 3.20 | 3.20 | 0.00 | 0.00 | 0.13 | 0.13 |
| d_A, Approach Delay [s/veh] | 17.84 | | 0.00 | | 0.05 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.21 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.002 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 1 | 15 | 15 | 233 | 296 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 15 | 15 | 233 | 296 | 3 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 4 | 4 | 64 | 81 | 1 |
| Total Analysis Volume [veh/h] | 1 | 16 | 16 | 256 | 325 | 3 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.17 | 9.29 | 7.97 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.58 | 1.58 | 0.99 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.46 | | 0.47 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.47 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.086 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 47 | 12 | 228 | 62 | 12 | 275 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 12 | 228 | 62 | 12 | 275 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 3 | 60 | 16 | 3 | 72 |
| Total Analysis Volume [veh/h] | 49 | 13 | 240 | 65 | 13 | 289 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.98 | 9.58 | 0.00 | 0.00 | 7.87 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.33 | 0.33 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.33 | 8.33 | 0.00 | 0.00 | 0.78 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.48 | | 0.00 | | 0.34 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.22 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.840 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 140 | 369 | 63 | 8 | 270 | 78 | 139 | 193 | 10 | 338 | 69 | 92 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 140 | 369 | 63 | 8 | 270 | 78 | 139 | 193 | 10 | 338 | 69 | 92 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 97 | 17 | 2 | 71 | 21 | 37 | 51 | 3 | 89 | 18 | 24 |
| Total Analysis Volume [veh/h] | 147 | 388 | 66 | 8 | 284 | 82 | 146 | 203 | 11 | 356 | 73 | 97 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lag | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| L, Total Lost Time per Cycle [s] | 2.00 | 0.00 | 0.00 | 4.00 | 3.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 0.00 | 0.00 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 0 | 0 | 36 | 22 | 17 | 12 | 12 | 26 | 21 | 21 |
| g / C, Green / Cycle | 0.16 | 0.00 | 0.00 | 0.42 | 0.26 | 0.20 | 0.14 | 0.14 | 0.30 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.20 | 0.04 | 0.01 | 0.20 | 0.14 | 0.06 | 0.01 | 0.38 | 0.02 | 0.06 |
| s, saturation flow rate [veh/h] | 1800 | 1900 | 1615 | 952 | 1828 | 1011 | 3600 | 1587 | 928 | 3606 | 1615 |
| c, Capacity [veh/h] | 287 | 0 | 0 | 463 | 478 | 256 | 492 | 217 | 343 | 881 | 394 |
| d1, Uniform Delay [s] | 33.03 | 0.00 | 0.00 | 15.67 | 29.29 | 34.55 | 33.90 | 32.20 | 33.85 | 25.02 | 26.08 |
| k, delay calibration | 0.04 | 0.50 | 0.50 | 0.04 | 0.15 | 0.04 | 0.23 | 0.23 | 0.50 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 0.00 | 0.00 | 0.01 | 3.68 | 0.75 | 1.18 | 0.20 | 58.60 | 0.09 | 0.69 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.51 | 10000.0 | 10000.0 | 0.02 | 0.77 | 0.57 | 0.41 | 0.05 | 1.04 | 0.08 | 0.25 |
| d, Delay for Lane Group [s/veh] | 33.56 | 0.00 | 0.00 | 15.68 | 32.97 | 35.30 | 35.08 | 32.41 | 92.46 | 25.11 | 26.77 |
| Lane Group LOS | C | F | F | B | C | D | D | C | F | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.79 | 0.00 | 0.00 | 0.09 | 7.23 | 2.78 | 1.89 | 0.20 | 12.47 | 0.54 | 1.54 |
| 50th-Percentile Queue Length [ft/ln] | 69.71 | 0.00 | 0.00 | 2.33 | 180.71 | 69.47 | 47.16 | 4.96 | 311.64 | 13.52 | 38.62 |
| 95th-Percentile Queue Length [veh/ln] | 5.02 | 0.00 | 0.00 | 0.17 | 11.64 | 5.00 | 3.40 | 0.36 | 18.66 | 0.97 | 2.78 |
| 95th-Percentile Queue Length [ft/ln] | 125.48 | 0.00 | 0.00 | 4.19 | 290.94 | 125.04 | 84.89 | 8.92 | 466.62 | 24.34 | 69.52 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.56 | 0.00 | 0.00 | 15.68 | 32.97 | 32.97 | 35.30 | 35.08 | 32.41 | 92.46 | 25.11 | 26.77 |
| Movement LOS | C | A | A | B | C | C | D | D | C | F | C | C |
| d_A, Approach Delay [s/veh] | 8.21 | | | 32.60 | | | 35.08 | | | 71.00 | | |
| Approach LOS | A | | | C | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 36.06 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.840 | | | | | | | | | | | |

**Emissions**

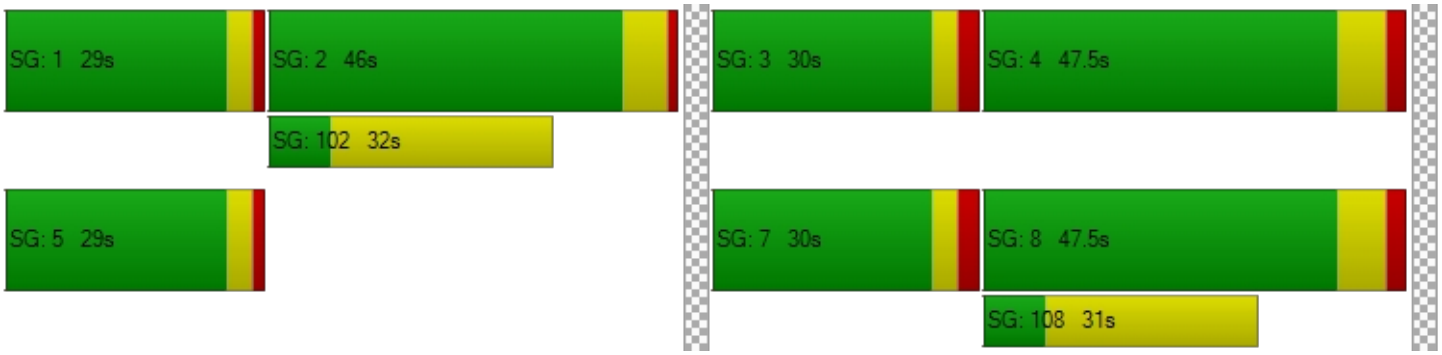
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 146.48 | 386.62 | 65.76 | 0.23 | 10.30 | 53.84 | 74.86 | 4.06 | 179.86 | 36.88 | 49.01 |
| Stops [stops/h] | 116.97 | 0.00 | 0.00 | 3.91 | 303.23 | 116.56 | 158.26 | 8.32 | 522.92 | 45.39 | 64.81 |
| Fuel consumption [US gal/h] | 7.68 | 15.92 | 2.71 | 0.06 | 4.55 | 4.64 | 6.39 | 0.34 | 20.75 | 2.30 | 3.16 |
| CO [g/h] | 536.84 | 1112.50 | 189.24 | 3.94 | 318.36 | 324.40 | 446.33 | 23.49 | 1450.25 | 161.11 | 221.19 |
| NOx [g/h] | 104.45 | 216.45 | 36.82 | 0.77 | 61.94 | 63.12 | 86.84 | 4.57 | 282.17 | 31.35 | 43.04 |
| VOC [g/h] | 124.42 | 257.83 | 43.86 | 0.91 | 73.78 | 75.18 | 103.44 | 5.44 | 336.11 | 37.34 | 51.26 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.61 | 36.66 | 32.61 | 32.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.047 | 2.476 | 2.629 | 2.679 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 932 | 932 | 932 |
| d_b, Bicycle Delay [s] | 42.91 | 12.23 | 12.24 | 12.23 |
| l_b,int, Bicycle LOS Score for Intersection | 2.551 | 2.177 | 1.857 | 1.994 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.669 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 164 | 515 | 244 | 9 | 450 | 113 | 357 | 260 | 5 | 111 | 135 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 515 | 244 | 9 | 450 | 113 | 357 | 260 | 5 | 111 | 135 | 4 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 143 | 68 | 3 | 125 | 31 | 99 | 72 | 1 | 31 | 38 | 1 |
| Total Analysis Volume [veh/h] | 182 | 572 | 271 | 10 | 500 | 126 | 397 | 289 | 6 | 123 | 150 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 21 | 21 | 1 | 14 | 14 | 16 | 17 | 17 | 8 | 9 | 9 |
| g / C, Green / Cycle | 0.14 | 0.34 | 0.34 | 0.02 | 0.22 | 0.22 | 0.25 | 0.26 | 0.26 | 0.13 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.16 | 0.17 | 0.01 | 0.14 | 0.08 | 0.22 | 0.15 | 0.00 | 0.07 | 0.08 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1810 | 1867 | 1615 |
| c, Capacity [veh/h] | 245 | 1212 | 538 | 42 | 799 | 359 | 450 | 495 | 423 | 228 | 258 | 224 |
| d1, Uniform Delay [s] | 26.40 | 16.69 | 16.90 | 30.51 | 22.34 | 20.85 | 22.91 | 20.38 | 17.31 | 26.07 | 25.67 | 23.67 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.14 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.68 | 0.38 | 0.97 | 1.06 | 1.08 | 0.78 | 7.57 | 1.36 | 0.02 | 0.74 | 2.56 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.47 | 0.50 | 0.24 | 0.63 | 0.35 | 0.88 | 0.58 | 0.01 | 0.54 | 0.58 | 0.02 |
| d, Delay for Lane Group [s/veh] | 28.08 | 17.07 | 17.87 | 31.57 | 23.41 | 21.63 | 30.48 | 21.74 | 17.33 | 26.81 | 28.24 | 23.71 |
| Lane Group LOS | C | B | B | C | C | C | C | C | B | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.43 | 2.75 | 2.73 | 0.15 | 3.00 | 1.43 | 6.21 | 3.64 | 0.06 | 1.61 | 2.08 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 60.68 | 68.87 | 68.17 | 3.68 | 74.96 | 35.81 | 155.27 | 90.92 | 1.57 | 40.22 | 51.95 | 1.23 |
| 95th-Percentile Queue Length [veh/ln] | 4.37 | 4.96 | 4.91 | 0.27 | 5.40 | 2.58 | 10.30 | 6.55 | 0.11 | 2.90 | 3.74 | 0.09 |
| 95th-Percentile Queue Length [ft/ln] | 109.23 | 123.96 | 122.71 | 6.63 | 134.93 | 64.45 | 257.44 | 163.66 | 2.82 | 72.39 | 93.52 | 2.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 28.08 | 17.07 | 17.87 | 31.57 | 23.41 | 21.63 | 30.48 | 21.74 | 17.33 | 26.81 | 28.24 | 23.71 |
| Movement LOS | C | B | B | C | C | C | C | C | B | C | C | C |
| d_A, Approach Delay [s/veh] | 19.24 | | | 23.19 | | | 26.72 | | | 27.54 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.04 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.669 | | | | | | | | | | | |

**Emissions**

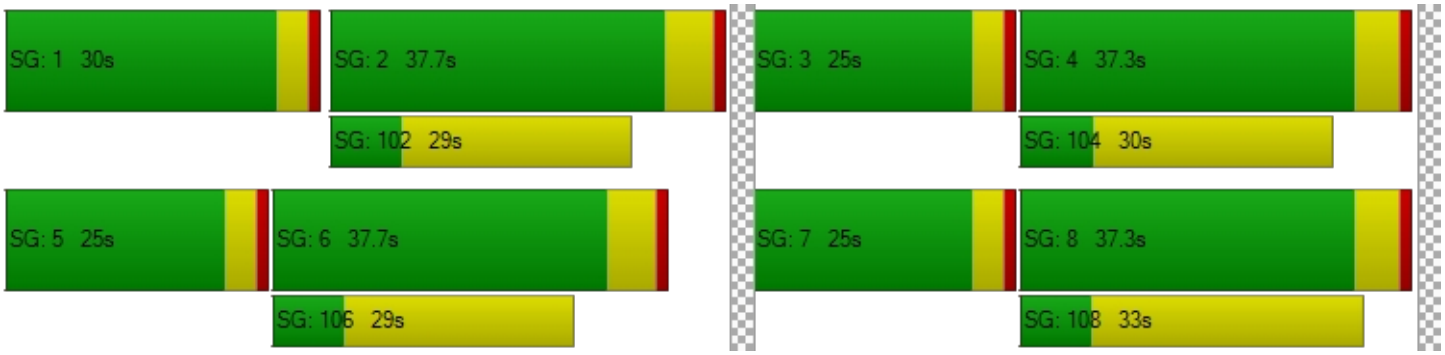
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 83.31 | 261.83 | 124.05 | 9.96 | 498.22 | 125.55 | 397.64 | 289.47 | 6.01 | 61.70 | 75.24 | 2.01 |
| Stops [stops/h] | 137.75 | 312.67 | 154.75 | 8.36 | 340.33 | 81.28 | 352.47 | 206.41 | 3.56 | 91.29 | 117.94 | 2.78 |
| Fuel consumption [US gal/h] | 5.94 | 15.56 | 7.52 | 0.53 | 24.29 | 6.01 | 20.78 | 14.34 | 0.29 | 3.92 | 4.91 | 0.12 |
| CO [g/h] | 415.51 | 1087.30 | 525.32 | 36.79 | 1697.94 | 419.88 | 1452.50 | 1002.06 | 20.15 | 274.08 | 343.03 | 8.57 |
| NOx [g/h] | 80.84 | 211.55 | 102.21 | 7.16 | 330.36 | 81.69 | 282.60 | 194.96 | 3.92 | 53.33 | 66.74 | 1.67 |
| VOC [g/h] | 96.30 | 251.99 | 121.75 | 8.53 | 393.51 | 97.31 | 336.63 | 232.24 | 4.67 | 63.52 | 79.50 | 1.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.67 | 21.67 | 21.67 | 21.67 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.881 | 2.869 | 2.392 | 2.421 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1009 | 1009 | 1009 | 1009 |
| d_b, Bicycle Delay [s] | 7.79 | 7.79 | 7.79 | 7.79 |
| l_b,int, Bicycle LOS Score for Intersection | 2.405 | 2.084 | 2.701 | 2.017 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 164 | 803 | 197 | 52 | 526 | 49 | 68 | 67 | 343 | 161 | 48 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 803 | 197 | 52 | 526 | 49 | 68 | 67 | 343 | 161 | 48 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 216 | 53 | 14 | 141 | 13 | 18 | 18 | 92 | 43 | 13 | 23 |
| Total Analysis Volume [veh/h] | 176 | 863 | 212 | 56 | 566 | 53 | 73 | 72 | 369 | 173 | 52 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 207 | | | 411 | | | 813 | | | 1120 | | |
| Exiting Flow Rate [veh/h] | 1132 | | | 1037 | | | 283 | | | 350 | | |
| Demand Flow Rate [veh/h] | 164 | 803 | 197 | 52 | 526 | 49 | 68 | 67 | 343 | 161 | 48 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 176 | 863 | 212 | 56 | 566 | 53 | 73 | 72 | 369 | 173 | 52 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.97 |
| Entry Flow Rate [veh/h] | 592 | 670 | 323 | 363 | 150 | 377 | 176 | 154 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1177 | 1177 | 926 | 1002 | 639 | 712 | 482 | 549 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1169 | 1163 | 910 | 988 | 622 | 698 | 463 | 531 |
| X, volume / capacity | 0.50 | 0.57 | 0.35 | 0.36 | 0.23 | 0.53 | 0.36 | 0.28 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | B | B | B |
| 95th-Percentile Queue Length [veh] | 2.92 | 3.75 | 1.57 | 1.67 | 0.90 | 3.13 | 1.64 | 1.14 |
| 95th-Percentile Queue Length [ft] | 73.04 | 93.84 | 39.35 | 41.74 | 22.49 | 78.35 | 41.03 | 28.61 |
| Approach Delay [s/veh] | 9.36 | | 7.65 | | 12.13 | | 12.50 | |
| Approach LOS | A | | A | | B | | B | |
| Intersection Delay [s/veh] | 9.82 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.423 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1072 | 865 | 0 | 532 | 464 | 0 | 0 | 0 | 43 | 0 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1072 | 865 | 0 | 532 | 464 | 0 | 0 | 0 | 43 | 0 | 27 |
| Peak Hour Factor | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 0.8900 | 0.8900 | 1.0000 | 1.0000 | 1.0000 | 0.8900 | 1.0000 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 301 | 243 | 0 | 149 | 130 | 0 | 0 | 0 | 12 | 0 | 8 |
| Total Analysis Volume [veh/h] | 0 | 1204 | 972 | 0 | 598 | 521 | 0 | 0 | 0 | 48 | 0 | 30 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 42 | 42 | 42 | | 42 | 42 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 24 | 24 | 24 | | 5 | 5 |
| g / C, Green / Cycle | 0.58 | 0.58 | 0.58 | | 0.12 | 0.12 |
| (v / s)_i Volume / Saturation Flow Rate | 0.33 | 0.17 | 0.32 | | 0.03 | 0.02 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 2089 | 2082 | 932 | | 207 | 188 |
| d1, Uniform Delay [s] | 5.53 | 4.42 | 5.45 | | 16.83 | 16.69 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.14 | 0.98 | | 1.21 | 0.84 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.29 | 0.56 | | 0.23 | 0.16 |
| d, Delay for Lane Group [s/veh] | 6.01 | 4.56 | 6.43 | | 18.05 | 17.53 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.32 | 0.51 | 1.26 | | 0.38 | 0.24 |
| 50th-Percentile Queue Length [ft/ln] | 32.89 | 12.70 | 31.47 | | 9.45 | 5.88 |
| 95th-Percentile Queue Length [veh/ln] | 2.37 | 0.91 | 2.27 | | 0.68 | 0.42 |
| 95th-Percentile Queue Length [ft/ln] | 59.20 | 22.86 | 56.64 | | 17.02 | 10.58 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.01 | 0.00 | 0.00 | 4.56 | 6.43 | 0.00 | 0.00 | 0.00 | 18.05 | 0.00 | 17.53 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.50 | | | 5.43 | | | 0.00 | | | 17.85 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.86 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.423 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 137.73 | 59.00 | 51.40 | | 3.40 | 2.12 |
| Stops [stops/h] | 226.57 | 87.48 | 108.38 | | 32.56 | 20.24 |
| Fuel consumption [US gal/h] | 9.01 | 3.66 | 3.79 | | 0.89 | 0.55 |
| CO [g/h] | 629.78 | 256.16 | 265.01 | | 62.55 | 38.73 |
| NOx [g/h] | 122.53 | 49.84 | 51.56 | | 12.17 | 7.53 |
| VOC [g/h] | 145.96 | 59.37 | 61.42 | | 14.50 | 8.98 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.92 | 17.92 | 11.35 | 11.35 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.814 | 2.961 | 1.924 | 1.941 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1674 | 1674 | 0 | 957 |
| d_b, Bicycle Delay [s] | 0.55 | 0.55 | 20.90 | 5.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.553 | 2.483 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.852 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1392 | 81 | 28 | 566 | 0 | 517 | 0 | 676 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1392 | 81 | 28 | 566 | 0 | 517 | 0 | 676 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 387 | 23 | 8 | 157 | 0 | 144 | 0 | 188 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1547 | 90 | 31 | 629 | 0 | 574 | 0 | 751 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 102 | 102 | 102 | 102 | 102 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 4 | 54 | 35 | |
| g / C, Green / Cycle | 0.44 | 0.44 | 0.03 | 0.53 | 0.35 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.43 | 0.44 | 0.02 | 0.17 | 0.32 | |
| s, saturation flow rate [veh/h] | 1892 | 1856 | 1810 | 3595 | 1801 | |
| c, Capacity [veh/h] | 832 | 817 | 63 | 1907 | 625 | |
| d1, Uniform Delay [s] | 28.28 | 28.65 | 48.47 | 13.66 | 31.99 | |
| k, delay calibration | 0.43 | 0.44 | 0.04 | 0.19 | 0.36 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 25.21 | 30.20 | 2.17 | 0.18 | 16.23 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.98 | 1.00 | 0.49 | 0.33 | 0.92 | |
| d, Delay for Lane Group [s/veh] | 53.49 | 58.86 | 50.64 | 13.84 | 48.22 | |
| Lane Group LOS | D | F | D | B | D | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 23.61 | 24.82 | 0.79 | 3.77 | 15.05 | |
| 50th-Percentile Queue Length [ft/ln] | 590.13 | 620.40 | 19.75 | 94.17 | 376.33 | |
| 95th-Percentile Queue Length [veh/ln] | 31.57 | 33.05 | 1.42 | 6.78 | 21.42 | |
| 95th-Percentile Queue Length [ft/ln] | 789.33 | 826.19 | 35.56 | 169.50 | 535.40 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 56.02 | 58.86 | 50.64 | 13.84 | 0.00 | 48.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | E | E | D | B | | D | | | | | |
| d_A, Approach Delay [s/veh] | 56.17 | | | 15.57 | | | 48.22 | | | 0.00 | | |
| Approach LOS | E | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 45.25 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.852 | | | | | | | | | | | |

**Emissions**

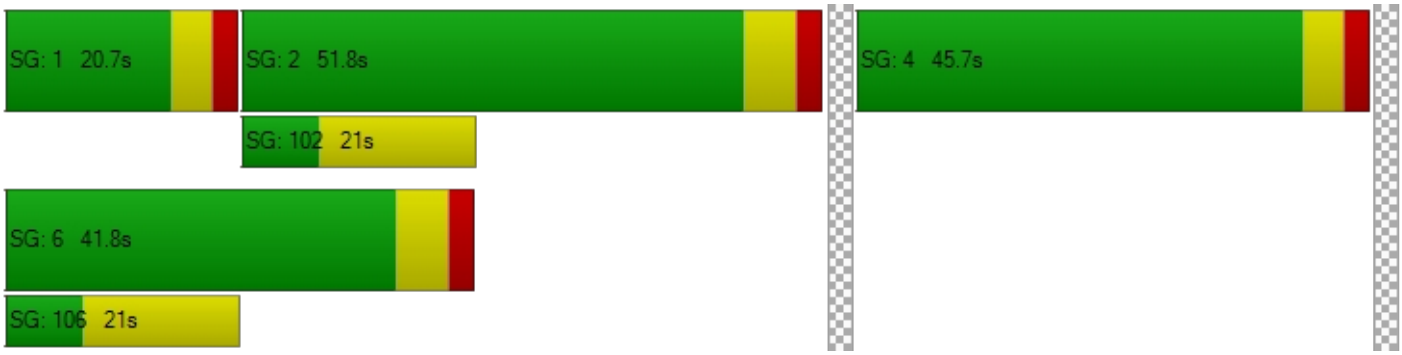
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 66.30 | 66.30 | 3.55 | 71.95 | 44.89 | |
| Stops [stops/h] | 831.49 | 874.13 | 27.83 | 265.35 | 530.24 | |
| Fuel consumption [US gal/h] | 21.52 | 22.94 | 0.79 | 7.54 | 16.98 | |
| CO [g/h] | 1504.27 | 1603.75 | 55.02 | 526.89 | 1187.09 | |
| NOx [g/h] | 292.68 | 312.03 | 10.70 | 102.51 | 230.96 | |
| VOC [g/h] | 348.63 | 371.68 | 12.75 | 122.11 | 275.12 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 51.10 | 51.10 | 40.69 | 40.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.975 | 3.146 | 2.234 | 1.780 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 881 | 685 | 783 | 0 |
| d_b, Bicycle Delay [s] | 16.01 | 22.09 | 18.93 | 51.10 |
| l_b,int, Bicycle LOS Score for Intersection | 2.910 | 2.104 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 177.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.560 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 355 | 86 | 24 | 163 | 59 | 5 | 86 | 157 | 31 | 27 | 265 | 249 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 355 | 86 | 24 | 163 | 59 | 5 | 86 | 157 | 31 | 27 | 265 | 249 |
| Peak Hour Factor | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 | 0.8600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 103 | 25 | 7 | 47 | 17 | 1 | 25 | 46 | 9 | 8 | 77 | 72 |
| Total Analysis Volume [veh/h] | 413 | 100 | 28 | 190 | 69 | 6 | 100 | 183 | 36 | 31 | 308 | 290 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 10 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 12 | 9 | 12 | 5 | 19 | 19 | 2 | 16 | 16 |
| g / C, Green / Cycle | 0.20 | 0.21 | 0.16 | 0.20 | 0.08 | 0.32 | 0.32 | 0.03 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.54 | 0.02 | 0.16 | 0.04 | 0.06 | 0.06 | 0.02 | 0.02 | 0.09 | 0.20 |
| s, saturation flow rate [veh/h] | 951 | 1454 | 1184 | 1686 | 1629 | 3243 | 1449 | 1629 | 3256 | 1454 |
| c, Capacity [veh/h] | 259 | 300 | 123 | 343 | 130 | 1055 | 472 | 56 | 911 | 407 |
| d1, Uniform Delay [s] | 14.91 | 18.73 | 23.61 | 19.37 | 26.31 | 14.07 | 13.61 | 27.73 | 16.70 | 18.89 |
| k, delay calibration | 0.30 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 449.45 | 0.13 | 251.38 | 0.32 | 9.18 | 0.08 | 0.07 | 8.31 | 0.22 | 2.33 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.98 | 0.09 | 1.54 | 0.22 | 0.77 | 0.17 | 0.08 | 0.55 | 0.34 | 0.71 |
| d, Delay for Lane Group [s/veh] | 464.36 | 18.87 | 274.99 | 19.68 | 35.49 | 14.14 | 13.68 | 36.04 | 16.92 | 21.22 |
| Lane Group LOS | F | B | F | B | D | B | B | D | B | C |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 34.23 | 0.28 | 10.13 | 0.81 | 1.51 | 0.70 | 0.27 | 0.50 | 1.36 | 3.11 |
| 50th-Percentile Queue Length [ft/ln] | 855.66 | 6.89 | 253.31 | 20.35 | 37.82 | 17.56 | 6.80 | 12.57 | 34.10 | 77.74 |
| 95th-Percentile Queue Length [veh/ln] | 55.44 | 0.50 | 17.82 | 1.47 | 2.72 | 1.26 | 0.49 | 0.90 | 2.45 | 5.60 |
| 95th-Percentile Queue Length [ft/ln] | 1386.04 | 12.40 | 445.49 | 36.63 | 68.08 | 31.61 | 12.24 | 22.62 | 61.37 | 139.92 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 464.36 | 464.36 | 18.87 | 274.99 | 19.68 | 19.68 | 35.49 | 14.14 | 13.68 | 36.04 | 16.92 | 21.22 |
| Movement LOS | F | F | B | F | B | B | D | B | B | D | B | C |
| d_A, Approach Delay [s/veh] | 441.30 | | | 202.74 | | | 20.78 | | | 19.85 | | |
| Approach LOS | F | | | F | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 177.64 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 0.560 | | | | | | | | | | | |

**Emissions**

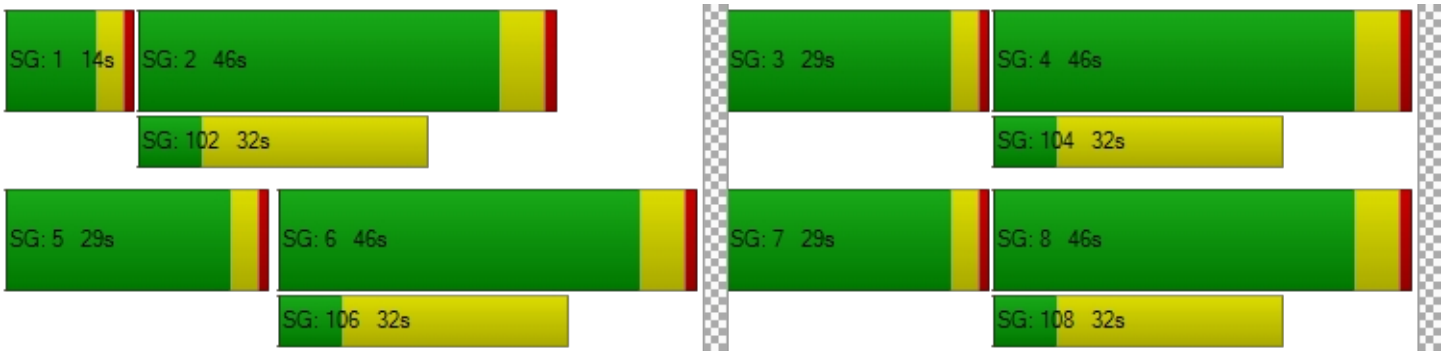
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 26.70 | 1.46 | 4.74 | 1.87 | 50.52 | 92.46 | 18.19 | 15.51 | 154.10 | 145.09 |
| Stops [stops/h] | 2117.30 | 17.05 | 626.81 | 50.35 | 93.59 | 86.90 | 16.82 | 31.09 | 168.74 | 192.35 |
| Fuel consumption [US gal/h] | 75.71 | 0.37 | 14.29 | 0.66 | 3.85 | 4.96 | 0.97 | 1.22 | 8.81 | 9.06 |
| CO [g/h] | 5292.04 | 25.82 | 998.82 | 45.84 | 269.17 | 346.48 | 67.63 | 85.56 | 615.91 | 633.58 |
| NOx [g/h] | 1029.64 | 5.02 | 194.33 | 8.92 | 52.37 | 67.41 | 13.16 | 16.65 | 119.83 | 123.27 |
| VOC [g/h] | 1226.48 | 5.98 | 231.49 | 10.62 | 62.38 | 80.30 | 15.67 | 19.83 | 142.74 | 146.84 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.14 | 19.14 | 19.14 | 19.14 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.246 | 2.161 | 2.913 | 2.978 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2371 | 1375 | 1375 | 1375 |
| d_b, Bicycle Delay [s] | 1.00 | 2.84 | 2.84 | 2.84 |
| l_b,int, Bicycle LOS Score for Intersection | 2.452 | 1.997 | 1.823 | 2.079 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | All-way stop | Delay (sec / veh): | 18.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.771 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 4 | 0 | 0 | 9 | 219 | 498 | 9 | 2 | 1 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 4 | 0 | 0 | 9 | 219 | 498 | 9 | 2 | 1 | 2 | 0 |
| Peak Hour Factor | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 | 0.8800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 0 | 0 | 3 | 62 | 141 | 3 | 1 | 0 | 1 | 0 |
| Total Analysis Volume [veh/h] | 3 | 5 | 0 | 0 | 10 | 249 | 566 | 10 | 2 | 1 | 2 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 3 | | |

**Intersection Settings**

**Lanes**

| | | | | |
|---|---|---|---|---|
| Capacity per Entry Lane [veh/h] | 611 | 741 | 750 | 663 |
| Degree of Utilization, x | 0.01 | 0.35 | 0.77 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| 95th-Percentile Queue Length [veh] | 0.04 | 1.57 | 7.49 | 0.01 |
| 95th-Percentile Queue Length [ft] | 0.99 | 39.25 | 187.15 | 0.34 |
| Approach Delay [s/veh] | 8.97 | 10.44 | 22.00 | 8.45 |
| Approach LOS | A | B | C | A |
| Intersection Delay [s/veh] | 18.30 | | | |
| Intersection LOS | C | | | |

**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Owens Mountain | | | Owens Mountain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.547 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration | | | | | | | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 347 | 4 | 0 | 180 | 131 | 11 | 237 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 347 | 4 | 0 | 180 | 131 | 11 | 237 |
| Peak Hour Factor | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 | 0.7900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 110 | 1 | 0 | 57 | 41 | 3 | 75 |
| Total Analysis Volume [veh/h] | 439 | 5 | 0 | 228 | 166 | 14 | 300 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 11 | 0 | 10 | 10 | 1 | 11 |
| g / C, Green / Cycle | 0.33 | 0.33 | 0.00 | 0.29 | 0.29 | 0.03 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.00 | 0.00 | 0.06 | 0.10 | 0.01 | 0.16 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 1880 |
| c, Capacity [veh/h] | 597 | 533 | 1 | 1044 | 461 | 55 | 599 |
| d1, Uniform Delay [s] | 10.13 | 7.70 | 0.00 | 9.23 | 9.65 | 16.19 | 9.44 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.67 | 0.00 | 0.00 | 0.14 | 0.65 | 0.89 | 0.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.01 | 0.00 | 0.22 | 0.36 | 0.25 | 0.50 |
| d, Delay for Lane Group [s/veh] | 10.80 | 7.70 | 0.00 | 9.38 | 10.31 | 17.07 | 10.33 |
| Lane Group LOS | B | A | A | A | B | B | B |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.12 | 0.02 | 0.00 | 0.38 | 0.63 | 0.10 | 1.42 |
| 50th-Percentile Queue Length [ft/ln] | 52.97 | 0.44 | 0.00 | 9.43 | 15.65 | 2.56 | 35.45 |
| 95th-Percentile Queue Length [veh/ln] | 3.81 | 0.03 | 0.00 | 0.68 | 1.13 | 0.18 | 2.55 |
| 95th-Percentile Queue Length [ft/ln] | 95.34 | 0.80 | 0.00 | 16.97 | 28.18 | 4.60 | 63.81 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 10.80 | 7.70 | 0.00 | 9.38 | 10.31 | 17.07 | 10.33 |
| Movement LOS | B | A | A | A | B | B | B |
| d_A, Approach Delay [s/veh] | 10.77 | | 9.77 | | | 10.63 | |
| Approach LOS | B | | A | | | B | |
| d_I, Intersection Delay [s/veh] | 10.39 | | | | | | |
| Intersection LOS | B | | | | | | |
| Intersection V/C | 0.547 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 328.55 | 3.74 | 0.00 | 114.07 | 83.05 | 18.17 | 389.45 |
| Stops [stops/h] | 224.12 | 1.88 | 0.00 | 79.80 | 66.23 | 10.82 | 149.98 |
| Fuel consumption [US gal/h] | 15.73 | 0.17 | 0.00 | 5.48 | 4.15 | 0.86 | 17.49 |
| CO [g/h] | 1099.41 | 12.04 | 0.00 | 383.06 | 289.82 | 59.88 | 1222.68 |
| NOx [g/h] | 213.90 | 2.34 | 0.00 | 74.53 | 56.39 | 11.65 | 237.89 |
| VOC [g/h] | 254.80 | 2.79 | 0.00 | 88.78 | 67.17 | 13.88 | 283.37 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.79 | 13.52 | 13.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.223 | 2.721 | 2.226 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1293 | 1880 | 1880 |
| d_b, Bicycle Delay [s] | 2.13 | 0.06 | 0.06 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.885 | 2.078 |
| Bicycle LOS | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 7.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 272 | 8 | 11 | 30 | 34 | 793 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 272 | 8 | 11 | 30 | 34 | 793 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 72 | 2 | 3 | 8 | 9 | 211 |
| Total Analysis Volume [veh/h] | 289 | 9 | 12 | 32 | 36 | 844 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 37 | | 289 | | 12 | |
| Exiting Flow Rate [veh/h] | 858 | | 46 | | 323 | |
| Demand Flow Rate [veh/h] | 272 | 8 | 11 | 30 | 34 | 793 |
| Adjusted Demand Flow Rate [veh/h] | 289 | 9 | 12 | 32 | 36 | 844 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 1.00 | 1.00 | 0.95 | 0.94 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 289 | 9 | 22 | 25 | 38 | 847 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1373 | 1373 | 1092 | 1092 | 1405 | 1405 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1373 | 1373 | 1042 | 1024 | 1365 | 1401 |
| X, volume / capacity | 0.21 | 0.01 | 0.02 | 0.02 | 0.03 | 0.60 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.80 | 0.02 | 0.06 | 0.07 | 0.08 | 4.29 |
| 95th-Percentile Queue Length [ft] | 19.88 | 0.49 | 1.52 | 1.75 | 2.03 | 107.19 |
| Approach Delay [s/veh] | 4.32 | | 3.67 | | 9.14 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 7.76 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 54.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.566 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 415.00 | 100.00 | 415.00 | 850.00 | 100.00 | 525.00 | 575.00 | 100.00 | 450.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 49 | 108 | 28 | 2 | 38 | 237 | 678 | 502 | 83 | 15 | 313 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 49 | 108 | 28 | 2 | 38 | 237 | 678 | 502 | 83 | 15 | 313 | 2 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 29 | 7 | 1 | 10 | 63 | 180 | 134 | 22 | 4 | 83 | 1 |
| Total Analysis Volume [veh/h] | 52 | 115 | 30 | 2 | 40 | 252 | 721 | 534 | 88 | 16 | 333 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 7 | 25 | 25 | 0 | 18 | 18 | 15 | 25 | 25 | 3 | 14 | 14 |
| g / C, Green / Cycle | 0.08 | 0.29 | 0.29 | 0.01 | 0.22 | 0.22 | 0.18 | 0.30 | 0.30 | 0.04 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.03 | 0.02 | 0.00 | 0.02 | 0.16 | 0.21 | 0.15 | 0.06 | 0.01 | 0.09 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 154 | 1009 | 475 | 11 | 393 | 345 | 630 | 1085 | 478 | 69 | 580 | 263 |
| d1, Uniform Delay [s] | 36.05 | 21.56 | 21.23 | 41.34 | 26.33 | 30.55 | 34.32 | 23.82 | 21.46 | 39.02 | 32.33 | 29.34 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.32 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.29 | 0.13 | 0.14 | 7.34 | 0.33 | 8.48 | 69.34 | 2.21 | 1.17 | 1.68 | 5.64 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.11 | 0.06 | 0.18 | 0.10 | 0.73 | 1.14 | 0.49 | 0.18 | 0.23 | 0.57 | 0.01 |
| d, Delay for Lane Group [s/veh] | 37.33 | 21.69 | 21.38 | 48.68 | 26.65 | 39.02 | 103.66 | 26.03 | 22.63 | 40.70 | 37.97 | 29.41 |
| Lane Group LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.04 | 0.82 | 0.43 | 0.06 | 0.66 | 5.39 | 12.27 | 4.49 | 1.39 | 0.35 | 3.49 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 25.93 | 20.51 | 10.78 | 1.58 | 16.54 | 134.74 | 306.69 | 112.37 | 34.78 | 8.65 | 87.34 | 0.96 |
| 95th-Percentile Queue Length [veh/ln] | 1.87 | 1.48 | 0.78 | 0.11 | 1.19 | 9.20 | 19.19 | 7.97 | 2.50 | 0.62 | 6.29 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 46.67 | 36.91 | 19.40 | 2.85 | 29.78 | 229.92 | 479.71 | 199.29 | 62.61 | 15.57 | 157.21 | 1.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.33 | 21.69 | 21.38 | 48.68 | 26.65 | 39.02 | 103.66 | 26.03 | 22.63 | 40.70 | 37.97 | 29.41 |
| Movement LOS | D | C | C | D | C | D | F | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 25.77 | | | 37.41 | | | 67.48 | | | 38.04 | | |
| Approach LOS | C | | | D | | | E | | | D | | |
| d_I, Intersection Delay [s/veh] | 54.95 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.566 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.46 | 9.87 | 2.57 | 0.23 | 4.62 | 29.12 | 99.64 | 73.80 | 12.16 | 19.96 | 415.32 | 2.49 |
| Stops [stops/h] | 44.72 | 70.74 | 18.59 | 2.73 | 28.53 | 232.42 | 1058.06 | 387.66 | 60.00 | 14.92 | 301.30 | 1.66 |
| Fuel consumption [US gal/h] | 0.83 | 1.30 | 0.34 | 0.04 | 0.56 | 4.48 | 25.15 | 8.01 | 1.24 | 1.04 | 21.33 | 0.12 |
| CO [g/h] | 57.72 | 91.20 | 23.71 | 3.10 | 39.49 | 313.44 | 1758.29 | 559.81 | 86.49 | 72.45 | 1491.30 | 8.65 |
| NOx [g/h] | 11.23 | 17.74 | 4.61 | 0.60 | 7.68 | 60.98 | 342.10 | 108.92 | 16.83 | 14.10 | 290.15 | 1.68 |
| VOC [g/h] | 13.38 | 21.14 | 5.50 | 0.72 | 9.15 | 72.64 | 407.50 | 129.74 | 20.05 | 16.79 | 345.62 | 2.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.47 | 31.47 | 31.47 | 31.47 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.362 | 2.516 | 2.865 | 2.597 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 479 | 479 | 958 | 958 |
| d_b, Bicycle Delay [s] | 24.14 | 24.14 | 11.32 | 11.32 |
| l_b,int, Bicycle LOS Score for Intersection | 1.722 | 2.045 | 2.668 | 1.849 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.212 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 635.00 | 100.00 | 100.00 | 935.00 | 100.00 | 470.00 | 450.00 | 100.00 | 550.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 39 | 2 | 66 | 35 | 59 | 171 | 350 | 31 | 1 | 233 | 78 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 39 | 2 | 66 | 35 | 59 | 171 | 350 | 31 | 1 | 233 | 78 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 11 | 1 | 18 | 10 | 16 | 46 | 95 | 8 | 0 | 63 | 21 |
| Total Analysis Volume [veh/h] | 18 | 42 | 2 | 72 | 38 | 64 | 186 | 380 | 34 | 1 | 253 | 85 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 11 | 7 | 15 | 15 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.16 | 0.11 | 0.23 | 0.23 | 0.14 | 0.28 | 0.28 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.02 | 0.02 | 0.04 | 0.05 | 0.11 | 0.02 | 0.00 | 0.07 | 0.03 |
| s, saturation flow rate [veh/h] | 1810 | 1809 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 292 | 390 | 434 | 369 | 504 | 1015 | 458 | 7 | 522 | 424 |
| d1, Uniform Delay [s] | 31.35 | 24.48 | 27.40 | 20.63 | 21.05 | 26.31 | 19.50 | 17.80 | 33.73 | 26.54 | 25.39 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 0.81 | 0.08 | 0.49 | 1.27 | 0.17 | 0.49 | 0.15 | 3.80 | 1.49 | 0.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.15 | 0.18 | 0.09 | 0.17 | 0.37 | 0.37 | 0.07 | 0.15 | 0.48 | 0.20 |
| d, Delay for Lane Group [s/veh] | 31.88 | 25.29 | 27.48 | 21.13 | 22.32 | 26.48 | 19.99 | 17.95 | 37.53 | 28.03 | 25.88 |
| Lane Group LOS | C | C | C | C | C | C | B | B | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.29 | 0.65 | 0.48 | 0.48 | 0.84 | 1.31 | 2.32 | 0.39 | 0.02 | 1.68 | 0.53 |
| 50th-Percentile Queue Length [ft/ln] | 7.16 | 16.19 | 12.00 | 11.89 | 21.12 | 32.77 | 57.99 | 9.66 | 0.53 | 42.06 | 13.37 |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 1.17 | 0.86 | 0.86 | 1.52 | 2.36 | 4.18 | 0.70 | 0.04 | 3.03 | 0.96 |
| 95th-Percentile Queue Length [ft/ln] | 12.89 | 29.15 | 21.61 | 21.40 | 38.02 | 58.99 | 104.39 | 17.38 | 0.96 | 75.70 | 24.07 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.88 | 25.29 | 25.29 | 27.48 | 21.13 | 22.32 | 26.48 | 19.99 | 17.95 | 37.53 | 28.03 | 25.88 |
| Movement LOS | C | C | C | C | C | C | C | B | B | D | C | C |
| d_A, Approach Delay [s/veh] | 27.20 | | | 24.20 | | | 21.88 | | | 27.52 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.212 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.33 | 3.26 | 93.47 | 49.33 | 83.08 | 231.98 | 473.94 | 42.41 | 0.17 | 43.76 | 14.70 |
| Stops [stops/h] | 15.23 | 34.43 | 51.05 | 25.27 | 44.90 | 139.34 | 246.59 | 20.53 | 1.13 | 178.83 | 56.86 |
| Fuel consumption [US gal/h] | 0.26 | 0.55 | 4.32 | 2.20 | 3.76 | 11.32 | 22.42 | 1.98 | 0.04 | 7.64 | 2.45 |
| CO [g/h] | 17.88 | 38.50 | 301.71 | 154.01 | 262.98 | 791.41 | 1567.06 | 138.63 | 3.02 | 534.19 | 171.03 |
| NOx [g/h] | 3.48 | 7.49 | 58.70 | 29.97 | 51.17 | 153.98 | 304.89 | 26.97 | 0.59 | 103.93 | 33.28 |
| VOC [g/h] | 4.14 | 8.92 | 69.93 | 35.69 | 60.95 | 183.42 | 363.18 | 32.13 | 0.70 | 123.80 | 39.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.76 | 23.76 | 23.76 | 23.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.968 | 2.569 | 2.708 | 2.818 |
| Crosswalk LOS | A | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 591 | 591 | 886 | 886 |
| d_b, Bicycle Delay [s] | 16.82 | 16.82 | 10.51 | 10.51 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.847 | 2.055 | 1.839 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.188 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 157 | 0 | 277 | 170 | 188 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 157 | 0 | 277 | 170 | 188 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 69 | 43 | 47 |
| Total Analysis Volume [veh/h] | 0 | 157 | 0 | 277 | 170 | 188 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.25 | 10.32 | 8.01 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.69 | 0.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 17.28 | 17.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.32 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.05 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.112 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 100 | 0 | 0 | 206 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 0 | 0 | 206 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 0 | 0 | 52 | 0 | 0 |
| Total Analysis Volume [veh/h] | 100 | 0 | 0 | 206 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.53 | 9.29 | 0.00 | 0.00 | 7.64 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.38 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 9.40 | 9.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.53 | | 0.00 | | 3.82 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.11 | | | | | |
| Intersection LOS | A | | | | | |

# Appendix G

## Level of Service Calculation Sheets – Cumulative Conditions

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Cumulative AM.pdf

Scenario 3 Cumulative AM
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.565 | 26.3 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Right | 0.529 | 27.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.578 | 30.8 | C |
| 4 | Minnewawa Ave & International Ave | Roundabout | HCM 7th Edition | SB Thru | | 4.5 | A |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.501 | 20.3 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.701 | 29.1 | C |
| 7 | Clovis Ave & International Ave | Signalized | HCM 7th Edition | NB Left | 0.421 | 8.5 | A |
| 8 | Clovis Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.595 | 12.4 | B |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.596 | 34.3 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.580 | 23.2 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.615 | 25.7 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | EB Left | 0.749 | 39.9 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.517 | 20.8 | C |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Right | 0.923 | 28.0 | C |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.438 | 17.8 | B |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.644 | 26.0 | C |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.679 | 25.6 | C |
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.519 | 30.3 | C |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.720 | 28.5 | C |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.135 | 53.8 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.807 | 39.3 | D |
| 23 | Fowler Ave & Teague Ave | Signalized | HCM 7th Edition | NB Left | 0.391 | 8.4 | A |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.598 | 17.5 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.712 | 25.4 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.830 | 30.2 | C |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.680 | 23.9 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.012 | 8.6 | A |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.024 | 23.0 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.167 | 22.9 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.465 | 18.0 | B |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | WB Left | 0.486 | 16.8 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | SB Left | | 18.5 | C |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.514 | 6.5 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.064 | 89.6 | F |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.199 | 9.7 | A |
| 37 | Locan Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.291 | 13.0 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Signalized | HCM 7th Edition | EB Left | 0.310 | 9.8 | A |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.231 | 7.4 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | SB Left | | 5.2 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Left | 0.506 | 34.6 | C |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.295 | 26.2 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | WB Thru | 0.008 | 0.0 | A |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | EB Right | 0.000 | 0.0 | A |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.500 | 10.3 | B |
| 4102 | Owens Mountain Parkway and SR 168 EB Ramp Ramps | Signalized | HCM 7th Edition | SB Left | 0.211 | 7.3 | A |
| 4201 | Shepherd Avenue & SR 168 WB Ramps | Signalized | HCM 7th Edition | NB Left | 0.301 | 8.2 | A |
| 4202 | Shepherd Avenue & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.156 | 7.3 | A |
| 4212 | New Intersection | Signalized | HCM 7th Edition | | 0.000 | 0.0 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.565 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 250.00 | 100.00 | 250.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.61 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 450 | 450 | 28 | 58 | 750 | 93 | 19 | 80 | 234 | 32 | 209 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 450 | 450 | 28 | 58 | 750 | 93 | 19 | 80 | 234 | 32 | 209 | 2 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 122 | 8 | 16 | 204 | 25 | 5 | 22 | 64 | 9 | 57 | 1 |
| Total Analysis Volume [veh/h] | 489 | 489 | 30 | 63 | 815 | 101 | 21 | 87 | 254 | 35 | 227 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 13 | 32 | 32 | 6 | 24 | 24 | 3 | 16 | 16 | 4 | 17 | 17 |
| g / C, Green / Cycle | 0.17 | 0.40 | 0.40 | 0.08 | 0.30 | 0.30 | 0.04 | 0.20 | 0.20 | 0.05 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.10 | 0.02 | 0.02 | 0.16 | 0.06 | 0.01 | 0.02 | 0.16 | 0.02 | 0.06 | 0.00 |
| s, saturation flow rate [veh/h] | 3475 | 5094 | 1615 | 3417 | 5065 | 1573 | 3514 | 3575 | 1602 | 1810 | 3606 | 1564 |
| c, Capacity [veh/h] | 586 | 2050 | 650 | 260 | 1506 | 468 | 132 | 733 | 328 | 99 | 773 | 335 |
| d1, Uniform Delay [s] | 31.95 | 15.68 | 14.44 | 34.54 | 23.36 | 20.95 | 36.99 | 25.72 | 29.82 | 36.19 | 26.16 | 24.54 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.23 | 0.19 | 0.09 | 0.18 | 0.99 | 0.74 | 0.21 | 0.17 | 8.78 | 0.80 | 0.36 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.24 | 0.05 | 0.24 | 0.54 | 0.22 | 0.16 | 0.12 | 0.77 | 0.35 | 0.29 | 0.01 |
| d, Delay for Lane Group [s/veh] | 33.17 | 15.87 | 14.54 | 34.72 | 24.35 | 21.69 | 37.20 | 25.89 | 38.60 | 36.99 | 26.51 | 24.55 |
| Lane Group LOS | C | B | B | C | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.23 | 1.73 | 0.30 | 0.54 | 3.92 | 1.36 | 0.19 | 0.64 | 5.01 | 0.66 | 1.78 | 0.03 |
| 50th-Percentile Queue Length [ft/ln] | 105.76 | 43.13 | 7.58 | 13.44 | 97.93 | 33.92 | 4.75 | 15.97 | 125.21 | 16.55 | 44.62 | 0.75 |
| 95th-Percentile Queue Length [veh/ln] | 7.60 | 3.11 | 0.55 | 0.97 | 7.05 | 2.44 | 0.34 | 1.15 | 8.68 | 1.19 | 3.21 | 0.05 |
| 95th-Percentile Queue Length [ft/ln] | 190.09 | 77.64 | 13.65 | 24.19 | 176.28 | 61.05 | 8.55 | 28.75 | 216.96 | 29.79 | 80.31 | 1.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.17 | 15.87 | 14.54 | 34.72 | 24.35 | 21.69 | 37.20 | 25.89 | 38.60 | 36.99 | 26.51 | 24.55 |
| Movement LOS | C | B | B | C | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 24.23 | | | 24.74 | | | 35.46 | | | 27.89 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.34 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.565 | | | | | | | | | | | |

**Emissions**

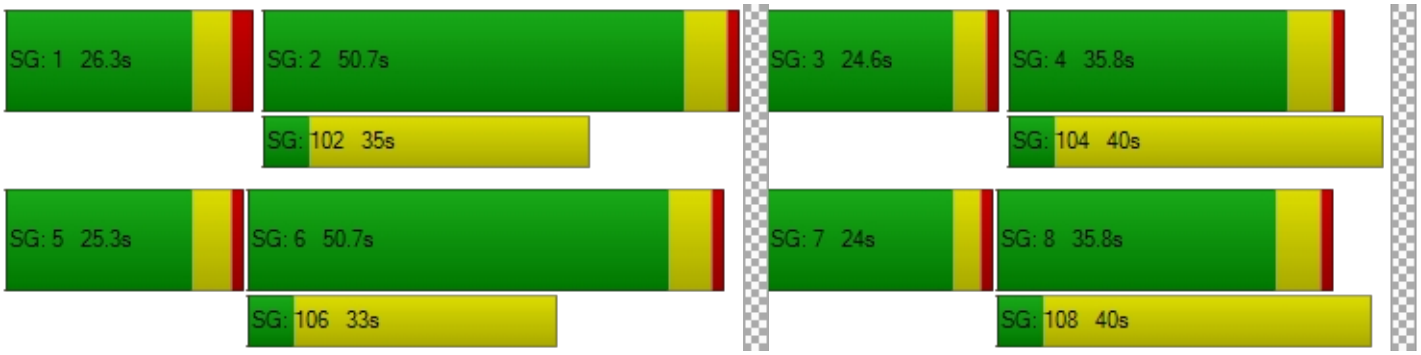
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 246.85 | 246.85 | 15.14 | 6.21 | 80.28 | 9.95 | 1.99 | 8.24 | 24.05 | 18.58 | 120.50 | 1.06 |
| Stops [stops/h] | 384.34 | 235.11 | 13.78 | 48.83 | 533.82 | 61.63 | 17.25 | 58.03 | 227.50 | 30.07 | 162.14 | 1.36 |
| Fuel consumption [US gal/h] | 17.47 | 13.46 | 0.81 | 1.40 | 14.92 | 1.72 | 0.44 | 1.46 | 5.65 | 1.19 | 7.08 | 0.06 |
| CO [g/h] | 1220.97 | 940.52 | 56.44 | 98.03 | 1042.94 | 120.57 | 30.87 | 102.22 | 394.79 | 83.49 | 494.97 | 4.28 |
| NOx [g/h] | 237.56 | 182.99 | 10.98 | 19.07 | 202.92 | 23.46 | 6.01 | 19.89 | 76.81 | 16.24 | 96.30 | 0.83 |
| VOC [g/h] | 282.97 | 217.97 | 13.08 | 22.72 | 241.71 | 27.94 | 7.15 | 23.69 | 91.50 | 19.35 | 114.71 | 0.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.14 | 31.14 | 31.14 | 31.14 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.305 | 3.114 | 2.835 | 2.651 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1136 | 1136 | 757 | 757 |
| d_b, Bicycle Delay [s] | 7.40 | 7.40 | 15.30 | 15.30 |
| l_b,int, Bicycle LOS Score for Intersection | 2.114 | 2.098 | 1.858 | 1.777 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.529 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 120 | 642 | 60 | 88 | 875 | 83 | 76 | 145 | 253 | 167 | 226 | 231 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 120 | 642 | 60 | 88 | 875 | 83 | 76 | 145 | 253 | 167 | 226 | 231 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 174 | 16 | 24 | 238 | 23 | 21 | 39 | 69 | 45 | 61 | 63 |
| Total Analysis Volume [veh/h] | 130 | 698 | 65 | 96 | 951 | 90 | 83 | 158 | 275 | 182 | 246 | 251 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 | 4.50 |
| g_i, Effective Green Time [s] | 8 | 28 | 28 | 7 | 28 | 28 | 7 | 18 | 18 | 8 | 17 | 17 |
| g / C, Green / Cycle | 0.09 | 0.34 | 0.34 | 0.09 | 0.33 | 0.33 | 0.08 | 0.21 | 0.21 | 0.09 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.14 | 0.04 | 0.03 | 0.19 | 0.06 | 0.02 | 0.04 | 0.17 | 0.05 | 0.07 | 0.16 |
| s, saturation flow rate [veh/h] | 3392 | 5127 | 1567 | 3323 | 5090 | 1615 | 3442 | 3595 | 1577 | 3414 | 3580 | 1597 |
| c, Capacity [veh/h] | 310 | 1738 | 531 | 286 | 1697 | 539 | 284 | 775 | 340 | 323 | 747 | 333 |
| d1, Uniform Delay [s] | 35.82 | 21.11 | 19.02 | 35.90 | 22.80 | 19.63 | 36.01 | 26.86 | 31.11 | 36.13 | 28.06 | 31.01 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.34 | 0.49 | 0.33 | 0.26 | 0.95 | 0.47 | 0.21 | 0.16 | 5.50 | 0.57 | 0.57 | 7.50 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.42 | 0.40 | 0.12 | 0.34 | 0.56 | 0.17 | 0.29 | 0.20 | 0.81 | 0.56 | 0.33 | 0.75 |
| d, Delay for Lane Group [s/veh] | 36.16 | 21.60 | 19.36 | 36.16 | 23.75 | 20.10 | 36.22 | 27.02 | 36.61 | 36.71 | 28.64 | 38.51 |
| Lane Group LOS | D | C | B | D | C | C | D | C | D | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.18 | 3.18 | 0.83 | 0.87 | 4.68 | 1.18 | 0.77 | 1.24 | 5.46 | 1.76 | 2.10 | 5.29 |
| 50th-Percentile Queue Length [ft/ln] | 29.45 | 79.38 | 20.72 | 21.69 | 117.03 | 29.46 | 19.22 | 31.03 | 136.39 | 44.02 | 52.43 | 132.22 |
| 95th-Percentile Queue Length [veh/ln] | 2.12 | 5.72 | 1.49 | 1.56 | 8.23 | 2.12 | 1.38 | 2.23 | 9.29 | 3.17 | 3.78 | 9.06 |
| 95th-Percentile Queue Length [ft/ln] | 53.02 | 142.88 | 37.29 | 39.04 | 205.73 | 53.04 | 34.60 | 55.85 | 232.15 | 79.24 | 94.38 | 226.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.16 | 21.60 | 19.36 | 36.16 | 23.75 | 20.10 | 36.22 | 27.02 | 36.61 | 36.71 | 28.64 | 38.51 |
| Movement LOS | D | C | B | D | C | C | D | C | D | D | C | D |
| d_A, Approach Delay [s/veh] | 23.55 | | | 24.51 | | | 33.61 | | | 34.45 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.79 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.529 | | | | | | | | | | | |

**Emissions**

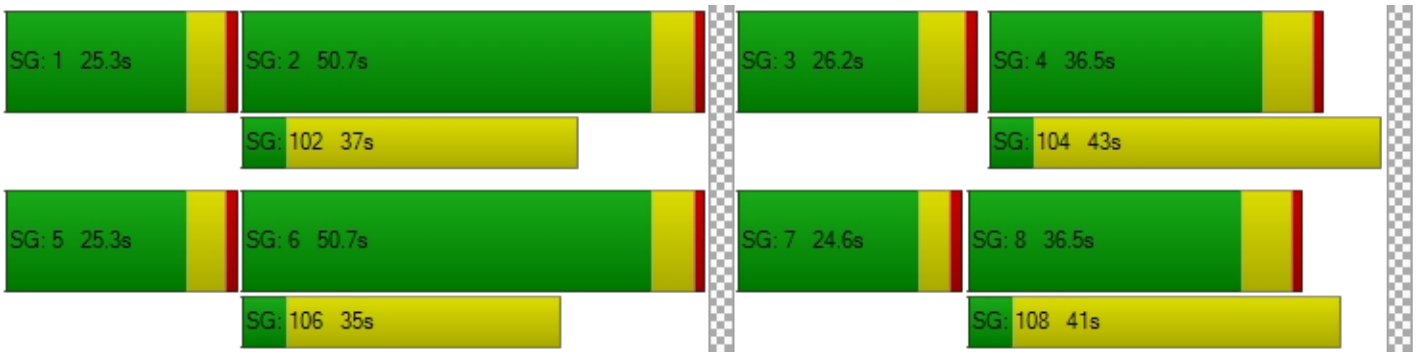
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 131.70 | 707.12 | 65.85 | 48.46 | 480.07 | 45.43 | 9.03 | 17.19 | 29.92 | 188.81 | 255.21 | 260.40 |
| Stops [stops/h] | 101.88 | 411.88 | 35.83 | 75.02 | 607.21 | 50.96 | 66.49 | 107.34 | 235.89 | 152.28 | 181.37 | 228.69 |
| Fuel consumption [US gal/h] | 6.93 | 33.07 | 3.01 | 3.48 | 29.99 | 2.67 | 1.59 | 2.54 | 5.44 | 9.97 | 12.94 | 13.95 |
| CO [g/h] | 484.46 | 2311.62 | 210.49 | 243.31 | 2096.51 | 186.77 | 111.02 | 177.47 | 380.09 | 697.15 | 904.62 | 975.10 |
| NOx [g/h] | 94.26 | 449.76 | 40.95 | 47.34 | 407.90 | 36.34 | 21.60 | 34.53 | 73.95 | 135.64 | 176.01 | 189.72 |
| VOC [g/h] | 112.28 | 535.74 | 48.78 | 56.39 | 485.89 | 43.29 | 25.73 | 41.13 | 88.09 | 161.57 | 209.66 | 225.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.12 | 33.12 | 33.12 | 33.12 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.262 | 3.317 | 2.774 | 2.731 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1081 | 1081 | 721 | 721 |
| d_b, Bicycle Delay [s] | 8.79 | 8.79 | 17.03 | 17.03 |
| l_b,int, Bicycle LOS Score for Intersection | 2.051 | 2.185 | 1.985 | 2.120 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.578 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 215 | 594 | 35 | 185 | 1100 | 144 | 81 | 316 | 159 | 74 | 572 | 178 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 215 | 594 | 35 | 185 | 1100 | 144 | 81 | 316 | 159 | 74 | 572 | 178 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 58 | 161 | 10 | 50 | 299 | 39 | 22 | 86 | 43 | 20 | 155 | 48 |
| Total Analysis Volume [veh/h] | 234 | 646 | 38 | 201 | 1196 | 157 | 88 | 343 | 173 | 80 | 622 | 193 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 33 | 33 | 8 | 32 | 32 | 7 | 19 | 19 | 7 | 20 | 20 |
| g / C, Green / Cycle | 0.09 | 0.36 | 0.36 | 0.09 | 0.35 | 0.35 | 0.08 | 0.21 | 0.21 | 0.08 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.13 | 0.02 | 0.06 | 0.23 | 0.10 | 0.03 | 0.10 | 0.11 | 0.02 | 0.17 | 0.12 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1541 | 3467 | 3526 | 1563 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 320 | 1839 | 579 | 297 | 1799 | 544 | 272 | 726 | 322 | 269 | 774 | 345 |
| d1, Uniform Delay [s] | 40.62 | 21.63 | 19.36 | 40.72 | 25.13 | 21.38 | 40.06 | 32.12 | 32.53 | 40.13 | 34.14 | 32.08 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.22 | 0.37 | 0.15 | 1.01 | 1.38 | 0.94 | 0.25 | 1.13 | 3.27 | 0.23 | 2.74 | 1.95 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.35 | 0.07 | 0.68 | 0.66 | 0.29 | 0.32 | 0.47 | 0.54 | 0.30 | 0.80 | 0.56 |
| d, Delay for Lane Group [s/veh] | 41.84 | 22.00 | 19.52 | 41.73 | 26.52 | 22.32 | 40.31 | 33.24 | 35.80 | 40.35 | 36.89 | 34.03 |
| Lane Group LOS | D | C | B | D | C | C | D | C | D | D | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.48 | 3.15 | 0.51 | 2.12 | 6.83 | 2.35 | 0.90 | 3.24 | 3.48 | 0.82 | 6.38 | 3.74 |
| 50th-Percentile Queue Length [ft/ln] | 62.02 | 78.86 | 12.82 | 53.01 | 170.85 | 58.85 | 22.46 | 80.96 | 87.12 | 20.41 | 159.60 | 93.43 |
| 95th-Percentile Queue Length [veh/ln] | 4.47 | 5.68 | 0.92 | 3.82 | 11.12 | 4.24 | 1.62 | 5.83 | 6.27 | 1.47 | 10.53 | 6.73 |
| 95th-Percentile Queue Length [ft/ln] | 111.64 | 141.94 | 23.08 | 95.41 | 278.04 | 105.94 | 40.42 | 145.73 | 156.82 | 36.74 | 263.19 | 168.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.84 | 22.00 | 19.52 | 41.73 | 26.52 | 22.32 | 40.31 | 33.24 | 35.80 | 40.35 | 36.89 | 34.03 |
| Movement LOS | D | C | B | D | C | C | D | C | D | D | D | C |
| d_A, Approach Delay [s/veh] | 26.96 | | | 28.06 | | | 35.00 | | | 36.58 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 30.78 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.578 | | | | | | | | | | | |

**Emissions**

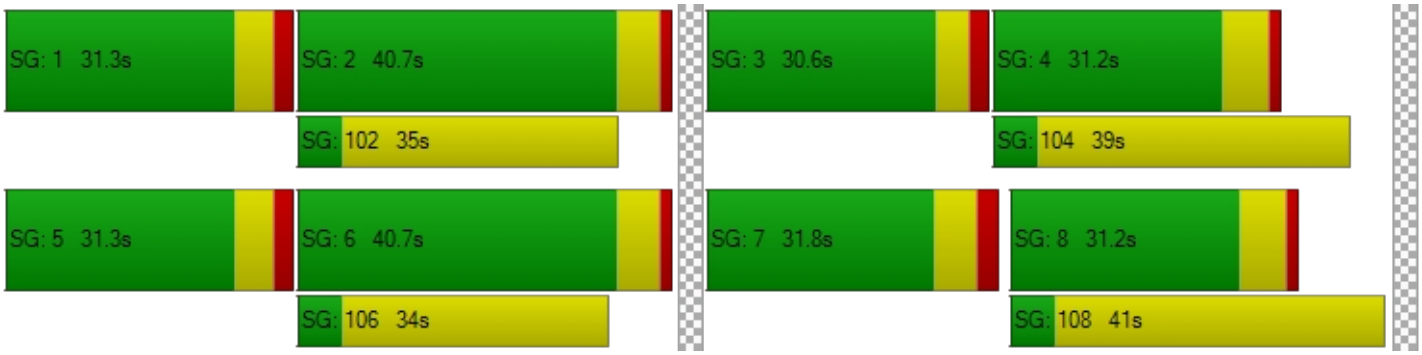
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.18 | 105.40 | 6.20 | 203.63 | 1211.63 | 159.05 | 11.50 | 44.82 | 22.61 | 82.89 | 644.44 | 199.96 |
| Stops [stops/h] | 194.78 | 371.46 | 20.13 | 166.46 | 804.81 | 92.41 | 70.52 | 254.24 | 136.80 | 64.10 | 501.20 | 146.71 |
| Fuel consumption [US gal/h] | 6.26 | 12.12 | 0.67 | 11.08 | 59.38 | 7.46 | 2.19 | 7.72 | 4.12 | 4.42 | 33.94 | 10.28 |
| CO [g/h] | 437.62 | 847.51 | 46.66 | 774.58 | 4150.85 | 521.31 | 153.05 | 539.90 | 287.79 | 308.71 | 2372.63 | 718.90 |
| NOx [g/h] | 85.15 | 164.89 | 9.08 | 150.70 | 807.61 | 101.43 | 29.78 | 105.05 | 55.99 | 60.06 | 461.63 | 139.87 |
| VOC [g/h] | 101.42 | 196.42 | 10.81 | 179.52 | 962.00 | 120.82 | 35.47 | 125.13 | 66.70 | 71.55 | 549.88 | 166.61 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 7533.69 | 0.00 | 420.88 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.30 | 37.30 | 37.30 | 37.30 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.279 | 3.372 | 2.972 | 3.028 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 763 | 763 | 545 | 545 |
| d_b, Bicycle Delay [s] | 17.53 | 17.53 | 24.30 | 24.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.065 | 2.414 | 2.058 | 2.298 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 4.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 8 | 0 | 10 | 149 | 31 | 10 | 45 | 115 | 0 | 20 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 151 | 8 | 0 | 10 | 149 | 31 | 10 | 45 | 115 | 0 | 20 | 9 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 2 | 0 | 3 | 40 | 8 | 3 | 12 | 31 | 0 | 5 | 2 |
| Total Analysis Volume [veh/h] | 164 | 9 | 0 | 11 | 162 | 34 | 11 | 49 | 125 | 0 | 22 | 10 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 71 | | | 188 | | | 178 | | | 187 | | |
| Exiting Flow Rate [veh/h] | 297 | | | 31 | | | 227 | | | 60 | | |
| Demand Flow Rate [veh/h] | 151 | 8 | 0 | 10 | 149 | 31 | 10 | 45 | 115 | 0 | 20 | 9 |
| Adjusted Demand Flow Rate [veh/h] | 164 | 9 | 0 | 11 | 162 | 34 | 11 | 49 | 125 | 0 | 22 | 10 |

**Lanes**

| | | | | |
|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1380.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00102 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.96 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 176 | 217 | 190 | 32 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1284 | 1139 | 1151 | 1141 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1263 | 1092 | 1121 | 1141 |
| X, volume / capacity | 0.14 | 0.19 | 0.17 | 0.03 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| Lane LOS | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.47 | 0.70 | 0.59 | 0.09 |
| 95th-Percentile Queue Length [ft] | 11.87 | 17.45 | 14.75 | 2.16 |
| Approach Delay [s/veh] | 3.99 | 5.02 | 4.67 | 3.39 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 4.52 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.501 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 85 | 40 | 19 | 148 | 148 | 82 | 24 | 188 | 78 | 19 | 341 | 248 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 85 | 40 | 19 | 148 | 148 | 82 | 24 | 188 | 78 | 19 | 341 | 248 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 11 | 5 | 39 | 39 | 22 | 6 | 50 | 21 | 5 | 91 | 66 |
| Total Analysis Volume [veh/h] | 90 | 43 | 20 | 157 | 157 | 87 | 26 | 200 | 83 | 20 | 363 | 264 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 11 | 10 | 13 | 4 | 19 | 19 | 3 | 18 | 18 |
| g / C, Green / Cycle | 0.14 | 0.19 | 0.17 | 0.22 | 0.07 | 0.32 | 0.32 | 0.05 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.04 | 0.09 | 0.14 | 0.01 | 0.11 | 0.05 | 0.01 | 0.19 | 0.17 |
| s, saturation flow rate [veh/h] | 1777 | 1724 | 1744 | 1730 | 1810 | 1856 | 1615 | 1810 | 1874 | 1600 |
| c, Capacity [veh/h] | 256 | 324 | 299 | 373 | 118 | 592 | 515 | 96 | 574 | 489 |
| d1, Uniform Delay [s] | 22.97 | 20.36 | 22.45 | 21.32 | 26.38 | 15.49 | 14.57 | 27.01 | 17.78 | 17.17 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.31 | 0.31 | 0.53 | 2.76 | 0.34 | 0.51 | 0.22 | 0.40 | 1.91 | 1.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.35 | 0.19 | 0.52 | 0.65 | 0.22 | 0.34 | 0.16 | 0.21 | 0.63 | 0.54 |
| d, Delay for Lane Group [s/veh] | 23.28 | 20.68 | 22.98 | 24.08 | 26.72 | 16.00 | 14.79 | 27.40 | 19.69 | 18.69 |
| Lane Group LOS | C | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.09 | 0.72 | 1.90 | 3.14 | 0.34 | 1.96 | 0.76 | 0.27 | 4.16 | 2.91 |
| 50th-Percentile Queue Length [ft/ln] | 27.15 | 17.88 | 47.55 | 78.52 | 8.54 | 48.90 | 19.06 | 6.70 | 103.92 | 72.84 |
| 95th-Percentile Queue Length [veh/ln] | 1.95 | 1.29 | 3.42 | 5.65 | 0.61 | 3.52 | 1.37 | 0.48 | 7.48 | 5.24 |
| 95th-Percentile Queue Length [ft/ln] | 48.87 | 32.19 | 85.58 | 141.34 | 15.37 | 88.03 | 34.31 | 12.06 | 187.06 | 131.11 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.28 | 20.68 | 20.68 | 22.98 | 24.08 | 24.08 | 26.72 | 16.00 | 14.79 | 27.40 | 19.69 | 18.69 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 22.21 | | | 23.65 | | | 16.58 | | | 19.52 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 20.29 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.501 | | | | | | | | | | | |

**Emissions**

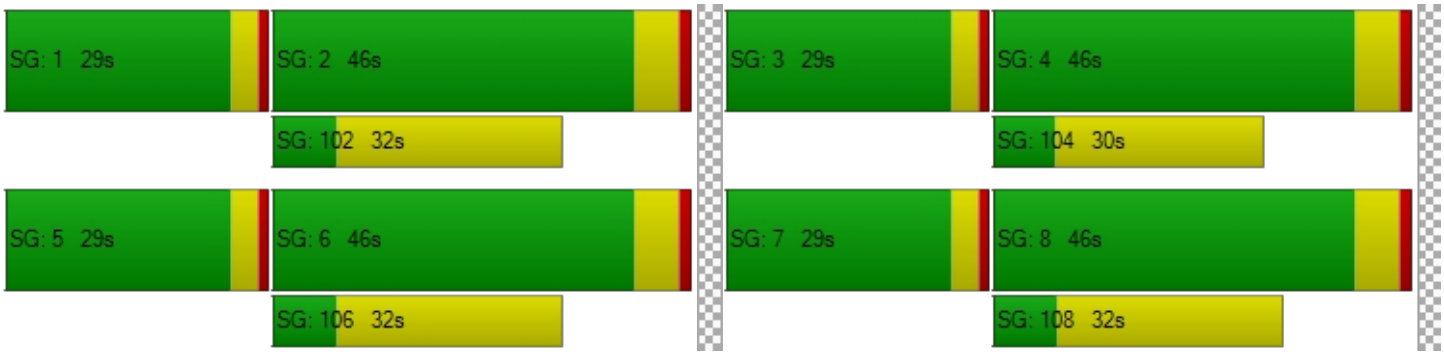
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 90.42 | 63.30 | 79.03 | 122.83 | 26.97 | 207.49 | 86.11 | 12.28 | 222.82 | 162.05 |
| Stops [stops/h] | 65.88 | 43.40 | 115.38 | 190.54 | 20.73 | 118.67 | 46.26 | 16.26 | 252.19 | 176.75 |
| Fuel consumption [US gal/h] | 4.51 | 3.11 | 4.63 | 7.30 | 1.37 | 9.85 | 4.05 | 0.71 | 12.02 | 8.65 |
| CO [g/h] | 315.44 | 217.43 | 323.30 | 510.59 | 95.50 | 688.41 | 283.10 | 49.40 | 840.23 | 604.77 |
| NOx [g/h] | 61.37 | 42.30 | 62.90 | 99.34 | 18.58 | 133.94 | 55.08 | 9.61 | 163.48 | 117.67 |
| VOC [g/h] | 73.11 | 50.39 | 74.93 | 118.33 | 22.13 | 159.54 | 65.61 | 11.45 | 194.73 | 140.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.69 | 19.69 | 19.69 | 19.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.209 | 2.156 | 2.568 | 2.357 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1348 | 1348 | 1348 | 1348 |
| d_b, Bicycle Delay [s] | 3.15 | 3.15 | 3.15 | 3.15 |
| l_b,int, Bicycle LOS Score for Intersection | 1.812 | 2.221 | 2.069 | 2.627 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.701 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 132 | 18 | 59 | 28 | 347 | 75 | 49 | 476 | 117 | 188 | 543 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 18 | 59 | 28 | 347 | 75 | 49 | 476 | 117 | 188 | 543 | 4 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 5 | 16 | 8 | 94 | 20 | 13 | 129 | 32 | 51 | 148 | 1 |
| Total Analysis Volume [veh/h] | 143 | 20 | 64 | 30 | 377 | 82 | 53 | 517 | 127 | 204 | 590 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 29 | 29 | 5 | 24 | 8 | 17 | 17 | 11 | 20 | 20 |
| g / C, Green / Cycle | 0.13 | 0.37 | 0.37 | 0.07 | 0.31 | 0.10 | 0.22 | 0.22 | 0.14 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.01 | 0.04 | 0.02 | 0.25 | 0.03 | 0.15 | 0.08 | 0.11 | 0.16 | 0.00 |
| s, saturation flow rate [veh/h] | 1774 | 3532 | 1517 | 1794 | 1818 | 1711 | 3512 | 1597 | 1810 | 3578 | 1568 |
| c, Capacity [veh/h] | 238 | 1315 | 565 | 122 | 556 | 165 | 759 | 345 | 252 | 926 | 406 |
| d1, Uniform Delay [s] | 31.91 | 15.52 | 16.11 | 34.60 | 25.25 | 32.97 | 28.21 | 26.13 | 32.69 | 25.76 | 21.57 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.41 | 0.00 | 0.09 | 1.04 | 3.18 | 1.10 | 1.09 | 0.65 | 6.09 | 0.73 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.60 | 0.02 | 0.11 | 0.25 | 0.83 | 0.32 | 0.68 | 0.37 | 0.81 | 0.64 | 0.01 |
| d, Delay for Lane Group [s/veh] | 34.32 | 15.52 | 16.20 | 35.64 | 28.43 | 34.07 | 29.30 | 26.78 | 38.77 | 26.49 | 21.58 |
| Lane Group LOS | C | B | B | D | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.53 | 0.10 | 0.69 | 0.54 | 7.56 | 0.92 | 4.12 | 1.89 | 3.85 | 4.44 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 63.17 | 2.55 | 17.15 | 13.60 | 189.01 | 22.89 | 103.10 | 47.17 | 96.23 | 110.97 | 1.26 |
| 95th-Percentile Queue Length [veh/ln] | 4.55 | 0.18 | 1.24 | 0.98 | 12.07 | 1.65 | 7.42 | 3.40 | 6.93 | 7.89 | 0.09 |
| 95th-Percentile Queue Length [ft/ln] | 113.71 | 4.59 | 30.88 | 24.47 | 301.74 | 41.21 | 185.58 | 84.91 | 173.22 | 197.36 | 2.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.32 | 15.52 | 16.20 | 35.64 | 28.43 | 28.43 | 34.07 | 29.30 | 26.78 | 38.77 | 26.49 | 21.58 |
| Movement LOS | C | B | B | D | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.55 | | | 28.87 | | | 29.21 | | | 29.61 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.701 | | | | | | | | | | | |

**Emissions**

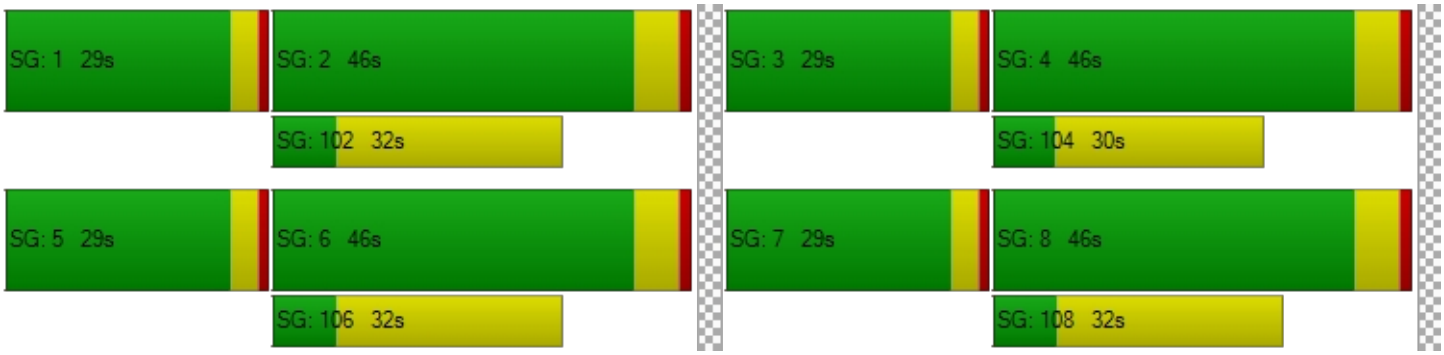
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 17.12 | 2.39 | 7.66 | 30.14 | 461.16 | 54.91 | 535.65 | 131.58 | 102.16 | 295.46 | 2.00 |
| Stops [stops/h] | 116.41 | 9.40 | 31.61 | 25.05 | 348.31 | 42.19 | 380.00 | 86.93 | 177.34 | 409.02 | 2.32 |
| Fuel consumption [US gal/h] | 3.03 | 0.26 | 0.87 | 1.56 | 22.79 | 2.85 | 26.85 | 6.43 | 7.75 | 19.35 | 0.12 |
| CO [g/h] | 212.01 | 18.32 | 60.58 | 109.20 | 1593.29 | 199.50 | 1877.08 | 449.67 | 541.93 | 1352.84 | 8.41 |
| NOx [g/h] | 41.25 | 3.57 | 11.79 | 21.25 | 310.00 | 38.81 | 365.21 | 87.49 | 105.44 | 263.21 | 1.64 |
| VOC [g/h] | 49.13 | 4.25 | 14.04 | 25.31 | 369.26 | 46.24 | 435.03 | 104.22 | 125.60 | 313.53 | 1.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 4917.66 | 0.00 | 11497.14 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.84 | 28.84 | 28.84 | 28.84 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.565 | 2.330 | 2.854 | 2.827 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1024 | 1024 | 1024 | 1024 |
| d_b, Bicycle Delay [s] | 9.31 | 9.31 | 9.31 | 9.31 |
| l_b,int, Bicycle LOS Score for Intersection | 1.747 | 2.366 | 2.135 | 2.218 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.421 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 302 | 0 | 12 | 886 | 0 | 0 | 2 | 37 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 302 | 0 | 12 | 886 | 0 | 0 | 2 | 37 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 82 | 0 | 3 | 241 | 0 | 0 | 1 | 10 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 7 | 328 | 0 | 13 | 963 | 0 | 0 | 2 | 40 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 18 | 18 | 2 | 20 | 20 | 0 | 6 | 6 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.01 | 0.45 | 0.45 | 0.04 | 0.47 | 0.47 | 0.00 | 0.13 | 0.13 | 0.00 | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.09 | 0.00 | 0.01 | 0.27 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 17 | 1586 | 708 | 67 | 1686 | 753 | 0 | 248 | 211 | 0 | 248 | 211 |
| d1, Uniform Delay [s] | 20.52 | 7.06 | 0.00 | 19.44 | 7.92 | 0.00 | 0.00 | 15.69 | 16.08 | 0.00 | 0.00 | 0.00 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.59 | 0.07 | 0.00 | 0.51 | 0.44 | 0.00 | 0.00 | 0.02 | 0.66 | 0.00 | 0.00 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.21 | 0.00 | 0.19 | 0.57 | 0.00 | 0.00 | 0.01 | 0.19 | 0.00 | 0.00 | 0.00 |
| d, Delay for Lane Group [s/veh] | 26.11 | 7.13 | 0.00 | 19.95 | 8.36 | 0.00 | 0.00 | 15.71 | 16.73 | 0.00 | 0.00 | 0.00 |
| Lane Group LOS | C | A | A | B | A | A | A | B | B | A | A | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.09 | 0.65 | 0.00 | 0.12 | 2.21 | 0.00 | 0.00 | 0.02 | 0.33 | 0.00 | 0.00 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 2.17 | 16.28 | 0.00 | 2.93 | 55.34 | 0.00 | 0.00 | 0.39 | 8.28 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 1.17 | 0.00 | 0.21 | 3.98 | 0.00 | 0.00 | 0.03 | 0.60 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.91 | 29.31 | 0.00 | 5.28 | 99.62 | 0.00 | 0.00 | 0.70 | 14.90 | 0.00 | 0.00 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.11 | 7.13 | 0.00 | 19.95 | 8.36 | 0.00 | 0.00 | 15.71 | 16.73 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | A | A | B | A | A | A | B | B | A | A | A |
| d_A, Approach Delay [s/veh] | 7.53 | | | 8.51 | | | 16.69 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.52 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.421 | | | | | | | | | | | |

**Emissions**

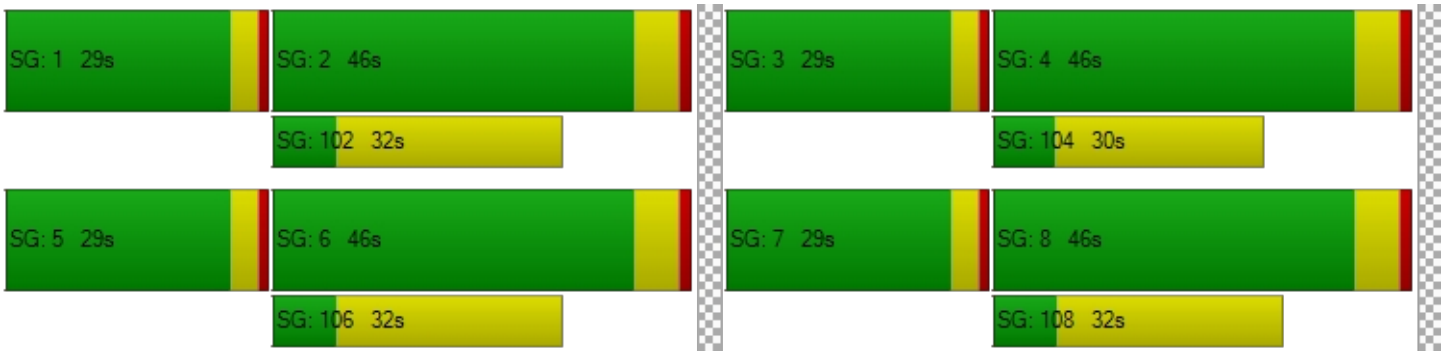
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.66 | 171.43 | 0.00 | 0.31 | 22.75 | 0.00 | 0.00 | 1.51 | 30.17 | 0.00 | 0.00 | 0.00 |
| Stops [stops/h] | 7.53 | 112.85 | 0.00 | 10.16 | 383.54 | 0.00 | 0.00 | 1.35 | 28.69 | 0.00 | 0.00 | 0.00 |
| Fuel consumption [US gal/h] | 0.23 | 8.16 | 0.00 | 0.12 | 4.69 | 0.00 | 0.00 | 0.08 | 1.54 | 0.00 | 0.00 | 0.00 |
| CO [g/h] | 16.03 | 570.15 | 0.00 | 8.50 | 328.08 | 0.00 | 0.00 | 5.31 | 107.43 | 0.00 | 0.00 | 0.00 |
| NOx [g/h] | 3.12 | 110.93 | 0.00 | 1.65 | 63.83 | 0.00 | 0.00 | 1.03 | 20.90 | 0.00 | 0.00 | 0.00 |
| VOC [g/h] | 3.72 | 132.14 | 0.00 | 1.97 | 76.04 | 0.00 | 0.00 | 1.23 | 24.90 | 0.00 | 0.00 | 0.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.24 | 11.24 | 11.24 | 11.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.735 | 2.619 | 2.097 | 2.089 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1925 | 1925 | 1925 | 1925 |
| d_b, Bicycle Delay [s] | 0.03 | 0.03 | 0.03 | 0.03 |
| l_b,int, Bicycle LOS Score for Intersection | 1.836 | 2.365 | 1.629 | 1.560 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.595 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 90 | 342 | 0 | 9 | 1279 | 3 | 0 | 4 | 56 | 0 | 50 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 90 | 342 | 0 | 9 | 1279 | 3 | 0 | 4 | 56 | 0 | 50 | 1 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 93 | 0 | 2 | 348 | 1 | 0 | 1 | 15 | 0 | 14 | 0 |
| Total Analysis Volume [veh/h] | 98 | 372 | 0 | 10 | 1390 | 3 | 0 | 4 | 61 | 0 | 54 | 1 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 38 | 38 | 2 | 35 | 35 | 0 | 8 | 8 | 0 | 8 | 8 |
| g / C, Green / Cycle | 0.07 | 0.59 | 0.59 | 0.03 | 0.55 | 0.55 | 0.00 | 0.13 | 0.13 | 0.00 | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.10 | 0.00 | 0.01 | 0.39 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.03 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 129 | 2115 | 944 | 51 | 1957 | 874 | 0 | 240 | 204 | 0 | 240 | 204 |
| d1, Uniform Delay [s] | 29.20 | 5.91 | 0.00 | 30.46 | 10.67 | 6.52 | 0.00 | 24.44 | 25.36 | 0.00 | 25.11 | 24.40 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.39 | 0.04 | 0.00 | 0.70 | 0.69 | 0.00 | 0.00 | 0.04 | 1.24 | 0.00 | 0.78 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.18 | 0.00 | 0.20 | 0.71 | 0.00 | 0.00 | 0.02 | 0.30 | 0.00 | 0.23 | 0.00 |
| d, Delay for Lane Group [s/veh] | 32.59 | 5.95 | 0.00 | 31.16 | 11.36 | 6.52 | 0.00 | 24.48 | 26.60 | 0.00 | 25.89 | 24.41 |
| Lane Group LOS | C | A | A | C | B | A | A | C | C | A | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.53 | 0.91 | 0.00 | 0.15 | 6.03 | 0.02 | 0.00 | 0.05 | 0.83 | 0.00 | 0.75 | 0.01 |
| 50th-Percentile Queue Length [ft/ln] | 38.34 | 22.86 | 0.00 | 3.87 | 150.76 | 0.40 | 0.00 | 1.27 | 20.70 | 0.00 | 18.84 | 0.34 |
| 95th-Percentile Queue Length [veh/ln] | 2.76 | 1.65 | 0.00 | 0.28 | 10.06 | 0.03 | 0.00 | 0.09 | 1.49 | 0.00 | 1.36 | 0.02 |
| 95th-Percentile Queue Length [ft/ln] | 69.02 | 41.14 | 0.00 | 6.96 | 251.45 | 0.72 | 0.00 | 2.28 | 37.26 | 0.00 | 33.92 | 0.61 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.59 | 5.95 | 0.00 | 31.16 | 11.36 | 6.52 | 0.00 | 24.48 | 26.60 | 0.00 | 25.89 | 24.41 |
| Movement LOS | C | A | A | C | B | A | A | C | C | A | C | C |
| d_A, Approach Delay [s/veh] | 11.50 | | | 11.49 | | | 26.47 | | | 25.86 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 12.38 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.595 | | | | | | | | | | | |

**Emissions**

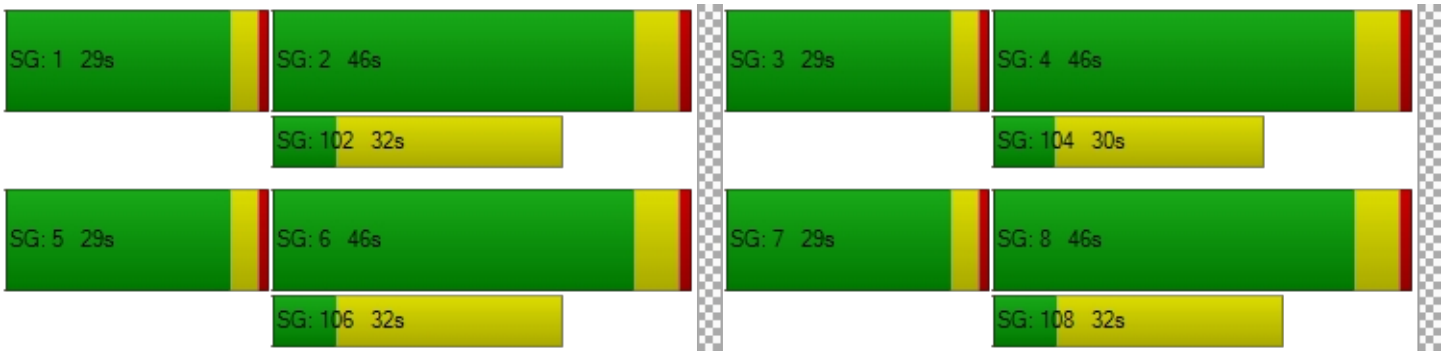
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 101.30 | 384.52 | 0.00 | 5.23 | 726.48 | 1.57 | 0.00 | 2.46 | 37.44 | 0.00 | 21.10 | 0.39 |
| Stops [stops/h] | 86.23 | 102.80 | 0.00 | 8.70 | 678.09 | 0.90 | 0.00 | 2.85 | 46.55 | 0.00 | 42.37 | 0.76 |
| Fuel consumption [US gal/h] | 5.30 | 16.85 | 0.00 | 0.33 | 36.87 | 0.07 | 0.00 | 0.14 | 2.19 | 0.00 | 1.39 | 0.03 |
| CO [g/h] | 370.22 | 1177.67 | 0.00 | 22.83 | 2576.99 | 5.14 | 0.00 | 9.75 | 153.25 | 0.00 | 96.97 | 1.77 |
| NOx [g/h] | 72.03 | 229.13 | 0.00 | 4.44 | 501.39 | 1.00 | 0.00 | 1.90 | 29.82 | 0.00 | 18.87 | 0.34 |
| VOC [g/h] | 85.80 | 272.94 | 0.00 | 5.29 | 597.24 | 1.19 | 0.00 | 2.26 | 35.52 | 0.00 | 22.47 | 0.41 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.96 | 21.96 | 21.96 | 21.96 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.746 | 2.723 | 2.193 | 2.129 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1249 | 1249 | 1249 | 1249 |
| d_b, Bicycle Delay [s] | 4.51 | 4.51 | 4.51 | 4.51 |
| l_b,int, Bicycle LOS Score for Intersection | 1.947 | 2.717 | 1.667 | 1.650 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.596 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 72 | 158 | 89 | 341 | 691 | 162 | 39 | 430 | 161 | 59 | 550 | 348 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 72 | 158 | 89 | 341 | 691 | 162 | 39 | 430 | 161 | 59 | 550 | 348 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 48 | 27 | 103 | 208 | 49 | 12 | 130 | 48 | 18 | 166 | 105 |
| Total Analysis Volume [veh/h] | 87 | 190 | 107 | 411 | 833 | 195 | 47 | 518 | 194 | 71 | 663 | 419 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 31 | 31 | 16 | 36 | 36 | 9 | 33 | 33 | 10 | 35 | 35 |
| g / C, Green / Cycle | 0.10 | 0.29 | 0.29 | 0.15 | 0.34 | 0.34 | 0.09 | 0.31 | 0.31 | 0.10 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.06 | 0.07 | 0.12 | 0.23 | 0.12 | 0.01 | 0.14 | 0.12 | 0.02 | 0.19 | 0.26 |
| s, saturation flow rate [veh/h] | 3472 | 3246 | 1615 | 3514 | 3618 | 1584 | 3428 | 3618 | 1587 | 3514 | 3509 | 1612 |
| c, Capacity [veh/h] | 353 | 930 | 463 | 539 | 1225 | 536 | 294 | 1133 | 497 | 342 | 1140 | 524 |
| d1, Uniform Delay [s] | 44.31 | 28.93 | 29.17 | 43.43 | 30.43 | 26.70 | 45.37 | 29.48 | 28.77 | 44.51 | 30.09 | 32.95 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.27 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.13 | 0.24 | 0.57 | 0.85 | 3.38 | 2.11 | 0.09 | 0.43 | 0.74 | 0.11 | 0.70 | 6.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.25 | 0.20 | 0.23 | 0.76 | 0.68 | 0.36 | 0.16 | 0.46 | 0.39 | 0.21 | 0.58 | 0.80 |
| d, Delay for Lane Group [s/veh] | 44.44 | 29.18 | 29.74 | 44.28 | 33.81 | 28.81 | 45.46 | 29.90 | 29.51 | 44.62 | 30.79 | 39.87 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.04 | 1.81 | 2.09 | 5.24 | 9.64 | 4.04 | 0.56 | 5.09 | 3.77 | 0.87 | 7.13 | 10.72 |
| 50th-Percentile Queue Length [ft/ln] | 25.94 | 45.19 | 52.26 | 131.07 | 241.01 | 100.95 | 14.01 | 127.19 | 94.32 | 21.79 | 178.19 | 267.98 |
| 95th-Percentile Queue Length [veh/ln] | 1.87 | 3.25 | 3.76 | 9.00 | 14.73 | 7.27 | 1.01 | 8.79 | 6.79 | 1.57 | 11.51 | 16.09 |
| 95th-Percentile Queue Length [ft/ln] | 46.69 | 81.34 | 94.06 | 224.94 | 368.31 | 181.72 | 25.21 | 219.67 | 169.78 | 39.22 | 287.66 | 402.22 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 44.44 | 29.18 | 29.74 | 44.28 | 33.81 | 28.81 | 45.46 | 29.90 | 29.51 | 44.62 | 30.79 | 39.87 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 32.79 | | | 36.12 | | | 30.77 | | | 34.94 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.33 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.596 | | | | | | | | | | | |

**Emissions**

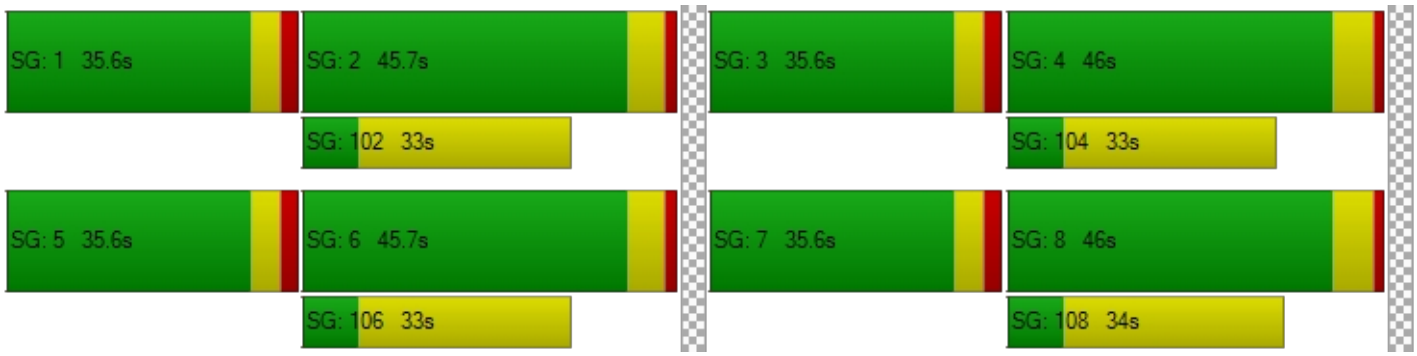
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 88.58 | 193.45 | 108.94 | 424.84 | 861.04 | 201.56 | 23.54 | 259.40 | 97.15 | 35.59 | 332.37 | 210.05 |
| Stops [stops/h] | 69.89 | 121.77 | 70.41 | 353.19 | 649.45 | 136.02 | 37.74 | 342.75 | 127.08 | 58.72 | 480.19 | 361.07 |
| Fuel consumption [US gal/h] | 4.69 | 9.27 | 5.26 | 23.14 | 44.77 | 10.19 | 1.80 | 17.10 | 6.37 | 2.43 | 20.49 | 14.04 |
| CO [g/h] | 327.97 | 648.18 | 367.48 | 1617.76 | 3129.09 | 712.44 | 125.98 | 1195.31 | 445.21 | 170.15 | 1432.18 | 981.46 |
| NOx [g/h] | 63.81 | 126.11 | 71.50 | 314.76 | 608.81 | 138.62 | 24.51 | 232.56 | 86.62 | 33.11 | 278.65 | 190.96 |
| VOC [g/h] | 76.01 | 150.22 | 85.17 | 374.93 | 725.20 | 165.12 | 29.20 | 277.03 | 103.18 | 39.43 | 331.92 | 227.46 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 2404.10 | 2397.09 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.00 | 43.00 | 43.00 | 43.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.005 | 2.989 | 3.080 | 3.000 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 749 | 749 | 749 | 749 |
| d_b, Bicycle Delay [s] | 20.92 | 20.92 | 20.92 | 20.92 |
| l_b,int, Bicycle LOS Score for Intersection | 1.876 | 2.747 | 2.186 | 2.511 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.580 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 53 | 398 | 22 | 90 | 843 | 168 | 30 | 421 | 97 | 21 | 597 | 141 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 53 | 398 | 22 | 90 | 843 | 168 | 30 | 421 | 97 | 21 | 597 | 141 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 108 | 6 | 24 | 229 | 46 | 8 | 114 | 26 | 6 | 162 | 38 |
| Total Analysis Volume [veh/h] | 58 | 433 | 24 | 98 | 916 | 183 | 33 | 458 | 105 | 23 | 649 | 153 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 26 | 26 | 9 | 27 | 27 | 5 | 22 | 22 | 4 | 21 | 21 |
| g / C, Green / Cycle | 0.09 | 0.34 | 0.34 | 0.12 | 0.36 | 0.36 | 0.07 | 0.29 | 0.29 | 0.05 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.12 | 0.02 | 0.06 | 0.26 | 0.12 | 0.02 | 0.13 | 0.07 | 0.01 | 0.18 | 0.10 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1478 | 1724 | 3569 | 1587 | 1810 | 3538 | 1592 | 1810 | 3592 | 1597 |
| c, Capacity [veh/h] | 166 | 1171 | 497 | 198 | 1277 | 568 | 120 | 1019 | 458 | 92 | 979 | 435 |
| d1, Uniform Delay [s] | 32.42 | 19.20 | 17.09 | 31.68 | 21.16 | 17.78 | 33.86 | 22.21 | 20.70 | 34.79 | 24.64 | 22.32 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.30 | 0.06 | 0.71 | 1.17 | 0.50 | 0.45 | 0.48 | 0.38 | 0.52 | 1.14 | 0.71 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.35 | 0.37 | 0.05 | 0.49 | 0.72 | 0.32 | 0.27 | 0.45 | 0.23 | 0.25 | 0.66 | 0.35 |
| d, Delay for Lane Group [s/veh] | 32.89 | 19.50 | 17.15 | 32.39 | 22.33 | 18.28 | 34.31 | 22.69 | 21.09 | 35.31 | 25.78 | 23.03 |
| Lane Group LOS | C | B | B | C | C | B | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.96 | 2.64 | 0.26 | 1.61 | 6.38 | 2.15 | 0.56 | 3.09 | 1.34 | 0.40 | 4.84 | 2.08 |
| 50th-Percentile Queue Length [ft/ln] | 23.93 | 65.96 | 6.60 | 40.30 | 159.42 | 53.74 | 13.97 | 77.24 | 33.51 | 9.94 | 120.88 | 52.12 |
| 95th-Percentile Queue Length [veh/ln] | 1.72 | 4.75 | 0.48 | 2.90 | 10.52 | 3.87 | 1.01 | 5.56 | 2.41 | 0.72 | 8.44 | 3.75 |
| 95th-Percentile Queue Length [ft/ln] | 43.07 | 118.73 | 11.88 | 72.55 | 262.96 | 96.74 | 25.14 | 139.03 | 60.32 | 17.89 | 211.03 | 93.81 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.89 | 19.50 | 17.15 | 32.39 | 22.33 | 18.28 | 34.31 | 22.69 | 21.09 | 35.31 | 25.78 | 23.03 |
| Movement LOS | C | B | B | C | C | B | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 20.90 | | | 22.54 | | | 23.05 | | | 25.54 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.15 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.580 | | | | | | | | | | | |

**Emissions**

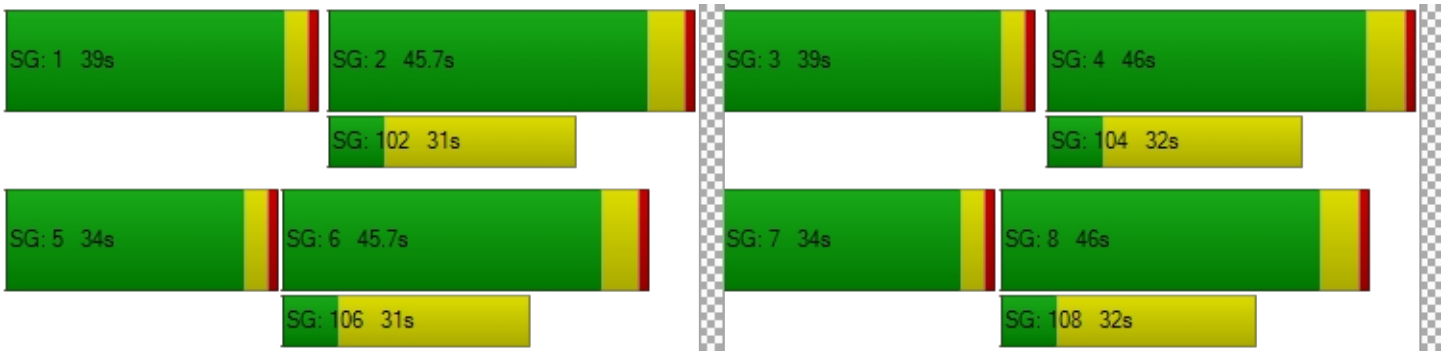
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 30.45 | 227.34 | 12.60 | 99.78 | 932.61 | 186.32 | 2.85 | 39.61 | 9.08 | 13.84 | 390.58 | 92.08 |
| Stops [stops/h] | 45.28 | 249.62 | 12.49 | 76.27 | 603.34 | 101.69 | 26.43 | 292.30 | 63.41 | 18.81 | 457.46 | 98.62 |
| Fuel consumption [US gal/h] | 1.99 | 12.61 | 0.67 | 5.01 | 43.63 | 8.33 | 0.66 | 7.11 | 1.55 | 0.87 | 22.48 | 5.10 |
| CO [g/h] | 139.45 | 881.76 | 46.90 | 350.49 | 3049.91 | 582.39 | 45.91 | 496.77 | 108.37 | 61.06 | 1571.42 | 356.45 |
| NOx [g/h] | 27.13 | 171.56 | 9.12 | 68.19 | 593.40 | 113.31 | 8.93 | 96.65 | 21.08 | 11.88 | 305.74 | 69.35 |
| VOC [g/h] | 32.32 | 204.36 | 10.87 | 81.23 | 706.85 | 134.97 | 10.64 | 115.13 | 25.11 | 14.15 | 364.19 | 82.61 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.84 | 27.84 | 27.84 | 27.84 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.910 | 2.964 | 2.806 | 2.786 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1051 | 1051 | 1051 | 1051 |
| d_b, Bicycle Delay [s] | 8.56 | 8.56 | 8.56 | 8.56 |
| l_b,int, Bicycle LOS Score for Intersection | 1.984 | 2.547 | 2.051 | 2.240 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.615 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 38 | 479 | 74 | 149 | 585 | 35 | 14 | 369 | 136 | 67 | 374 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 38 | 479 | 74 | 149 | 585 | 35 | 14 | 369 | 136 | 67 | 374 | 40 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 130 | 20 | 40 | 159 | 10 | 4 | 100 | 37 | 18 | 102 | 11 |
| Total Analysis Volume [veh/h] | 41 | 521 | 80 | 162 | 636 | 38 | 15 | 401 | 148 | 73 | 407 | 43 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 18 | 18 | 12 | 23 | 23 | 3 | 22 | 22 | 8 | 27 | 27 |
| g / C, Green / Cycle | 0.09 | 0.24 | 0.24 | 0.15 | 0.30 | 0.30 | 0.04 | 0.29 | 0.29 | 0.11 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.17 | 0.17 | 0.09 | 0.18 | 0.18 | 0.01 | 0.22 | 0.10 | 0.04 | 0.22 | 0.03 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1738 | 1791 | 1891 | 1853 | 1810 | 1835 | 1544 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 165 | 441 | 419 | 272 | 569 | 557 | 70 | 537 | 451 | 192 | 674 | 576 |
| d1, Uniform Delay [s] | 32.33 | 26.52 | 26.58 | 30.30 | 22.84 | 22.85 | 35.70 | 24.55 | 21.19 | 31.90 | 20.06 | 16.14 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.78 | 1.98 | 2.16 | 2.08 | 1.01 | 1.03 | 1.50 | 2.21 | 0.42 | 1.24 | 0.90 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.25 | 0.69 | 0.70 | 0.60 | 0.60 | 0.60 | 0.21 | 0.75 | 0.33 | 0.38 | 0.60 | 0.07 |
| d, Delay for Lane Group [s/veh] | 33.10 | 28.49 | 28.74 | 32.39 | 23.86 | 23.88 | 37.20 | 26.76 | 21.61 | 33.14 | 20.96 | 16.19 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.70 | 4.87 | 4.70 | 2.73 | 4.84 | 4.75 | 0.28 | 6.22 | 1.93 | 1.24 | 5.39 | 0.45 |
| 50th-Percentile Queue Length [ft/ln] | 17.38 | 121.76 | 117.52 | 68.24 | 121.04 | 118.80 | 7.10 | 155.38 | 48.20 | 30.97 | 134.67 | 11.30 |
| 95th-Percentile Queue Length [veh/ln] | 1.25 | 8.49 | 8.26 | 4.91 | 8.45 | 8.33 | 0.51 | 10.30 | 3.47 | 2.23 | 9.19 | 0.81 |
| 95th-Percentile Queue Length [ft/ln] | 31.29 | 212.25 | 206.42 | 122.83 | 211.25 | 208.17 | 12.79 | 257.59 | 86.76 | 55.75 | 229.83 | 20.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.10 | 28.59 | 28.74 | 32.39 | 23.87 | 23.88 | 37.20 | 26.76 | 21.61 | 33.14 | 20.96 | 16.19 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 28.90 | | | 25.52 | | | 25.69 | | | 22.27 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.74 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.615 | | | | | | | | | | | |

**Emissions**

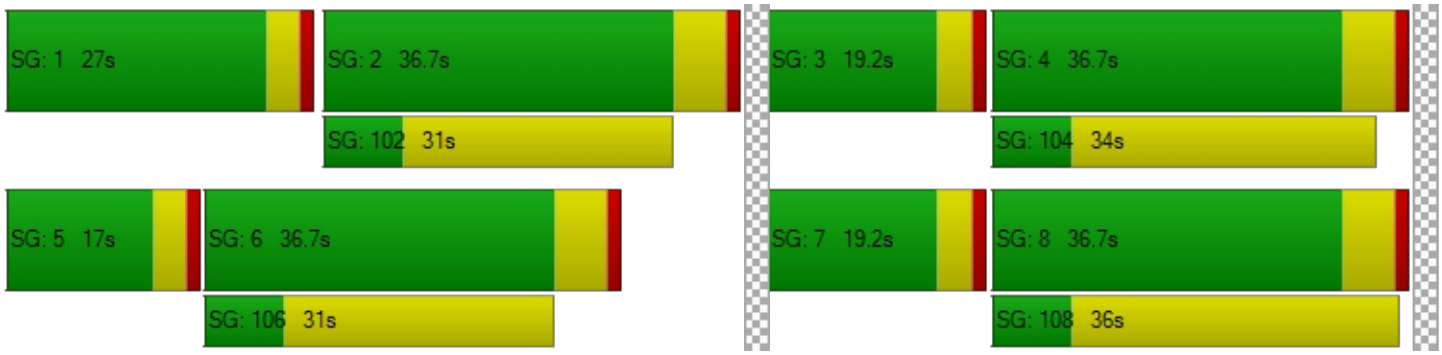
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 21.78 | 162.97 | 156.34 | 85.05 | 178.66 | 175.21 | 1.50 | 40.20 | 14.84 | 34.74 | 193.71 | 20.47 |
| Stops [stops/h] | 32.74 | 229.35 | 221.36 | 128.54 | 227.98 | 223.77 | 13.38 | 292.66 | 90.78 | 58.34 | 253.67 | 21.29 |
| Fuel consumption [US gal/h] | 1.43 | 10.22 | 9.83 | 5.58 | 10.61 | 10.41 | 0.33 | 7.20 | 2.29 | 2.41 | 11.53 | 1.11 |
| CO [g/h] | 99.95 | 714.14 | 687.26 | 390.13 | 741.69 | 727.65 | 23.17 | 503.32 | 159.95 | 168.36 | 805.96 | 77.45 |
| NOx [g/h] | 19.45 | 138.95 | 133.72 | 75.91 | 144.31 | 141.57 | 4.51 | 97.93 | 31.12 | 32.76 | 156.81 | 15.07 |
| VOC [g/h] | 23.17 | 165.51 | 159.28 | 90.42 | 171.89 | 168.64 | 5.37 | 116.65 | 37.07 | 39.02 | 186.79 | 17.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.02 | 28.02 | 28.02 | 28.02 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.809 | 2.705 | 2.506 | 2.548 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 811 | 811 | 811 | 811 |
| d_b, Bicycle Delay [s] | 13.51 | 13.51 | 13.51 | 13.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.089 | 2.249 | 2.490 | 2.423 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.749 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 449.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 272 | 287 | 133 | 122 | 329 | 564 | 312 | 1105 | 317 | 206 | 1316 | 194 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 272 | 287 | 133 | 122 | 329 | 564 | 312 | 1105 | 317 | 206 | 1316 | 194 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 73 | 77 | 36 | 33 | 88 | 152 | 84 | 297 | 85 | 55 | 354 | 52 |
| Total Analysis Volume [veh/h] | 292 | 309 | 143 | 131 | 354 | 606 | 335 | 1188 | 341 | 222 | 1415 | 209 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 34 | 34 | 14 | 33 | 33 | 15 | 54 | 54 | 13 | 51 | 51 |
| g / C, Green / Cycle | 0.11 | 0.26 | 0.26 | 0.11 | 0.26 | 0.26 | 0.12 | 0.41 | 0.41 | 0.10 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.09 | 0.09 | 0.04 | 0.07 | 0.21 | 0.10 | 0.24 | 0.22 | 0.06 | 0.28 | 0.13 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1545 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 370 | 906 | 398 | 366 | 1315 | 727 | 398 | 2072 | 650 | 344 | 1986 | 620 |
| d1, Uniform Delay [s] | 56.60 | 39.36 | 39.57 | 53.93 | 38.66 | 45.79 | 56.21 | 29.57 | 28.80 | 56.33 | 33.33 | 27.66 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.45 | 0.08 | 0.20 | 0.22 | 0.12 | 2.91 | 1.89 | 1.16 | 3.01 | 0.76 | 2.21 | 1.47 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.34 | 0.36 | 0.36 | 0.27 | 0.83 | 0.84 | 0.57 | 0.52 | 0.64 | 0.71 | 0.34 |
| d, Delay for Lane Group [s/veh] | 58.05 | 39.44 | 39.77 | 54.15 | 38.78 | 48.70 | 58.09 | 30.73 | 31.81 | 57.09 | 35.54 | 29.13 |
| Lane Group LOS | E | D | D | D | D | D | E | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.69 | 3.99 | 3.73 | 1.97 | 2.97 | 9.28 | 5.37 | 9.39 | 8.23 | 3.47 | 12.42 | 4.67 |
| 50th-Percentile Queue Length [ft/ln] | 117.25 | 99.75 | 93.21 | 49.17 | 74.24 | 231.98 | 134.34 | 234.77 | 205.86 | 86.84 | 310.49 | 116.79 |
| 95th-Percentile Queue Length [veh/ln] | 8.24 | 7.18 | 6.71 | 3.54 | 5.34 | 14.27 | 9.18 | 14.42 | 12.94 | 6.25 | 18.20 | 8.22 |
| 95th-Percentile Queue Length [ft/ln] | 206.04 | 179.55 | 167.77 | 88.51 | 133.62 | 356.87 | 229.38 | 360.41 | 323.52 | 156.31 | 454.98 | 205.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.05 | 39.44 | 39.77 | 54.15 | 38.78 | 48.70 | 58.09 | 30.73 | 31.81 | 57.09 | 35.54 | 29.13 |
| Movement LOS | E | D | D | D | D | D | E | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 46.81 | | | 46.14 | | | 35.84 | | | 37.40 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 39.86 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.749 | | | | | | | | | | | |

**Emissions**

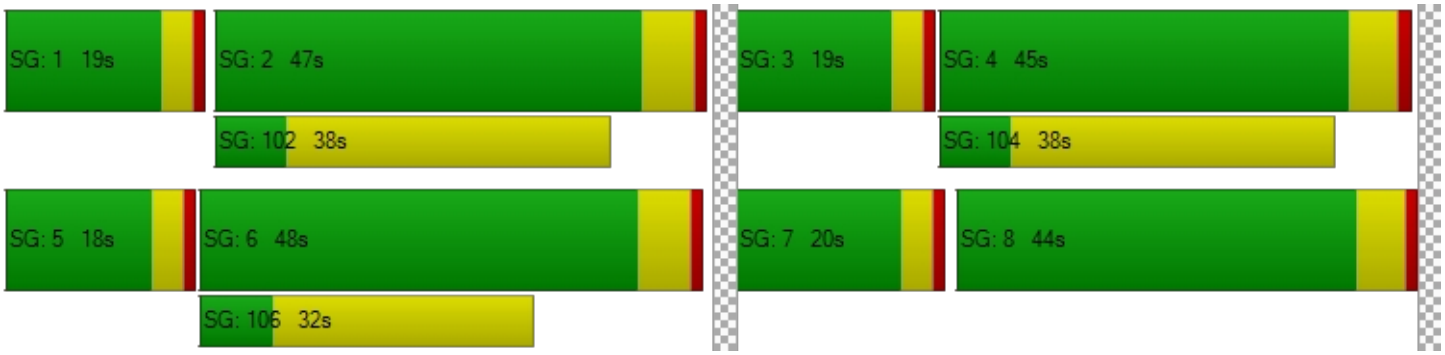
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 21.35 | 22.58 | 10.46 | 69.60 | 188.08 | 321.97 | 38.12 | 135.18 | 38.80 | 110.79 | 706.19 | 104.31 |
| Stops [stops/h] | 259.48 | 220.75 | 103.14 | 108.82 | 246.43 | 513.39 | 297.30 | 779.35 | 227.80 | 192.18 | 1030.71 | 129.23 |
| Fuel consumption [US gal/h] | 6.76 | 5.46 | 2.55 | 5.18 | 12.30 | 23.42 | 8.96 | 21.75 | 6.37 | 8.77 | 47.25 | 6.42 |
| CO [g/h] | 472.71 | 381.43 | 177.94 | 362.22 | 860.10 | 1637.39 | 626.51 | 1520.44 | 445.25 | 612.74 | 3303.08 | 448.84 |
| NOx [g/h] | 91.97 | 74.21 | 34.62 | 70.48 | 167.34 | 318.58 | 121.90 | 295.82 | 86.63 | 119.22 | 642.66 | 87.33 |
| VOC [g/h] | 109.55 | 88.40 | 41.24 | 83.95 | 199.34 | 379.48 | 145.20 | 352.38 | 103.19 | 142.01 | 765.52 | 104.02 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.53 | 54.53 | 32.40 | 54.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.013 | 3.440 | 3.691 | 3.404 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 645 | 630 |
| d_b, Bicycle Delay [s] | 31.72 | 32.40 | 29.85 | 30.53 |
| l_b,int, Bicycle LOS Score for Intersection | 1.969 | 2.160 | 2.585 | 2.575 |
| Bicycle LOS | A | B | B | B |

## Sequence

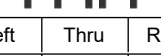
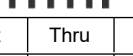
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.517 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 620 | 0 | 0 | 0 | 0 | 1106 | 241 | 0 | 2041 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 620 | 0 | 0 | 0 | 0 | 1106 | 241 | 0 | 2041 | 64 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 165 | 0 | 0 | 0 | 0 | 294 | 64 | 0 | 543 | 17 |
| Total Analysis Volume [veh/h] | 486 | 0 | 660 | 0 | 0 | 0 | 0 | 1177 | 256 | 0 | 2171 | 68 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 35 | 35 | | 81 | 81 | 81 |
| g / C, Green / Cycle | 0.27 | 0.27 | | 0.63 | 0.63 | 0.63 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.24 | | 0.23 | 0.26 | 0.04 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1376 | 738 | | 3166 | 5319 | 999 |
| d1, Uniform Delay [s] | 38.63 | 45.90 | | 11.82 | 12.19 | 9.48 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 9.28 | | 0.34 | 0.23 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.35 | 0.89 | | 0.37 | 0.41 | 0.07 |
| d, Delay for Lane Group [s/veh] | 39.01 | 55.18 | | 12.16 | 12.42 | 9.61 |
| Lane Group LOS | D | E | | B | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.06 | 10.67 | | 5.18 | 5.86 | 0.74 |
| 50th-Percentile Queue Length [ft/ln] | 101.62 | 266.80 | | 129.47 | 146.58 | 18.55 |
| 95th-Percentile Queue Length [veh/ln] | 7.32 | 16.03 | | 8.91 | 9.83 | 1.34 |
| 95th-Percentile Queue Length [ft/ln] | 182.92 | 400.73 | | 222.78 | 245.86 | 33.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.01 | 0.00 | 55.18 | 0.00 | 0.00 | 0.00 | 0.00 | 12.16 | 0.00 | 0.00 | 12.42 | 9.61 |
| Movement LOS | D | | E | | | | | B | | | B | A |
| d_A, Approach Delay [s/veh] | 48.33 | | | 0.00 | | | 10.09 | | | 12.33 | | |
| Approach LOS | D | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 20.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.517 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 86.52 | | 185.21 | 247.03 | 7.74 |
| Stops [stops/h] | 338.06 | 591.69 | | 430.70 | 812.72 | 20.57 |
| Fuel consumption [US gal/h] | 12.27 | 21.30 | | 14.62 | 24.06 | 0.65 |
| CO [g/h] | 857.57 | 1488.52 | | 1021.68 | 1681.73 | 45.71 |
| NOx [g/h] | 166.85 | 289.61 | | 198.78 | 327.20 | 8.89 |
| VOC [g/h] | 198.75 | 344.98 | | 236.78 | 389.76 | 10.59 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.812 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.207 | 2.298 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.923 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 87 | 0 | 791 | 0 | 1275 | 880 | 0 | 1849 | 688 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 87 | 0 | 791 | 0 | 1275 | 880 | 0 | 1849 | 688 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 23 | 0 | 206 | 0 | 332 | 229 | 0 | 482 | 179 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 91 | 0 | 824 | 0 | 1328 | 917 | 0 | 1926 | 717 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 40 | 40 | 77 | 77 | 77 |
| g / C, Green / Cycle | | 0.31 | 0.31 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.03 | 0.29 | 0.20 | 0.59 | 0.28 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1061 | 871 | 3968 | 915 | 3990 |
| d1, Uniform Delay [s] | | 32.17 | 44.05 | 13.61 | 26.63 | 15.27 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.09 | 12.76 | 0.23 | 30.29 | 0.42 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.09 | 0.95 | 0.33 | 1.00 | 0.48 |
| d, Delay for Lane Group [s/veh] | | 32.25 | 56.81 | 13.84 | 56.92 | 15.69 |
| Lane Group LOS | | C | E | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.05 | 14.39 | 4.71 | 32.78 | 7.69 |
| 50th-Percentile Queue Length [ft/ln] | | 26.22 | 359.80 | 117.86 | 819.57 | 192.15 |
| 95th-Percentile Queue Length [veh/ln] | | 1.89 | 20.61 | 8.28 | 42.26 | 12.23 |
| 95th-Percentile Queue Length [ft/ln] | | 47.19 | 515.34 | 206.88 | 1056.38 | 305.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 32.25 | 0.00 | 56.81 | 0.00 | 13.84 | 56.92 | 0.00 | 15.69 | 0.00 |
| Movement LOS | | | | C | | E | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 54.37 | | | 31.44 | | | 11.56 | | |
| Approach LOS | A | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 28.03 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.923 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 14.02 | 126.98 | 128.59 | 88.80 | 303.07 |
| Stops [stops/h] | | 58.11 | 797.52 | 522.50 | 908.32 | 851.83 |
| Fuel consumption [US gal/h] | | 1.50 | 19.16 | 14.64 | 24.96 | 27.13 |
| CO [g/h] | | 104.54 | 1339.18 | 1023.63 | 1744.57 | 1896.38 |
| NOx [g/h] | | 20.34 | 260.56 | 199.16 | 339.43 | 368.97 |
| VOC [g/h] | | 24.23 | 310.37 | 237.24 | 404.32 | 439.50 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.179 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1173 | 1173 | |
| d_b, Bicycle Delay [s] | 64.97 | 30.98 | 11.11 | 11.11 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.486 | 2.354 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.438 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 64 | 45 | 27 | 21 | 126 | 87 | 51 | 790 | 225 | 32 | 726 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 64 | 45 | 27 | 21 | 126 | 87 | 51 | 790 | 225 | 32 | 726 | 21 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 11 | 7 | 5 | 32 | 22 | 13 | 202 | 57 | 8 | 185 | 5 |
| Total Analysis Volume [veh/h] | 65 | 46 | 28 | 21 | 129 | 89 | 52 | 806 | 230 | 33 | 741 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 14 | 14 | 3 | 10 | 10 | 6 | 22 | 22 | 5 | 21 | 21 |
| g / C, Green / Cycle | 0.12 | 0.23 | 0.23 | 0.05 | 0.16 | 0.16 | 0.11 | 0.37 | 0.37 | 0.08 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.02 | 0.02 | 0.01 | 0.07 | 0.06 | 0.03 | 0.23 | 0.14 | 0.02 | 0.21 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 218 | 430 | 366 | 98 | 305 | 259 | 191 | 1321 | 590 | 140 | 1218 | 544 |
| d1, Uniform Delay [s] | 24.09 | 18.31 | 18.18 | 27.23 | 22.68 | 22.37 | 24.73 | 15.41 | 13.94 | 26.07 | 16.46 | 13.21 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.12 | 0.10 | 0.40 | 1.33 | 1.12 | 0.28 | 0.70 | 0.64 | 0.32 | 0.81 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.30 | 0.11 | 0.08 | 0.21 | 0.42 | 0.34 | 0.27 | 0.61 | 0.39 | 0.24 | 0.61 | 0.04 |
| d, Delay for Lane Group [s/veh] | 24.38 | 18.43 | 18.27 | 27.63 | 24.01 | 23.48 | 25.02 | 16.11 | 14.58 | 26.38 | 17.28 | 13.26 |
| Lane Group LOS | C | B | B | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.77 | 0.45 | 0.27 | 0.27 | 1.55 | 1.06 | 0.61 | 3.63 | 1.91 | 0.43 | 3.82 | 0.17 |
| 50th-Percentile Queue Length [ft/ln] | 19.14 | 11.30 | 6.86 | 6.76 | 38.87 | 26.54 | 15.26 | 90.68 | 47.78 | 10.63 | 95.58 | 4.37 |
| 95th-Percentile Queue Length [veh/ln] | 1.38 | 0.81 | 0.49 | 0.49 | 2.80 | 1.91 | 1.10 | 6.53 | 3.44 | 0.77 | 6.88 | 0.31 |
| 95th-Percentile Queue Length [ft/ln] | 34.45 | 20.34 | 12.35 | 12.18 | 69.96 | 47.77 | 27.47 | 163.22 | 86.01 | 19.14 | 172.05 | 7.87 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.38 | 18.43 | 18.27 | 27.63 | 24.01 | 23.48 | 25.02 | 16.11 | 14.58 | 26.38 | 17.28 | 13.26 |
| Movement LOS | C | B | B | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 21.18 | | | 24.13 | | | 16.22 | | | 17.55 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.83 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.438 | | | | | | | | | | | |

**Emissions**

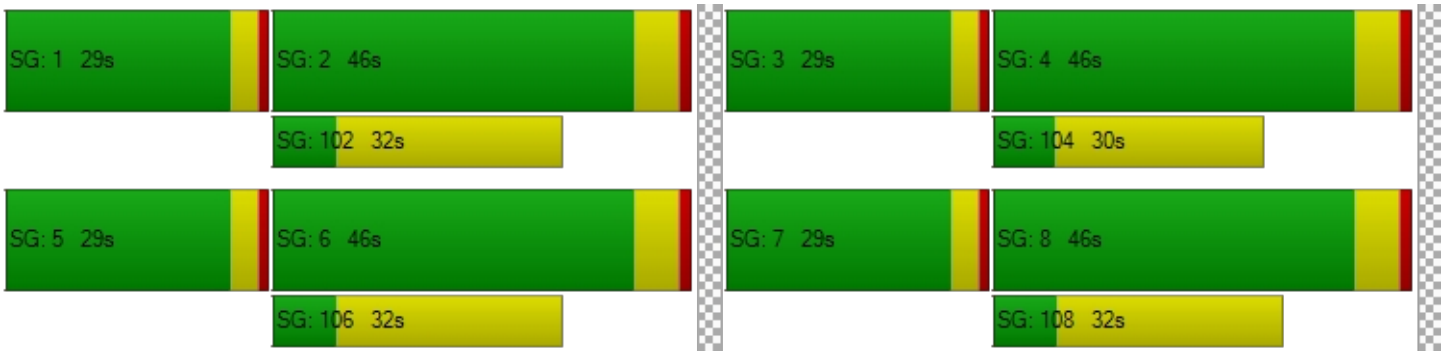
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 65.44 | 46.31 | 28.19 | 21.04 | 129.27 | 89.19 | 26.07 | 404.05 | 115.30 | 16.26 | 365.18 | 10.35 |
| Stops [stops/h] | 45.85 | 27.07 | 16.43 | 16.21 | 93.12 | 63.58 | 36.57 | 434.50 | 114.48 | 25.47 | 458.00 | 10.47 |
| Fuel consumption [US gal/h] | 3.14 | 2.10 | 1.27 | 1.04 | 6.22 | 4.27 | 1.70 | 22.84 | 6.30 | 0.99 | 19.97 | 0.53 |
| CO [g/h] | 219.19 | 146.55 | 89.10 | 72.76 | 434.73 | 298.69 | 118.76 | 1596.79 | 440.45 | 69.11 | 1395.86 | 37.04 |
| NOx [g/h] | 42.65 | 28.51 | 17.34 | 14.16 | 84.58 | 58.11 | 23.11 | 310.68 | 85.70 | 13.45 | 271.58 | 7.21 |
| VOC [g/h] | 50.80 | 33.96 | 20.65 | 16.86 | 100.75 | 69.22 | 27.52 | 370.07 | 102.08 | 16.02 | 323.50 | 8.58 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.06 | 20.06 | 20.06 | 20.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.303 | 2.240 | 2.967 | 2.743 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1331 | 1331 | 1331 | 1331 |
| d_b, Bicycle Delay [s] | 3.36 | 3.36 | 3.36 | 3.36 |
| l_b,int, Bicycle LOS Score for Intersection | 1.789 | 1.954 | 2.457 | 2.215 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.644 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 150 | 122 | 17 | 25 | 427 | 31 | 13 | 372 | 121 | 39 | 548 | 8 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 150 | 122 | 17 | 25 | 427 | 31 | 13 | 372 | 121 | 39 | 548 | 8 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 32 | 4 | 7 | 112 | 8 | 3 | 98 | 32 | 10 | 144 | 2 |
| Total Analysis Volume [veh/h] | 158 | 128 | 18 | 26 | 449 | 33 | 14 | 392 | 127 | 41 | 577 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 30 | 30 | 5 | 24 | 3 | 17 | 17 | 6 | 21 | 21 |
| g / C, Green / Cycle | 0.14 | 0.40 | 0.40 | 0.06 | 0.32 | 0.04 | 0.23 | 0.23 | 0.09 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.07 | 0.01 | 0.02 | 0.26 | 0.01 | 0.14 | 0.15 | 0.02 | 0.16 | 0.16 |
| s, saturation flow rate [veh/h] | 1424 | 1828 | 1572 | 1631 | 1877 | 1708 | 1855 | 1700 | 1708 | 1870 | 1861 |
| c, Capacity [veh/h] | 204 | 738 | 635 | 101 | 605 | 64 | 430 | 394 | 146 | 523 | 520 |
| d1, Uniform Delay [s] | 30.43 | 14.10 | 13.26 | 32.97 | 22.79 | 34.45 | 25.45 | 25.53 | 31.61 | 22.70 | 22.70 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.35 | 0.12 | 0.02 | 0.49 | 3.45 | 0.63 | 2.27 | 2.59 | 0.39 | 1.55 | 1.56 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.17 | 0.03 | 0.26 | 0.80 | 0.22 | 0.62 | 0.64 | 0.28 | 0.56 | 0.56 |
| d, Delay for Lane Group [s/veh] | 32.79 | 14.22 | 13.28 | 33.46 | 26.24 | 35.07 | 27.72 | 28.13 | 32.00 | 24.26 | 24.27 |
| Lane Group LOS | C | B | B | C | C | D | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.61 | 1.21 | 0.16 | 0.43 | 7.26 | 0.24 | 4.08 | 3.85 | 0.65 | 4.11 | 4.09 |
| 50th-Percentile Queue Length [ft/ln] | 65.28 | 30.29 | 4.01 | 10.66 | 181.43 | 5.96 | 102.06 | 96.33 | 16.29 | 102.68 | 102.29 |
| 95th-Percentile Queue Length [veh/ln] | 4.70 | 2.18 | 0.29 | 0.77 | 11.68 | 0.43 | 7.35 | 6.94 | 1.17 | 7.39 | 7.37 |
| 95th-Percentile Queue Length [ft/ln] | 117.50 | 54.53 | 7.22 | 19.18 | 291.88 | 10.74 | 183.70 | 173.40 | 29.32 | 184.83 | 184.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.79 | 14.22 | 13.28 | 33.46 | 26.24 | 26.24 | 35.07 | 27.85 | 28.13 | 32.00 | 24.26 | 24.27 |
| Movement LOS | C | B | B | C | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 23.81 | | | 26.61 | | | 28.10 | | | 24.77 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.00 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.644 | | | | | | | | | | | |

**Emissions**

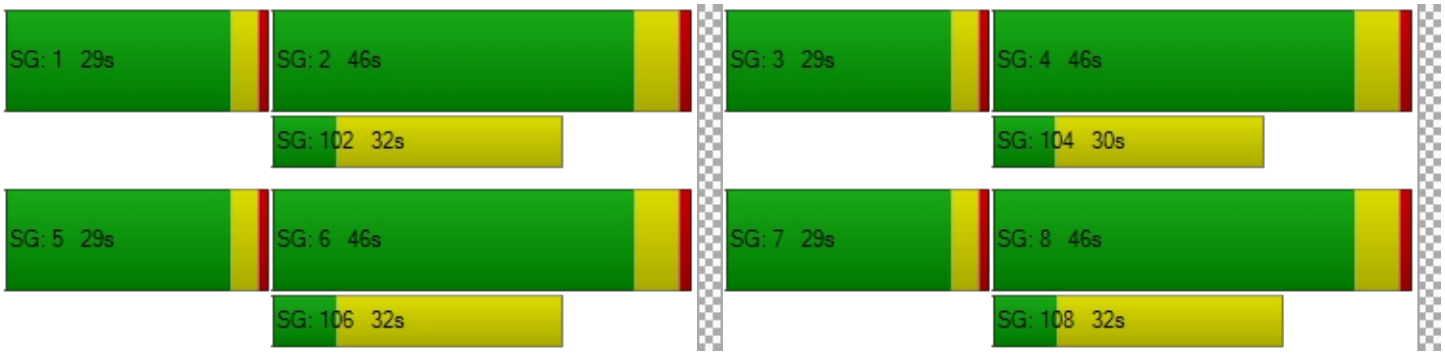
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 78.56 | 63.65 | 8.95 | 26.18 | 485.27 | 8.43 | 161.54 | 150.81 | 20.45 | 146.20 | 145.59 |
| Stops [stops/h] | 127.72 | 59.27 | 7.85 | 20.85 | 354.98 | 11.67 | 199.68 | 188.49 | 31.87 | 200.91 | 200.15 |
| Fuel consumption [US gal/h] | 5.34 | 3.29 | 0.45 | 1.33 | 23.62 | 0.53 | 9.53 | 8.95 | 1.36 | 8.96 | 8.92 |
| CO [g/h] | 372.93 | 229.90 | 31.67 | 93.21 | 1651.15 | 37.32 | 666.43 | 625.41 | 95.36 | 626.05 | 623.54 |
| NOx [g/h] | 72.56 | 44.73 | 6.16 | 18.14 | 321.25 | 7.26 | 129.66 | 121.68 | 18.55 | 121.81 | 121.32 |
| VOC [g/h] | 86.43 | 53.28 | 7.34 | 21.60 | 382.67 | 8.65 | 154.45 | 144.94 | 22.10 | 145.09 | 144.51 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.62 | 26.62 | 26.62 | 26.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.558 | 2.250 | 2.669 | 2.599 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1087 | 1087 | 1087 | 1087 |
| d_b, Bicycle Delay [s] | 7.67 | 7.67 | 7.67 | 7.67 |
| l_b,int, Bicycle LOS Score for Intersection | 2.061 | 2.398 | 1.999 | 2.076 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.679 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 28 | 187 | 25 | 59 | 363 | 237 | 142 | 259 | 207 | 51 | 477 | 85 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 28 | 187 | 25 | 59 | 363 | 237 | 142 | 259 | 207 | 51 | 477 | 85 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 51 | 7 | 16 | 99 | 64 | 39 | 70 | 56 | 14 | 130 | 23 |
| Total Analysis Volume [veh/h] | 30 | 203 | 27 | 64 | 395 | 258 | 154 | 282 | 225 | 55 | 518 | 92 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 16 | 16 | 8 | 19 | 19 | 10 | 27 | 27 | 7 | 25 | 25 |
| g / C, Green / Cycle | 0.07 | 0.22 | 0.22 | 0.10 | 0.26 | 0.26 | 0.13 | 0.37 | 0.37 | 0.09 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.06 | 0.06 | 0.04 | 0.19 | 0.19 | 0.09 | 0.15 | 0.15 | 0.03 | 0.27 | 0.06 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1773 | 1737 | 1849 | 1596 | 1785 | 1894 | 1521 | 1775 | 1891 | 1582 |
| c, Capacity [veh/h] | 111 | 412 | 393 | 177 | 477 | 412 | 235 | 696 | 559 | 168 | 625 | 523 |
| d1, Uniform Delay [s] | 33.17 | 24.09 | 24.14 | 31.24 | 25.27 | 25.38 | 30.79 | 17.53 | 17.51 | 31.56 | 23.03 | 17.74 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.19 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.30 | 0.37 | 0.40 | 1.24 | 2.14 | 2.64 | 3.10 | 0.38 | 0.47 | 1.13 | 4.91 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.28 | 0.29 | 0.36 | 0.73 | 0.74 | 0.66 | 0.41 | 0.40 | 0.33 | 0.83 | 0.18 |
| d, Delay for Lane Group [s/veh] | 34.46 | 24.46 | 24.54 | 32.49 | 27.42 | 28.02 | 33.89 | 17.91 | 17.98 | 32.68 | 27.94 | 17.90 |
| Lane Group LOS | C | C | C | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.53 | 1.62 | 1.60 | 1.06 | 5.32 | 4.75 | 2.63 | 3.22 | 2.58 | 0.91 | 8.19 | 1.03 |
| 50th-Percentile Queue Length [ft/ln] | 13.20 | 40.54 | 39.90 | 26.44 | 133.12 | 118.66 | 65.64 | 80.60 | 64.59 | 22.81 | 204.66 | 25.66 |
| 95th-Percentile Queue Length [veh/ln] | 0.95 | 2.92 | 2.87 | 1.90 | 9.11 | 8.32 | 4.73 | 5.80 | 4.65 | 1.64 | 12.88 | 1.85 |
| 95th-Percentile Queue Length [ft/ln] | 23.76 | 72.97 | 71.83 | 47.60 | 227.73 | 207.98 | 118.15 | 145.09 | 116.25 | 41.06 | 321.97 | 46.19 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.46 | 24.49 | 24.54 | 32.49 | 27.49 | 28.02 | 33.89 | 17.91 | 17.98 | 32.68 | 27.94 | 17.90 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 25.65 | | | 28.13 | | | 21.66 | | | 26.95 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.65 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.679 | | | | | | | | | | | |

**Emissions**

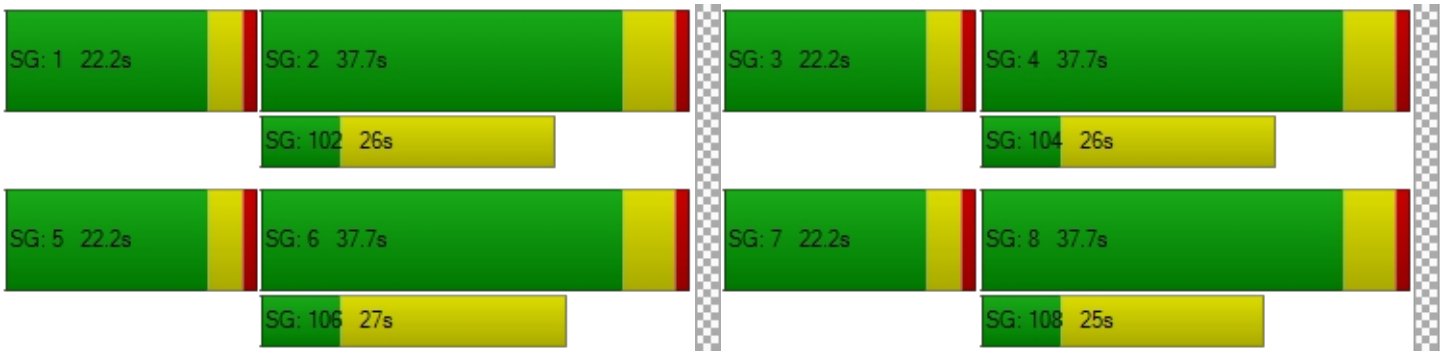
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 16.21 | 62.74 | 61.55 | 31.82 | 172.89 | 151.81 | 73.29 | 134.21 | 107.09 | 27.10 | 255.26 | 45.33 |
| Stops [stops/h] | 25.55 | 78.46 | 77.23 | 51.18 | 257.66 | 229.67 | 127.05 | 156.01 | 125.01 | 44.15 | 396.13 | 49.67 |
| Fuel consumption [US gal/h] | 1.04 | 3.60 | 3.53 | 2.15 | 11.07 | 9.80 | 5.15 | 7.57 | 6.05 | 1.84 | 16.62 | 2.51 |
| CO [g/h] | 72.84 | 251.36 | 246.89 | 150.31 | 773.77 | 685.03 | 360.26 | 529.03 | 422.77 | 128.88 | 1161.76 | 175.21 |
| NOx [g/h] | 14.17 | 48.91 | 48.04 | 29.24 | 150.55 | 133.28 | 70.09 | 102.93 | 82.26 | 25.07 | 226.04 | 34.09 |
| VOC [g/h] | 16.88 | 58.25 | 57.22 | 34.83 | 179.33 | 158.76 | 83.49 | 122.61 | 97.98 | 29.87 | 269.25 | 40.61 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.01 | 27.01 | 27.01 | 27.01 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.532 | 2.630 | 2.657 | 2.500 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 860 | 860 | 860 | 860 |
| d_b, Bicycle Delay [s] | 12.09 | 12.08 | 12.08 | 12.08 |
| l_b,int, Bicycle LOS Score for Intersection | 1.774 | 2.151 | 2.650 | 2.657 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.519 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 202 | 129 | 77 | 182 | 335 | 164 | 55 | 820 | 358 | 137 | 1260 | 35 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 202 | 129 | 77 | 182 | 335 | 164 | 55 | 820 | 358 | 137 | 1260 | 35 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 54 | 35 | 21 | 49 | 90 | 44 | 15 | 220 | 96 | 37 | 339 | 9 |
| Total Analysis Volume [veh/h] | 217 | 139 | 83 | 196 | 360 | 176 | 59 | 882 | 385 | 147 | 1355 | 38 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 18 | 18 | 13 | 18 | 18 | 11 | 60 | 60 | 13 | 61 | 61 |
| g / C, Green / Cycle | 0.11 | 0.15 | 0.15 | 0.11 | 0.15 | 0.15 | 0.09 | 0.50 | 0.50 | 0.11 | 0.51 | 0.51 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.04 | 0.05 | 0.06 | 0.12 | 0.11 | 0.02 | 0.17 | 0.24 | 0.04 | 0.26 | 0.02 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1523 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 363 | 518 | 232 | 358 | 476 | 242 | 334 | 2537 | 785 | 373 | 2613 | 802 |
| d1, Uniform Delay [s] | 51.04 | 45.00 | 45.63 | 50.77 | 48.82 | 48.57 | 50.05 | 18.31 | 20.02 | 49.94 | 19.55 | 14.72 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.59 | 0.22 | 0.74 | 0.49 | 2.00 | 3.35 | 0.09 | 0.38 | 2.18 | 0.25 | 0.74 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.60 | 0.27 | 0.36 | 0.55 | 0.76 | 0.73 | 0.18 | 0.35 | 0.49 | 0.39 | 0.52 | 0.05 |
| d, Delay for Lane Group [s/veh] | 51.63 | 45.22 | 46.37 | 51.25 | 50.81 | 51.92 | 50.15 | 18.69 | 22.21 | 50.19 | 20.29 | 14.84 |
| Lane Group LOS | D | D | D | D | D | D | D | B | C | D | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.09 | 1.82 | 2.24 | 2.82 | 5.30 | 5.25 | 0.82 | 5.01 | 7.52 | 2.02 | 7.99 | 0.52 |
| 50th-Percentile Queue Length [ft/ln] | 77.34 | 45.60 | 55.94 | 70.56 | 132.53 | 131.35 | 20.60 | 125.19 | 188.03 | 50.60 | 199.83 | 13.00 |
| 95th-Percentile Queue Length [veh/ln] | 5.57 | 3.28 | 4.03 | 5.08 | 9.08 | 9.01 | 1.48 | 8.68 | 12.02 | 3.64 | 12.63 | 0.94 |
| 95th-Percentile Queue Length [ft/ln] | 139.20 | 82.08 | 100.69 | 127.00 | 226.93 | 225.33 | 37.07 | 216.94 | 300.48 | 91.08 | 315.74 | 23.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.63 | 45.22 | 46.37 | 51.25 | 50.81 | 51.92 | 50.15 | 18.69 | 22.21 | 50.19 | 20.29 | 14.84 |
| Movement LOS | D | D | D | D | D | D | D | B | C | D | C | B |
| d_A, Approach Delay [s/veh] | 48.61 | | | 51.20 | | | 21.11 | | | 23.01 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.28 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.519 | | | | | | | | | | | |

**Emissions**

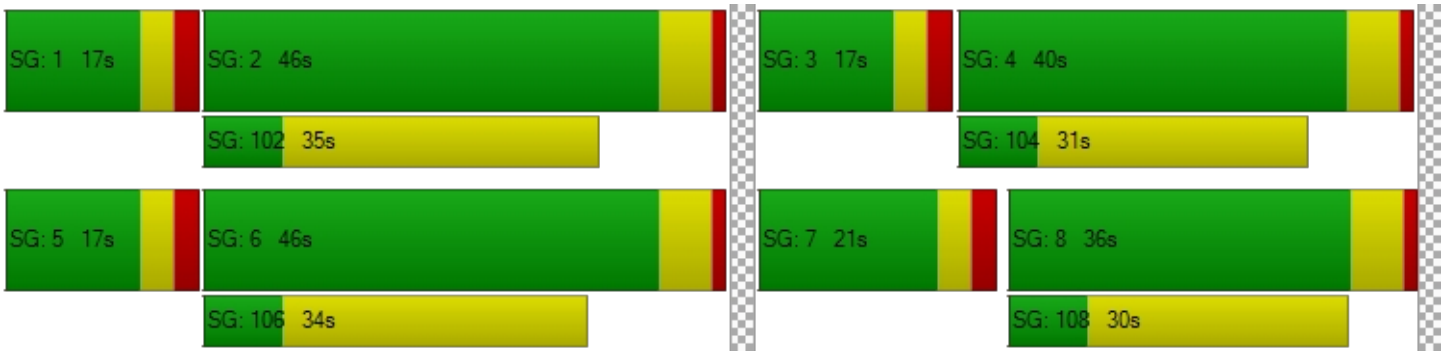
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 22.71 | 14.55 | 8.69 | 105.91 | 194.53 | 95.11 | 29.45 | 440.18 | 192.14 | 16.94 | 156.18 | 4.38 |
| Stops [stops/h] | 185.48 | 109.37 | 67.08 | 169.22 | 317.85 | 157.51 | 49.40 | 450.40 | 225.49 | 121.36 | 718.89 | 15.59 |
| Fuel consumption [US gal/h] | 4.92 | 2.87 | 1.75 | 7.34 | 13.49 | 6.64 | 2.09 | 23.96 | 10.90 | 3.59 | 19.89 | 0.46 |
| CO [g/h] | 343.58 | 200.93 | 122.56 | 513.00 | 942.71 | 464.47 | 145.89 | 1675.03 | 761.60 | 251.01 | 1389.98 | 32.07 |
| NOx [g/h] | 66.85 | 39.09 | 23.85 | 99.81 | 183.42 | 90.37 | 28.38 | 325.90 | 148.18 | 48.84 | 270.44 | 6.24 |
| VOC [g/h] | 79.63 | 46.57 | 28.40 | 118.89 | 218.48 | 107.65 | 33.81 | 388.20 | 176.51 | 58.17 | 322.14 | 7.43 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.54 | 49.54 | 49.54 | 49.54 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.855 | 2.743 | 3.196 | 3.302 |
| Crosswalk LOS | C | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 505 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.64 | 33.56 | 26.50 | 26.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.922 | 2.164 | 2.289 | 2.407 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.720 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 516 | 144 | 17 | 11 | 102 | 27 | 14 | 1 | 289 | 2 | 6 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 516 | 144 | 17 | 11 | 102 | 27 | 14 | 1 | 289 | 2 | 6 | 1 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 140 | 39 | 5 | 3 | 28 | 7 | 4 | 0 | 79 | 1 | 2 | 0 |
| Total Analysis Volume [veh/h] | 561 | 157 | 18 | 12 | 111 | 29 | 15 | 1 | 314 | 2 | 7 | 1 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 22 | 30 | 2 | 9 | 3 | 18 | 0 | 15 |
| g / C, Green / Cycle | 0.34 | 0.45 | 0.03 | 0.14 | 0.04 | 0.27 | 0.01 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.31 | 0.10 | 0.01 | 0.08 | 0.01 | 0.19 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1784 | 1784 | 1810 | 1784 | 1810 | 1616 | 1810 | 1859 |
| c, Capacity [veh/h] | 608 | 803 | 60 | 254 | 73 | 434 | 11 | 435 |
| d1, Uniform Delay [s] | 20.94 | 11.08 | 31.07 | 26.35 | 30.66 | 21.96 | 32.66 | 19.47 |
| k, delay calibration | 0.29 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 14.41 | 0.15 | 0.59 | 2.64 | 0.50 | 3.54 | 2.85 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.92 | 0.22 | 0.20 | 0.55 | 0.20 | 0.73 | 0.18 | 0.02 |
| d, Delay for Lane Group [s/veh] | 35.34 | 11.23 | 31.66 | 28.99 | 31.16 | 25.50 | 35.51 | 19.50 |
| Lane Group LOS | D | B | C | C | C | C | D | B |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 9.39 | 1.29 | 0.18 | 2.03 | 0.23 | 4.54 | 0.04 | 0.09 |
| 50th-Percentile Queue Length [ft/ln] | 234.86 | 32.36 | 4.51 | 50.70 | 5.81 | 113.48 | 0.99 | 2.32 |
| 95th-Percentile Queue Length [veh/ln] | 14.42 | 2.33 | 0.33 | 3.65 | 0.42 | 8.03 | 0.07 | 0.17 |
| 95th-Percentile Queue Length [ft/ln] | 360.53 | 58.26 | 8.13 | 91.27 | 10.45 | 200.83 | 1.77 | 4.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 35.34 | 11.23 | 11.23 | 31.66 | 28.99 | 28.99 | 31.16 | 25.50 | 25.50 | 35.51 | 19.50 | 19.50 |
| Movement LOS | D | B | B | C | C | C | C | C | C | D | B | B |
| d_A, Approach Delay [s/veh] | 29.61 | | | 29.20 | | | 25.76 | | | 22.70 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.47 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.720 | | | | | | | | | | | |

**Emissions**

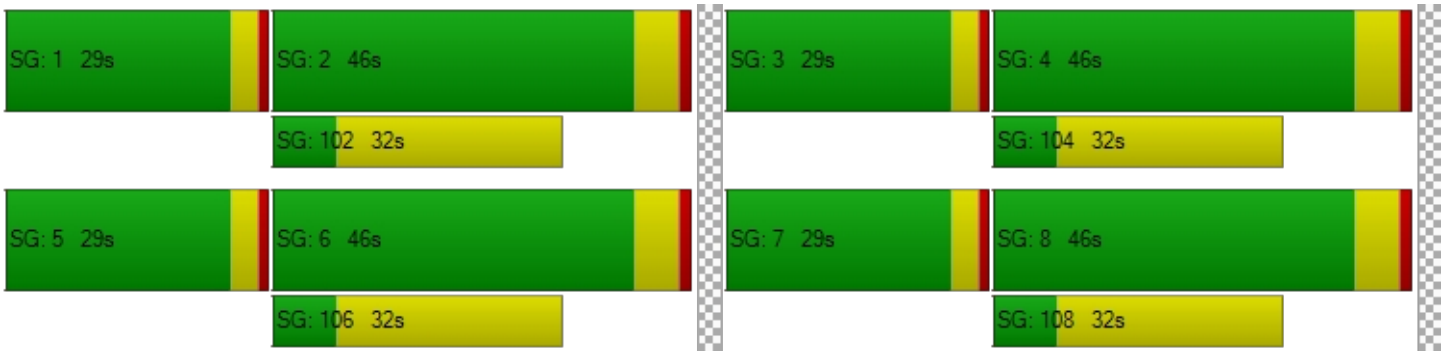
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 281.41 | 87.78 | 0.55 | 6.40 | 7.54 | 158.40 | 0.76 | 3.03 |
| Stops [stops/h] | 513.37 | 70.74 | 9.87 | 110.83 | 12.69 | 248.05 | 2.15 | 5.07 |
| Fuel consumption [US gal/h] | 20.06 | 4.29 | 0.22 | 2.42 | 0.48 | 9.53 | 0.06 | 0.18 |
| CO [g/h] | 1402.46 | 299.76 | 15.30 | 169.39 | 33.26 | 665.88 | 4.02 | 12.89 |
| NOx [g/h] | 272.87 | 58.32 | 2.98 | 32.96 | 6.47 | 129.56 | 0.78 | 2.51 |
| VOC [g/h] | 325.03 | 69.47 | 3.54 | 39.26 | 7.71 | 154.32 | 0.93 | 2.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.86 | 22.86 | 22.86 | 22.86 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.490 | 2.081 | 2.224 | 1.936 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1214 | 1214 | 1214 | 1214 |
| d_b, Bicycle Delay [s] | 5.08 | 5.08 | 5.08 | 5.08 |
| l_b,int, Bicycle LOS Score for Intersection | 2.774 | 1.810 | 2.104 | 1.576 |
| Bicycle LOS | C | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 53.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.135 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 491 | 10 | 10 | 1164 | 10 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 491 | 10 | 10 | 1164 | 10 | 10 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 133 | 3 | 3 | 316 | 3 | 3 |
| Total Analysis Volume [veh/h] | 534 | 11 | 11 | 1265 | 11 | 11 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.01 | 0.01 | 0.14 | 0.02 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.53 | 0.00 | 53.83 | 16.26 |
| Movement LOS | A | A | A | A | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.02 | 0.02 | 0.53 | 0.53 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.46 | 0.46 | 13.32 | 13.32 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.07 | | 35.04 | |
| Approach LOS | A | | A | | E | |
| d_I, Intersection Delay [s/veh] | 0.47 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 39.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 186 | 98 | 23 | 268 | 637 | 165 | 24 | 651 | 139 | 5 | 372 | 369 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 186 | 98 | 23 | 268 | 637 | 165 | 24 | 651 | 139 | 5 | 372 | 369 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 26 | 6 | 70 | 166 | 43 | 6 | 170 | 36 | 1 | 97 | 96 |
| Total Analysis Volume [veh/h] | 194 | 102 | 24 | 279 | 664 | 172 | 25 | 678 | 145 | 5 | 388 | 384 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 35 | 35 | 18 | 40 | 40 | 4 | 34 | 34 | 1 | 31 | 31 |
| g / C, Green / Cycle | 0.13 | 0.34 | 0.34 | 0.18 | 0.38 | 0.38 | 0.04 | 0.33 | 0.33 | 0.01 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.05 | 0.02 | 0.16 | 0.36 | 0.11 | 0.01 | 0.23 | 0.23 | 0.00 | 0.20 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1864 | 1615 | 1810 | 1870 | 1757 | 1782 | 1900 | 1615 |
| c, Capacity [veh/h] | 229 | 629 | 521 | 314 | 716 | 621 | 72 | 611 | 574 | 19 | 565 | 481 |
| d1, Uniform Delay [s] | 44.96 | 24.59 | 23.61 | 42.35 | 30.96 | 22.31 | 49.18 | 30.83 | 30.83 | 51.64 | 32.60 | 34.04 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.42 | 0.11 | 0.04 | 0.24 | 0.24 | 0.04 | 0.21 | 0.26 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.38 | 0.12 | 0.04 | 3.46 | 17.32 | 0.24 | 1.07 | 3.16 | 3.38 | 2.84 | 2.84 | 7.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.85 | 0.16 | 0.05 | 0.89 | 0.93 | 0.28 | 0.35 | 0.69 | 0.69 | 0.27 | 0.69 | 0.80 |
| d, Delay for Lane Group [s/veh] | 48.33 | 24.71 | 23.65 | 45.81 | 48.28 | 22.55 | 50.26 | 33.99 | 34.21 | 54.48 | 35.45 | 41.18 |
| Lane Group LOS | D | C | C | D | D | C | D | C | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.98 | 1.73 | 0.39 | 7.07 | 18.29 | 2.81 | 0.65 | 9.48 | 8.95 | 0.14 | 8.59 | 9.36 |
| 50th-Percentile Queue Length [ft/ln] | 124.42 | 43.20 | 9.78 | 176.82 | 457.26 | 70.29 | 16.17 | 236.89 | 223.73 | 3.51 | 214.66 | 234.08 |
| 95th-Percentile Queue Length [veh/ln] | 8.64 | 3.11 | 0.70 | 11.43 | 25.30 | 5.06 | 1.16 | 14.52 | 13.86 | 0.25 | 13.39 | 14.38 |
| 95th-Percentile Queue Length [ft/ln] | 215.89 | 77.76 | 17.60 | 285.86 | 632.61 | 126.52 | 29.11 | 363.10 | 346.39 | 6.32 | 334.80 | 359.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.33 | 24.71 | 23.65 | 45.81 | 48.28 | 22.55 | 50.26 | 34.07 | 34.21 | 54.48 | 35.45 | 41.18 |
| Movement LOS | D | C | C | D | D | C | D | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 38.95 | | | 43.70 | | | 34.57 | | | 38.40 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 39.33 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.807 | | | | | | | | | | | |

**Emissions**

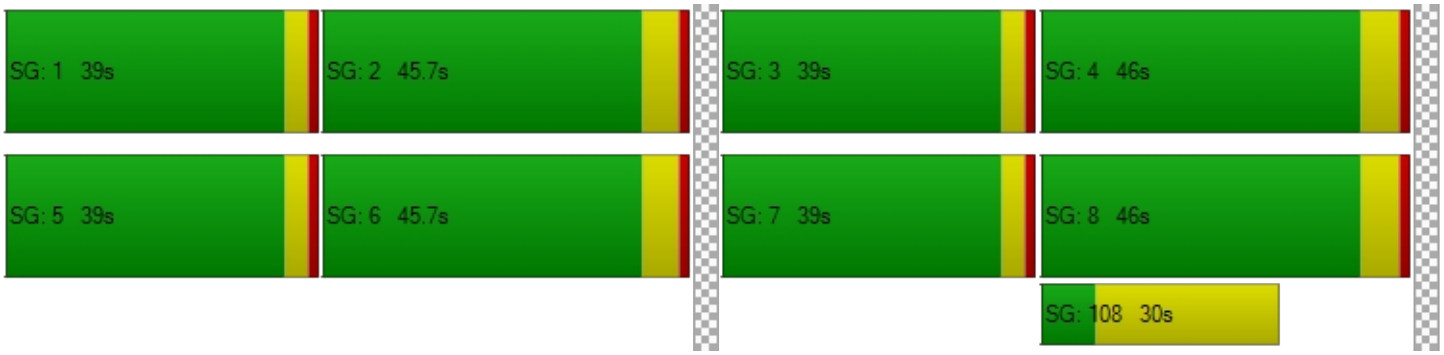
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 97.56 | 51.29 | 12.07 | 139.06 | 330.94 | 85.73 | 12.32 | 209.00 | 196.59 | 1.31 | 101.69 | 100.64 |
| Stops [stops/h] | 170.65 | 59.26 | 13.41 | 242.53 | 627.19 | 96.41 | 22.18 | 324.92 | 306.88 | 4.81 | 294.43 | 321.06 |
| Fuel consumption [US gal/h] | 7.37 | 3.01 | 0.70 | 10.38 | 25.67 | 4.93 | 0.91 | 13.61 | 12.83 | 0.17 | 10.72 | 11.52 |
| CO [g/h] | 515.44 | 210.24 | 48.64 | 725.76 | 1794.05 | 344.36 | 63.95 | 951.43 | 897.08 | 12.11 | 749.61 | 805.00 |
| NOx [g/h] | 100.29 | 40.91 | 9.46 | 141.21 | 349.06 | 67.00 | 12.44 | 185.11 | 174.54 | 2.36 | 145.85 | 156.62 |
| VOC [g/h] | 119.46 | 48.73 | 11.27 | 168.20 | 415.79 | 79.81 | 14.82 | 220.50 | 207.91 | 2.81 | 173.73 | 186.57 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 42.07 | 44.80 | 44.52 | 44.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.737 | 2.735 | 2.726 | 2.881 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 762 | 762 | 762 | 762 |
| d_b, Bicycle Delay [s] | 20.11 | 20.11 | 20.11 | 20.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.088 | 3.399 | 2.259 | 2.201 |
| Bicycle LOS | B | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.391 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 223 | 10 | 19 | 839 | 9 | 3 | 5 | 6 | 7 | 7 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 223 | 10 | 19 | 839 | 9 | 3 | 5 | 6 | 7 | 7 | 14 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 61 | 3 | 5 | 228 | 2 | 1 | 1 | 2 | 2 | 2 | 4 |
| Total Analysis Volume [veh/h] | 3 | 242 | 11 | 21 | 912 | 10 | 3 | 5 | 7 | 8 | 8 | 15 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 16 | 16 | 2 | 18 | 18 | 0 | 4 | 4 | 1 | 4 | 4 |
| g / C, Green / Cycle | 0.01 | 0.42 | 0.42 | 0.06 | 0.46 | 0.46 | 0.01 | 0.10 | 0.10 | 0.02 | 0.11 | 0.11 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.07 | 0.01 | 0.01 | 0.26 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| s, saturation flow rate [veh/h] | 1589 | 3506 | 1544 | 1810 | 3529 | 1602 | 1810 | 1862 | 1615 | 1810 | 1900 | 1552 |
| c, Capacity [veh/h] | 15 | 1457 | 641 | 106 | 1640 | 745 | 17 | 180 | 156 | 44 | 212 | 173 |
| d1, Uniform Delay [s] | 19.42 | 7.25 | 6.80 | 17.71 | 7.63 | 5.69 | 19.42 | 16.16 | 16.19 | 18.90 | 15.66 | 15.75 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.42 | 0.06 | 0.01 | 0.33 | 0.42 | 0.01 | 1.81 | 0.09 | 0.18 | 0.74 | 0.12 | 0.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.20 | 0.17 | 0.02 | 0.20 | 0.56 | 0.01 | 0.18 | 0.03 | 0.04 | 0.18 | 0.04 | 0.09 |
| d, Delay for Lane Group [s/veh] | 21.84 | 7.31 | 6.81 | 18.04 | 8.05 | 5.70 | 21.23 | 16.26 | 16.37 | 19.64 | 15.78 | 16.10 |
| Lane Group LOS | C | A | A | B | A | A | C | B | B | B | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.03 | 0.47 | 0.04 | 0.17 | 1.93 | 0.03 | 0.03 | 0.04 | 0.06 | 0.07 | 0.06 | 0.12 |
| 50th-Percentile Queue Length [ft/ln] | 0.85 | 11.70 | 1.02 | 4.19 | 48.16 | 0.80 | 0.81 | 1.00 | 1.42 | 1.79 | 1.55 | 3.01 |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.84 | 0.07 | 0.30 | 3.47 | 0.06 | 0.06 | 0.07 | 0.10 | 0.13 | 0.11 | 0.22 |
| 95th-Percentile Queue Length [ft/ln] | 1.53 | 21.07 | 1.84 | 7.54 | 86.69 | 1.44 | 1.46 | 1.79 | 2.56 | 3.22 | 2.79 | 5.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.84 | 7.31 | 6.81 | 18.04 | 8.05 | 5.70 | 21.23 | 16.26 | 16.37 | 19.64 | 15.78 | 16.10 |
| Movement LOS | C | A | A | B | A | A | C | B | B | B | B | B |
| d_A, Approach Delay [s/veh] | 7.46 | | | 8.25 | | | 17.30 | | | 16.93 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.41 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.391 | | | | | | | | | | | |

**Emissions**

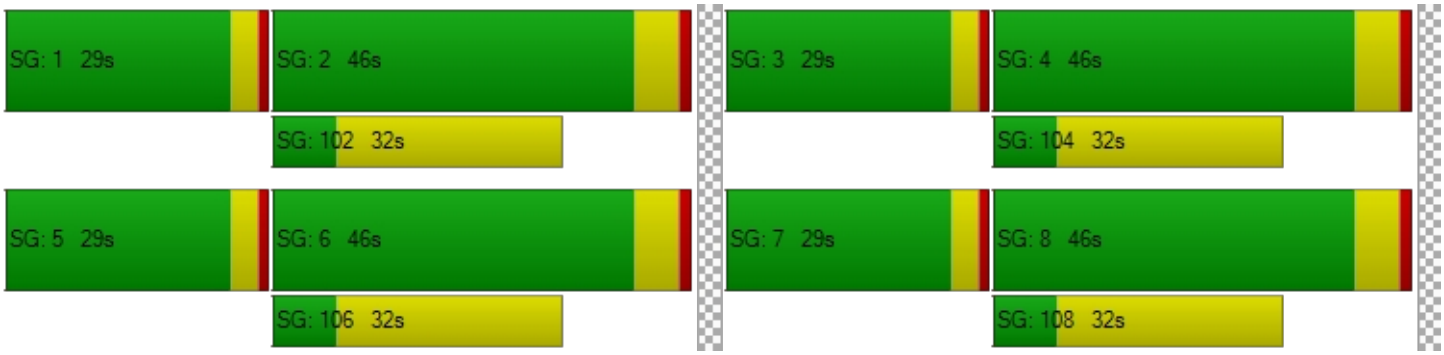
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.50 | 121.20 | 5.51 | 10.56 | 458.62 | 5.03 | 0.38 | 0.63 | 0.88 | 0.85 | 0.85 | 1.60 |
| Stops [stops/h] | 3.10 | 85.58 | 3.74 | 15.31 | 352.18 | 2.93 | 2.97 | 3.64 | 5.21 | 6.55 | 5.66 | 11.02 |
| Fuel consumption [US gal/h] | 0.09 | 5.82 | 0.26 | 0.60 | 22.32 | 0.23 | 0.04 | 0.06 | 0.09 | 0.10 | 0.09 | 0.18 |
| CO [g/h] | 6.45 | 406.97 | 18.36 | 41.69 | 1560.19 | 16.41 | 3.14 | 4.38 | 6.18 | 7.22 | 6.44 | 12.29 |
| NOx [g/h] | 1.26 | 79.18 | 3.57 | 8.11 | 303.56 | 3.19 | 0.61 | 0.85 | 1.20 | 1.40 | 1.25 | 2.39 |
| VOC [g/h] | 1.50 | 94.32 | 4.26 | 9.66 | 361.59 | 3.80 | 0.73 | 1.01 | 1.43 | 1.67 | 1.49 | 2.85 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.23 | 10.23 | 10.23 | 10.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.709 | 2.599 | 2.090 | 2.098 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2031 | 2031 | 2031 | 2031 |
| d_b, Bicycle Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.771 | 2.338 | 1.584 | 1.611 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.598 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 234 | 182 | 38 | 36 | 538 | 60 | 27 | 300 | 88 | 82 | 300 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 234 | 182 | 38 | 36 | 538 | 60 | 27 | 300 | 88 | 82 | 300 | 33 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 64 | 49 | 10 | 10 | 146 | 16 | 7 | 82 | 24 | 22 | 82 | 9 |
| Total Analysis Volume [veh/h] | 254 | 198 | 41 | 39 | 585 | 65 | 29 | 326 | 96 | 89 | 326 | 36 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 20 | 20 | 2 | 13 | 13 | 1 | 7 | 7 | 3 | 9 | 9 |
| g / C, Green / Cycle | 0.18 | 0.42 | 0.42 | 0.03 | 0.28 | 0.28 | 0.03 | 0.14 | 0.14 | 0.06 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.06 | 0.03 | 0.02 | 0.16 | 0.04 | 0.02 | 0.09 | 0.06 | 0.05 | 0.09 | 0.02 |
| s, saturation flow rate [veh/h] | 1765 | 3540 | 1578 | 1772 | 3592 | 1581 | 1691 | 3558 | 1592 | 1794 | 3569 | 1579 |
| c, Capacity [veh/h] | 318 | 1499 | 668 | 61 | 995 | 438 | 46 | 513 | 229 | 116 | 649 | 287 |
| d1, Uniform Delay [s] | 18.82 | 8.45 | 8.19 | 22.87 | 14.97 | 13.07 | 23.10 | 19.34 | 18.69 | 22.07 | 17.66 | 16.42 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.75 | 0.06 | 0.05 | 4.21 | 0.79 | 0.22 | 5.31 | 0.98 | 0.90 | 3.91 | 0.45 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.13 | 0.06 | 0.64 | 0.59 | 0.15 | 0.63 | 0.64 | 0.42 | 0.77 | 0.50 | 0.13 |
| d, Delay for Lane Group [s/veh] | 20.57 | 8.50 | 8.24 | 27.08 | 15.76 | 13.29 | 28.41 | 20.32 | 19.60 | 25.97 | 18.11 | 16.57 |
| Lane Group LOS | C | A | A | C | B | B | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.33 | 0.44 | 0.18 | 0.47 | 2.46 | 0.48 | 0.34 | 1.47 | 0.86 | 0.96 | 1.35 | 0.28 |
| 50th-Percentile Queue Length [ft/ln] | 58.24 | 11.05 | 4.57 | 11.69 | 61.46 | 12.06 | 8.59 | 36.77 | 21.38 | 23.91 | 33.79 | 7.02 |
| 95th-Percentile Queue Length [veh/ln] | 4.19 | 0.80 | 0.33 | 0.84 | 4.42 | 0.87 | 0.62 | 2.65 | 1.54 | 1.72 | 2.43 | 0.51 |
| 95th-Percentile Queue Length [ft/ln] | 104.84 | 19.89 | 8.22 | 21.04 | 110.62 | 21.71 | 15.47 | 66.18 | 38.48 | 43.03 | 60.81 | 12.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.57 | 8.50 | 8.24 | 27.08 | 15.76 | 13.29 | 28.41 | 20.32 | 19.60 | 25.97 | 18.11 | 16.57 |
| Movement LOS | C | A | A | C | B | B | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 14.70 | | | 16.17 | | | 20.68 | | | 19.54 | | |
| Approach LOS | B | | | B | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.53 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.598 | | | | | | | | | | | |

**Emissions**

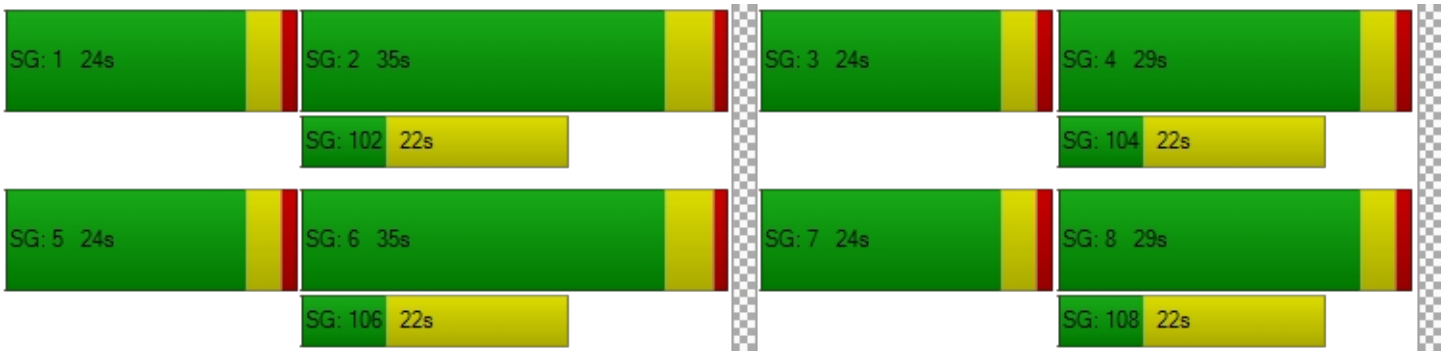
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 126.70 | 98.76 | 20.45 | 19.53 | 292.99 | 32.55 | 14.46 | 162.60 | 47.88 | 89.14 | 326.53 | 36.06 |
| Stops [stops/h] | 175.35 | 66.53 | 13.76 | 35.19 | 370.04 | 36.32 | 25.87 | 221.39 | 64.37 | 71.97 | 203.43 | 21.13 |
| Fuel consumption [US gal/h] | 7.59 | 4.56 | 0.94 | 1.21 | 15.98 | 1.72 | 0.99 | 9.67 | 2.82 | 4.42 | 14.92 | 1.62 |
| CO [g/h] | 530.29 | 318.41 | 65.76 | 84.82 | 1117.17 | 119.99 | 68.86 | 676.22 | 197.43 | 309.02 | 1043.16 | 113.24 |
| NOx [g/h] | 103.18 | 61.95 | 12.80 | 16.50 | 217.36 | 23.35 | 13.40 | 131.57 | 38.41 | 60.12 | 202.96 | 22.03 |
| VOC [g/h] | 122.90 | 73.80 | 15.24 | 19.66 | 258.92 | 27.81 | 15.96 | 156.72 | 45.76 | 71.62 | 241.76 | 26.25 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 14.18 | 14.18 | 14.18 | 14.18 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.724 | 2.571 | 2.684 | 2.846 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1254 | 1254 | 1045 | 1045 |
| d_b, Bicycle Delay [s] | 3.32 | 3.32 | 5.45 | 5.45 |
| l_b,int, Bicycle LOS Score for Intersection | 1.966 | 2.128 | 1.932 | 1.932 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.712 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 171 | 438 | 179 | 84 | 885 | 65 | 20 | 256 | 210 | 123 | 361 | 70 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 171 | 438 | 179 | 84 | 885 | 65 | 20 | 256 | 210 | 123 | 361 | 70 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 119 | 49 | 23 | 240 | 18 | 5 | 70 | 57 | 33 | 98 | 19 |
| Total Analysis Volume [veh/h] | 186 | 476 | 195 | 91 | 962 | 71 | 22 | 278 | 228 | 134 | 392 | 76 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 27 | 27 | 8 | 25 | 25 | 3 | 15 | 15 | 8 | 20 | 20 |
| g / C, Green / Cycle | 0.13 | 0.36 | 0.36 | 0.10 | 0.34 | 0.34 | 0.04 | 0.21 | 0.21 | 0.11 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.14 | 0.12 | 0.05 | 0.27 | 0.04 | 0.01 | 0.15 | 0.14 | 0.08 | 0.21 | 0.05 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1561 | 1751 | 3555 | 1580 | 1810 | 1883 | 1595 | 1785 | 1885 | 1611 |
| c, Capacity [veh/h] | 233 | 1278 | 569 | 180 | 1197 | 532 | 80 | 387 | 328 | 202 | 517 | 442 |
| d1, Uniform Delay [s] | 31.51 | 17.45 | 17.21 | 31.71 | 22.51 | 17.19 | 34.50 | 27.65 | 27.50 | 31.74 | 24.83 | 20.64 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.13 | 0.18 | 0.36 | 2.20 | 1.31 | 0.11 | 1.81 | 2.52 | 2.67 | 3.69 | 2.31 | 0.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.37 | 0.34 | 0.51 | 0.80 | 0.13 | 0.27 | 0.72 | 0.70 | 0.66 | 0.76 | 0.17 |
| d, Delay for Lane Group [s/veh] | 37.64 | 17.63 | 17.57 | 33.92 | 23.82 | 17.30 | 36.31 | 30.17 | 30.16 | 35.43 | 27.14 | 20.82 |
| Lane Group LOS | D | B | B | C | C | B | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.40 | 2.68 | 2.19 | 1.62 | 7.37 | 0.82 | 0.42 | 4.70 | 3.85 | 2.35 | 6.00 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 84.88 | 66.89 | 54.83 | 40.41 | 184.30 | 20.58 | 10.42 | 117.40 | 96.29 | 58.76 | 150.11 | 23.41 |
| 95th-Percentile Queue Length [veh/ln] | 6.11 | 4.82 | 3.95 | 2.91 | 11.82 | 1.48 | 0.75 | 8.25 | 6.93 | 4.23 | 10.02 | 1.69 |
| 95th-Percentile Queue Length [ft/ln] | 152.78 | 120.40 | 98.70 | 72.74 | 295.62 | 37.04 | 18.76 | 206.24 | 173.32 | 105.76 | 250.58 | 42.14 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.64 | 17.63 | 17.57 | 33.92 | 23.82 | 17.30 | 36.31 | 30.17 | 30.16 | 35.43 | 27.14 | 20.82 |
| Movement LOS | D | B | B | C | C | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 21.96 | | | 24.22 | | | 30.42 | | | 28.19 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.42 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.712 | | | | | | | | | | | |

**Emissions**

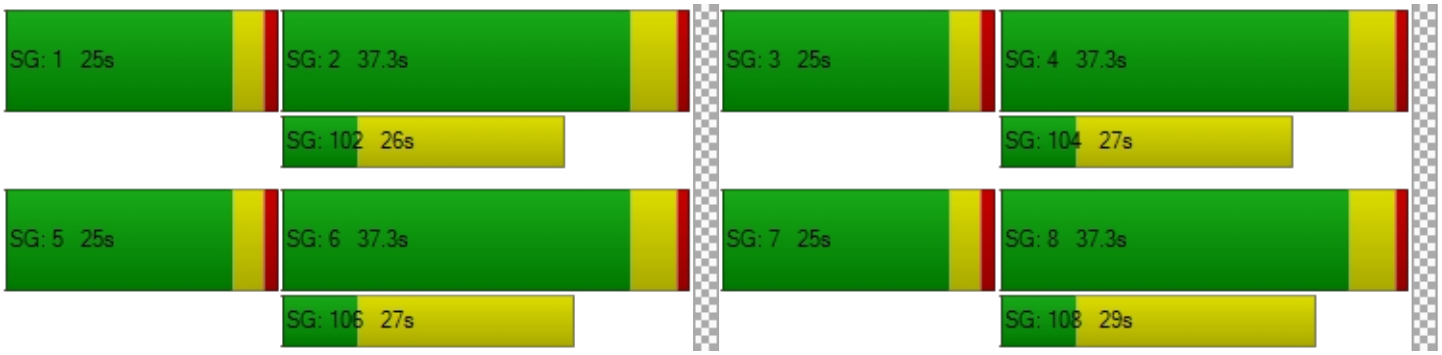
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.18 | 95.15 | 38.98 | 45.39 | 479.85 | 35.42 | 10.84 | 136.99 | 112.35 | 13.84 | 40.47 | 7.85 |
| Stops [stops/h] | 163.99 | 258.48 | 105.95 | 78.07 | 712.16 | 39.76 | 20.13 | 226.82 | 186.04 | 113.52 | 290.03 | 45.23 |
| Fuel consumption [US gal/h] | 4.74 | 8.18 | 3.35 | 2.93 | 28.35 | 1.93 | 0.72 | 8.60 | 7.05 | 2.85 | 7.16 | 1.15 |
| CO [g/h] | 331.19 | 571.97 | 234.20 | 204.67 | 1981.76 | 134.74 | 50.33 | 601.09 | 492.96 | 199.34 | 500.40 | 80.62 |
| NOx [g/h] | 64.44 | 111.29 | 45.57 | 39.82 | 385.58 | 26.21 | 9.79 | 116.95 | 95.91 | 38.78 | 97.36 | 15.69 |
| VOC [g/h] | 76.76 | 132.56 | 54.28 | 47.43 | 459.29 | 31.23 | 11.67 | 139.31 | 114.25 | 46.20 | 115.97 | 18.69 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.08 | 27.08 | 27.08 | 27.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.974 | 2.820 | 2.519 | 2.547 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 859 | 859 | 859 | 859 |
| d_b, Bicycle Delay [s] | 12.13 | 12.13 | 12.13 | 12.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.267 | 2.487 | 2.431 | 2.553 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.830 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 312 | 768 | 0 | 0 | 503 | 777 | 0 | 0 | 0 | 138 | 0 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 312 | 768 | 0 | 0 | 503 | 777 | 0 | 0 | 0 | 138 | 0 | 4 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 85 | 209 | 0 | 0 | 137 | 211 | 0 | 0 | 0 | 38 | 0 | 1 |
| Total Analysis Volume [veh/h] | 339 | 835 | 0 | 0 | 547 | 845 | 0 | 0 | 0 | 150 | 0 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 86 | 86 | 86 | 86 | | 86 | 86 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 13 | 64 | 45 | 45 | | 10 | 10 |
| g / C, Green / Cycle | 0.15 | 0.74 | 0.52 | 0.52 | | 0.11 | 0.11 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.23 | 0.29 | 0.54 | | 0.08 | 0.00 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 414 | 2625 | 974 | 818 | | 203 | 178 |
| d1, Uniform Delay [s] | 35.66 | 3.95 | 14.08 | 20.77 | | 37.15 | 34.13 |
| k, delay calibration | 0.04 | 0.20 | 0.21 | 0.46 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.55 | 0.13 | 0.97 | 39.18 | | 10.72 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.32 | 0.56 | 1.03 | | 0.74 | 0.02 |
| d, Delay for Lane Group [s/veh] | 37.21 | 4.08 | 15.05 | 59.95 | | 47.87 | 34.23 |
| Lane Group LOS | D | A | B | F | | D | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.35 | 1.56 | 6.39 | 22.41 | | 3.43 | 0.07 |
| 50th-Percentile Queue Length [ft/ln] | 83.63 | 38.94 | 159.83 | 560.30 | | 85.81 | 1.87 |
| 95th-Percentile Queue Length [veh/ln] | 6.02 | 2.80 | 10.54 | 30.97 | | 6.18 | 0.13 |
| 95th-Percentile Queue Length [ft/ln] | 150.54 | 70.10 | 263.50 | 774.22 | | 154.46 | 3.36 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.21 | 4.08 | 0.00 | 0.00 | 15.05 | 59.95 | 0.00 | 0.00 | 0.00 | 47.87 | 0.00 | 34.23 |
| Movement LOS | D | A | | | B | F | | | | D | | C |
| d_A, Approach Delay [s/veh] | 13.64 | | | 42.31 | | | 0.00 | | | 47.52 | | |
| Approach LOS | B | | | D | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 30.23 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.830 | | | | | | | | | | | |

**Emissions**

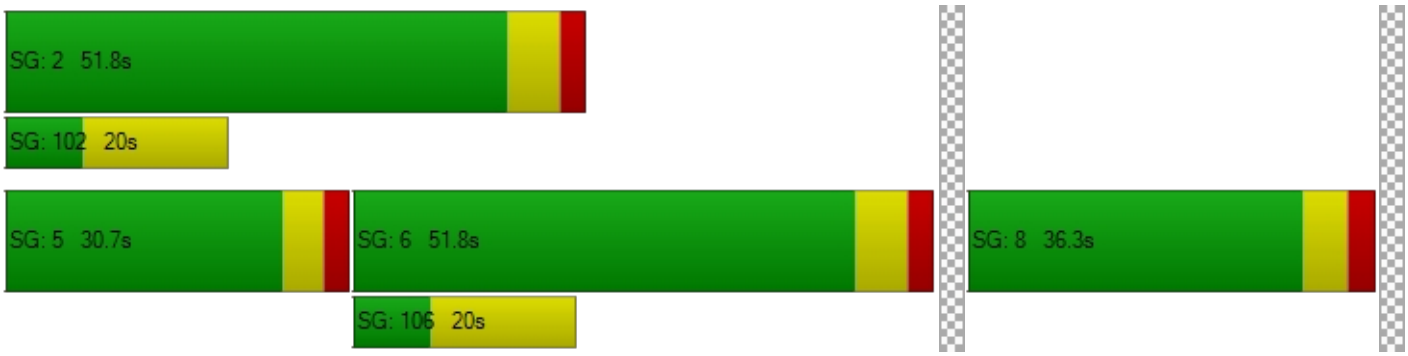
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.65 | 90.26 | 109.34 | 168.91 | | 12.89 | 0.34 |
| Stops [stops/h] | 278.79 | 129.81 | 266.39 | 933.86 | | 143.02 | 3.11 |
| Fuel consumption [US gal/h] | 7.29 | 5.40 | 8.74 | 27.71 | | 4.55 | 0.10 |
| CO [g/h] | 509.50 | 377.54 | 610.64 | 1936.89 | | 317.97 | 6.79 |
| NOx [g/h] | 99.13 | 73.46 | 118.81 | 376.85 | | 61.86 | 1.32 |
| VOC [g/h] | 118.08 | 87.50 | 141.52 | 448.89 | | 73.69 | 1.57 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.54 | 40.54 | 32.90 | 32.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.915 | 2.953 | 2.289 | 1.850 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1042 | 1042 | 0 | 694 |
| d_b, Bicycle Delay [s] | 9.92 | 9.92 | 43.20 | 18.41 |
| l_b,int, Bicycle LOS Score for Intersection | 2.528 | 2.708 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.680 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1161 | 99 | 9 | 666 | 0 | 298 | 0 | 350 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1161 | 99 | 9 | 666 | 0 | 298 | 0 | 350 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 315 | 27 | 2 | 181 | 0 | 81 | 0 | 95 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1262 | 108 | 10 | 724 | 0 | 324 | 0 | 380 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 53 | 53 | 2 | 60 | 27 | 27 | |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.02 | 0.60 | 0.27 | 0.27 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.36 | 0.38 | 0.01 | 0.20 | 0.09 | 0.24 | |
| s, saturation flow rate [veh/h] | 1877 | 1826 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 992 | 964 | 27 | 2150 | 930 | 431 | |
| d1, Uniform Delay [s] | 17.50 | 17.79 | 48.70 | 9.97 | 29.39 | 34.95 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.34 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 3.94 | 4.42 | 3.19 | 0.42 | 0.48 | 16.21 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.69 | 0.71 | 0.37 | 0.34 | 0.35 | 0.88 | |
| d, Delay for Lane Group [s/veh] | 21.44 | 22.21 | 51.88 | 10.40 | 29.87 | 51.16 | |
| Lane Group LOS | C | C | D | B | C | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 11.60 | 11.88 | 0.26 | 3.54 | 2.97 | 10.04 | |
| 50th-Percentile Queue Length [ft/ln] | 290.01 | 296.88 | 6.57 | 88.51 | 74.15 | 251.02 | |
| 95th-Percentile Queue Length [veh/ln] | 17.19 | 17.53 | 0.47 | 6.37 | 5.34 | 15.24 | |
| 95th-Percentile Queue Length [ft/ln] | 429.65 | 438.16 | 11.83 | 159.31 | 133.47 | 380.93 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 21.79 | 22.21 | 51.88 | 10.40 | 0.00 | 29.87 | 0.00 | 51.16 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | D | | | |
| d_A, Approach Delay [s/veh] | 21.82 | | | 10.96 | | | 41.36 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 23.88 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.680 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.46 | 45.46 | 1.08 | 78.26 | 38.51 | 45.16 | |
| Stops [stops/h] | 417.79 | 427.69 | 9.47 | 255.01 | 213.65 | 361.63 | |
| Fuel consumption [US gal/h] | 8.72 | 8.93 | 0.26 | 7.39 | 7.23 | 12.18 | |
| CO [g/h] | 609.59 | 623.95 | 18.20 | 516.25 | 505.08 | 851.63 | |
| NOx [g/h] | 118.60 | 121.40 | 3.54 | 100.44 | 98.27 | 165.70 | |
| VOC [g/h] | 141.28 | 144.61 | 4.22 | 119.65 | 117.06 | 197.37 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.921 | 2.964 | 2.364 | 1.777 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.690 | 2.165 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.012 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 0 | 8 | 4 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 0 | 8 | 4 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 0 | 0 | 2 | 1 | 0 |
| Total Analysis Volume [veh/h] | 12 | 0 | 0 | 9 | 4 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.63 | 8.38 | 0.00 | 0.00 | 7.24 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.04 | 0.04 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 0.91 | 0.91 | 0.00 | 0.00 | 0.19 | 0.19 |
| d_A, Approach Delay [s/veh] | 8.63 | | 0.00 | | 7.24 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.30 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 23.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.024 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 19 | 12 | 564 | 692 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 19 | 12 | 564 | 692 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 5 | 3 | 153 | 188 | 3 |
| Total Analysis Volume [veh/h] | 5 | 21 | 13 | 613 | 752 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.03 | 0.02 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 22.97 | 11.36 | 9.33 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.19 | 0.19 | 0.05 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.64 | 4.64 | 1.17 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.60 | | 0.19 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.34 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 22.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.167 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 20 | 598 | 37 | 0 | 642 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 20 | 598 | 37 | 0 | 642 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 5 | 163 | 10 | 0 | 174 |
| Total Analysis Volume [veh/h] | 40 | 22 | 650 | 40 | 0 | 698 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.17 | 0.03 | 0.01 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 22.94 | 13.26 | 0.00 | 0.00 | 9.03 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.73 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 18.33 | 18.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.50 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.83 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.465 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 170 | 74 | 35 | 7 | 22 | 0 | 26 | 308 | 327 | 18 | 446 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 170 | 74 | 35 | 7 | 22 | 0 | 26 | 308 | 327 | 18 | 446 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 20 | 10 | 2 | 6 | 0 | 7 | 84 | 89 | 5 | 121 | 0 |
| Total Analysis Volume [veh/h] | 185 | 80 | 38 | 8 | 24 | 0 | 28 | 335 | 355 | 20 | 485 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 13 | 13 | 7 | 7 | 4 | 23 | 23 | 4 | 23 | 23 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.21 | 0.12 | 0.12 | 0.07 | 0.36 | 0.36 | 0.06 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.04 | 0.03 | 0.00 | 0.01 | 0.02 | 0.10 | 0.22 | 0.01 | 0.14 | 0.00 |
| s, saturation flow rate [veh/h] | 1409 | 1900 | 1519 | 1810 | 1900 | 1738 | 3520 | 1603 | 1752 | 3566 | 1615 |
| c, Capacity [veh/h] | 292 | 394 | 315 | 211 | 221 | 114 | 1267 | 577 | 111 | 1276 | 578 |
| d1, Uniform Delay [s] | 22.88 | 20.75 | 20.39 | 24.80 | 25.01 | 28.06 | 14.32 | 16.63 | 28.06 | 15.10 | 0.00 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.85 | 0.09 | 0.06 | 0.16 | 0.46 | 0.41 | 0.24 | 2.27 | 0.28 | 0.40 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.63 | 0.20 | 0.12 | 0.04 | 0.11 | 0.25 | 0.26 | 0.62 | 0.18 | 0.38 | 0.00 |
| d, Delay for Lane Group [s/veh] | 23.73 | 20.84 | 20.45 | 24.96 | 25.46 | 28.47 | 14.55 | 18.91 | 28.34 | 15.50 | 0.00 |
| Lane Group LOS | C | C | C | C | C | C | B | B | C | B | A |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.41 | 0.93 | 0.43 | 0.11 | 0.33 | 0.37 | 1.41 | 3.75 | 0.26 | 2.16 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 60.30 | 23.23 | 10.86 | 2.76 | 8.35 | 9.27 | 35.37 | 93.65 | 6.60 | 54.10 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 4.34 | 1.67 | 0.78 | 0.20 | 0.60 | 0.67 | 2.55 | 6.74 | 0.47 | 3.90 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 108.55 | 41.81 | 19.55 | 4.96 | 15.03 | 16.68 | 63.66 | 168.58 | 11.87 | 97.39 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.73 | 20.84 | 20.45 | 24.96 | 25.46 | 25.46 | 28.47 | 14.55 | 18.91 | 28.34 | 15.50 | 0.00 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | A |
| d_A, Approach Delay [s/veh] | 22.56 | | | 25.34 | | | 17.25 | | | 16.01 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.05 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.465 | | | | | | | | | | | |

**Emissions**

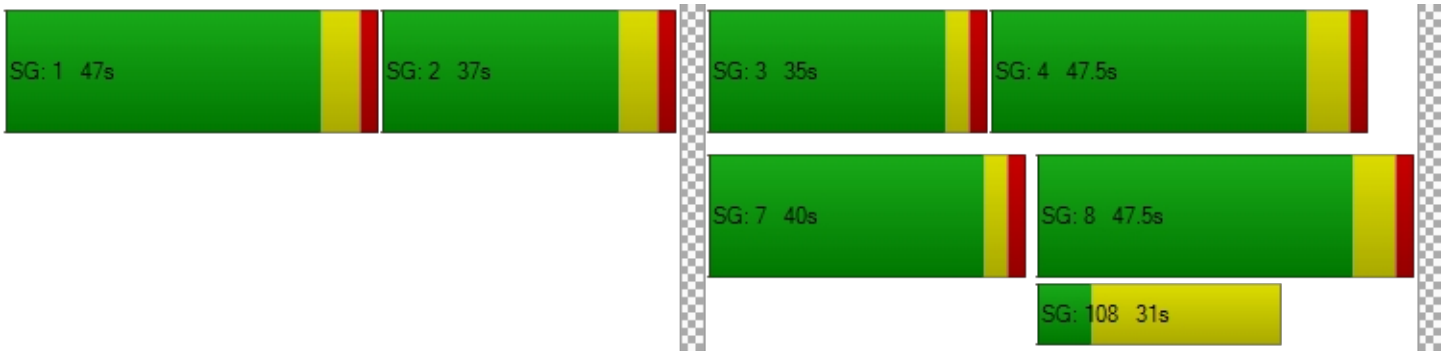
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 184.34 | 79.71 | 37.86 | 0.23 | 0.68 | 10.33 | 123.53 | 130.91 | 10.13 | 245.63 | 0.00 |
| Stops [stops/h] | 137.76 | 53.07 | 24.81 | 6.30 | 19.08 | 21.17 | 161.60 | 213.95 | 15.07 | 247.20 | 0.00 |
| Fuel consumption [US gal/h] | 9.24 | 3.91 | 1.85 | 0.08 | 0.26 | 0.83 | 7.61 | 9.03 | 0.69 | 13.55 | 0.00 |
| CO [g/h] | 646.10 | 273.60 | 129.59 | 5.92 | 18.01 | 58.23 | 531.92 | 631.50 | 47.94 | 947.16 | 0.00 |
| NOx [g/h] | 125.71 | 53.23 | 25.21 | 1.15 | 3.50 | 11.33 | 103.49 | 122.87 | 9.33 | 184.28 | 0.00 |
| VOC [g/h] | 149.74 | 63.41 | 30.03 | 1.37 | 4.17 | 13.49 | 123.28 | 146.36 | 11.11 | 219.51 | 0.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.48 | 25.35 | 24.91 | 24.91 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.417 | 1.973 | 2.902 | 2.679 |
| Crosswalk LOS | B | A | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1269 | 952 | 1269 | 1269 |
| d_b, Bicycle Delay [s] | 4.21 | 8.66 | 4.21 | 4.21 |
| l_b,int, Bicycle LOS Score for Intersection | 2.060 | 1.612 | 2.152 | 1.976 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.486 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 54 | 292 | 25 | 8 | 704 | 196 | 83 | 87 | 195 | 3 | 221 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 54 | 292 | 25 | 8 | 704 | 196 | 83 | 87 | 195 | 3 | 221 | 10 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 79 | 7 | 2 | 191 | 53 | 23 | 24 | 53 | 1 | 60 | 3 |
| Total Analysis Volume [veh/h] | 59 | 317 | 27 | 9 | 765 | 213 | 90 | 95 | 212 | 3 | 240 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 22 | 22 | 1 | 18 | 18 | 7 | 16 | 16 | 0 | 9 | 9 |
| g / C, Green / Cycle | 0.10 | 0.40 | 0.40 | 0.02 | 0.33 | 0.33 | 0.12 | 0.28 | 0.28 | 0.01 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.09 | 0.02 | 0.00 | 0.21 | 0.13 | 0.05 | 0.03 | 0.13 | 0.00 | 0.07 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1611 | 1810 | 3592 | 1594 | 1791 | 3475 | 1593 | 1794 | 3586 | 1399 |
| c, Capacity [veh/h] | 172 | 1421 | 649 | 39 | 1174 | 521 | 219 | 978 | 449 | 13 | 599 | 234 |
| d1, Uniform Delay [s] | 23.53 | 10.93 | 10.12 | 26.87 | 16.07 | 14.60 | 22.66 | 14.81 | 16.62 | 27.55 | 20.76 | 19.52 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.44 | 0.10 | 0.03 | 1.13 | 0.82 | 0.69 | 0.46 | 0.05 | 0.97 | 3.04 | 0.54 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.22 | 0.04 | 0.23 | 0.65 | 0.41 | 0.41 | 0.10 | 0.47 | 0.22 | 0.40 | 0.05 |
| d, Delay for Lane Group [s/veh] | 23.96 | 11.04 | 10.15 | 28.00 | 16.89 | 15.28 | 23.12 | 14.87 | 17.59 | 30.59 | 21.30 | 19.62 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.64 | 0.97 | 0.16 | 0.11 | 3.36 | 1.73 | 1.04 | 0.41 | 2.13 | 0.05 | 1.24 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 16.06 | 24.27 | 3.90 | 2.87 | 83.93 | 43.24 | 26.07 | 10.24 | 53.36 | 1.17 | 31.11 | 2.75 |
| 95th-Percentile Queue Length [veh/ln] | 1.16 | 1.75 | 0.28 | 0.21 | 6.04 | 3.11 | 1.88 | 0.74 | 3.84 | 0.08 | 2.24 | 0.20 |
| 95th-Percentile Queue Length [ft/ln] | 28.91 | 43.68 | 7.02 | 5.17 | 151.08 | 77.83 | 46.93 | 18.43 | 96.04 | 2.11 | 56.00 | 4.95 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.96 | 11.04 | 10.15 | 28.00 | 16.89 | 15.28 | 23.12 | 14.87 | 17.59 | 30.59 | 21.30 | 19.62 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 12.87 | | | 16.65 | | | 18.19 | | | 21.34 | | |
| Approach LOS | B | | | B | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 16.78 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.486 | | | | | | | | | | | |

**Emissions**

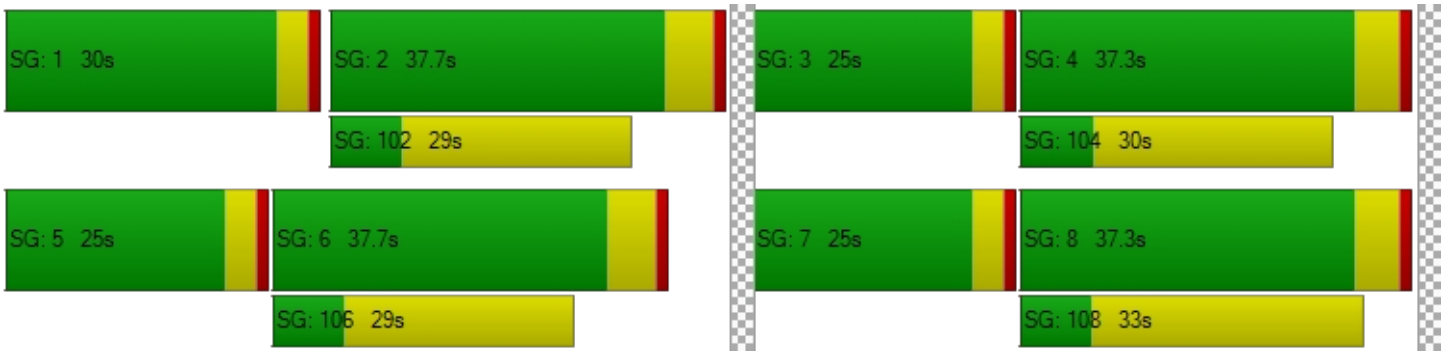
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.01 | 145.11 | 12.36 | 8.97 | 762.27 | 212.24 | 90.15 | 95.15 | 212.34 | 1.50 | 120.38 | 5.52 |
| Stops [stops/h] | 41.50 | 125.42 | 10.08 | 7.42 | 433.74 | 111.72 | 67.37 | 52.90 | 137.87 | 3.03 | 160.77 | 7.11 |
| Fuel consumption [US gal/h] | 1.83 | 7.50 | 0.62 | 0.47 | 34.82 | 9.49 | 4.51 | 4.50 | 10.26 | 0.11 | 7.17 | 0.32 |
| CO [g/h] | 127.86 | 524.01 | 43.65 | 32.54 | 2433.59 | 663.00 | 315.02 | 314.33 | 717.31 | 7.54 | 500.89 | 22.47 |
| NOx [g/h] | 24.88 | 101.95 | 8.49 | 6.33 | 473.49 | 129.00 | 61.29 | 61.16 | 139.56 | 1.47 | 97.45 | 4.37 |
| VOC [g/h] | 29.63 | 121.45 | 10.12 | 7.54 | 564.01 | 153.66 | 73.01 | 72.85 | 166.24 | 1.75 | 116.08 | 5.21 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 17.95 | 17.95 | 17.95 | 17.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.801 | 2.806 | 2.574 | 2.520 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1148 | 1148 | 1148 | 1148 |
| d_b, Bicycle Delay [s] | 5.05 | 5.05 | 5.05 | 5.05 |
| l_b,int, Bicycle LOS Score for Intersection | 1.892 | 2.374 | 1.887 | 1.769 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 18.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 270 | 213 | 423 | 97 | 745 | 26 | 5 | 94 | 114 | 522 | 116 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 270 | 213 | 423 | 97 | 745 | 26 | 5 | 94 | 114 | 522 | 116 | 79 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 73 | 58 | 115 | 26 | 202 | 7 | 1 | 26 | 31 | 142 | 32 | 21 |
| Total Analysis Volume [veh/h] | 293 | 232 | 460 | 105 | 810 | 28 | 5 | 102 | 124 | 567 | 126 | 86 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 219 | | | 1012 | | | 1517 | | | 549 | | |
| Exiting Flow Rate [veh/h] | 1533 | | | 336 | | | 453 | | | 682 | | |
| Demand Flow Rate [veh/h] | 270 | 213 | 423 | 97 | 745 | 26 | 5 | 94 | 114 | 522 | 116 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 293 | 232 | 460 | 105 | 810 | 28 | 5 | 102 | 124 | 567 | 126 | 86 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.97 | 0.97 | 0.98 | 0.99 | 0.97 | 0.99 | 0.97 | 0.98 |
| Entry Flow Rate [veh/h] | 480 | 539 | 451 | 507 | 111 | 126 | 428 | 376 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1164 | 1164 | 533 | 601 | 335 | 392 | 815 | 891 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1123 | 1128 | 524 | 593 | 325 | 388 | 787 | 869 |
| X, volume / capacity | 0.41 | 0.46 | 0.85 | 0.84 | 0.33 | 0.32 | 0.52 | 0.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | E | D | C | C | B | A |
| 95th-Percentile Queue Length [veh] | 2.06 | 2.51 | 8.81 | 9.06 | 1.40 | 1.36 | 3.11 | 2.12 |
| 95th-Percentile Queue Length [ft] | 51.39 | 62.63 | 220.18 | 226.40 | 35.06 | 33.88 | 77.64 | 52.90 |
| Approach Delay [s/veh] | 7.89 | | 36.30 | | 16.53 | | 10.78 | |
| Approach LOS | A | | E | | C | | B | |
| Intersection Delay [s/veh] | 18.45 | | | | | | | |
| Intersection LOS | C | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.514 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 758 | 903 | 0 | 826 | 544 | 0 | 0 | 0 | 43 | 0 | 118 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 758 | 903 | 0 | 826 | 544 | 0 | 0 | 0 | 43 | 0 | 118 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 206 | 245 | 0 | 224 | 148 | 0 | 0 | 0 | 12 | 0 | 32 |
| Total Analysis Volume [veh/h] | 0 | 824 | 982 | 0 | 898 | 591 | 0 | 0 | 0 | 47 | 0 | 128 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 46 | 46 | 46 | | 46 | 46 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 26 | 26 | 26 | | 7 | 7 |
| g / C, Green / Cycle | 0.57 | 0.57 | 0.57 | | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.25 | 0.37 | | 0.03 | 0.08 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2011 | 2008 | 914 | | 277 | 250 |
| d1, Uniform Delay [s] | 5.62 | 5.78 | 6.81 | | 16.77 | 17.75 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.25 | 0.29 | 1.44 | | 0.61 | 3.46 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.41 | 0.45 | 0.65 | | 0.17 | 0.51 |
| d, Delay for Lane Group [s/veh] | 5.87 | 6.07 | 8.25 | | 17.38 | 21.21 |
| Lane Group LOS | A | A | A | | B | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.12 | 1.26 | 2.19 | | 0.37 | 1.17 |
| 50th-Percentile Queue Length [ft/ln] | 27.96 | 31.42 | 54.73 | | 9.29 | 29.36 |
| 95th-Percentile Queue Length [veh/ln] | 2.01 | 2.26 | 3.94 | | 0.67 | 2.11 |
| 95th-Percentile Queue Length [ft/ln] | 50.33 | 56.56 | 98.51 | | 16.71 | 52.85 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.87 | 0.00 | 0.00 | 6.07 | 8.25 | 0.00 | 0.00 | 0.00 | 17.38 | 0.00 | 21.21 |
| Movement LOS | | A | | | A | A | | | | B | | C |
| d_A, Approach Delay [s/veh] | 2.80 | | | 6.93 | | | 0.00 | | | 20.18 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 6.50 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.514 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 94.26 | 88.59 | 58.31 | | 3.32 | 9.06 |
| Stops [stops/h] | 175.75 | 197.48 | 171.98 | | 29.18 | 92.28 |
| Fuel consumption [US gal/h] | 6.40 | 6.60 | 5.13 | | 0.82 | 2.57 |
| CO [g/h] | 447.35 | 461.41 | 358.52 | | 57.28 | 179.60 |
| NOx [g/h] | 87.04 | 89.77 | 69.75 | | 11.15 | 34.94 |
| VOC [g/h] | 103.68 | 106.94 | 83.09 | | 13.28 | 41.62 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.92 | 19.92 | 13.23 | 13.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.795 | 2.991 | 1.964 | 2.005 |
| Crosswalk LOS | C | C | A | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1528 | 1528 | 0 | 873 |
| d_b, Bicycle Delay [s] | 1.28 | 1.28 | 22.91 | 7.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.239 | 2.788 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 89.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.064 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1450 | 36 | 26 | 786 | 0 | 188 | 0 | 769 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1450 | 36 | 26 | 786 | 0 | 188 | 0 | 769 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 394 | 10 | 7 | 214 | 0 | 51 | 0 | 209 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1576 | 39 | 28 | 854 | 0 | 204 | 0 | 836 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 3 | 54 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.51 | 0.38 | 0.38 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.43 | 0.43 | 0.02 | 0.24 | 0.12 | 0.52 | |
| s, saturation flow rate [veh/h] | 1873 | 1857 | 1758 | 3580 | 1749 | 1597 | |
| c, Capacity [veh/h] | 790 | 783 | 57 | 1819 | 656 | 599 | |
| d1, Uniform Delay [s] | 30.84 | 30.84 | 50.72 | 16.96 | 23.59 | 33.34 | |
| k, delay calibration | 0.45 | 0.46 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 36.19 | 38.94 | 2.37 | 0.34 | 0.57 | 188.26 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.02 | 1.03 | 0.49 | 0.47 | 0.31 | 1.40 | |
| d, Delay for Lane Group [s/veh] | 67.04 | 69.79 | 53.09 | 17.30 | 24.16 | 221.61 | |
| Lane Group LOS | F | F | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 26.46 | 26.84 | 0.75 | 6.26 | 3.45 | 45.20 | |
| 50th-Percentile Queue Length [ft/ln] | 661.61 | 670.97 | 18.80 | 156.60 | 86.25 | 1129.91 | |
| 95th-Percentile Queue Length [veh/ln] | 35.48 | 36.15 | 1.35 | 10.37 | 6.21 | 68.31 | |
| 95th-Percentile Queue Length [ft/ln] | 887.08 | 903.77 | 33.84 | 259.21 | 155.25 | 1707.76 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 68.38 | 69.79 | 53.09 | 17.30 | 0.00 | 24.16 | 0.00 | 221.61 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | F | E | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 68.41 | | | 18.44 | | | 182.88 | | | 0.00 | | |
| Approach LOS | E | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 89.61 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.064 | | | | | | | | | | | |

**Emissions**

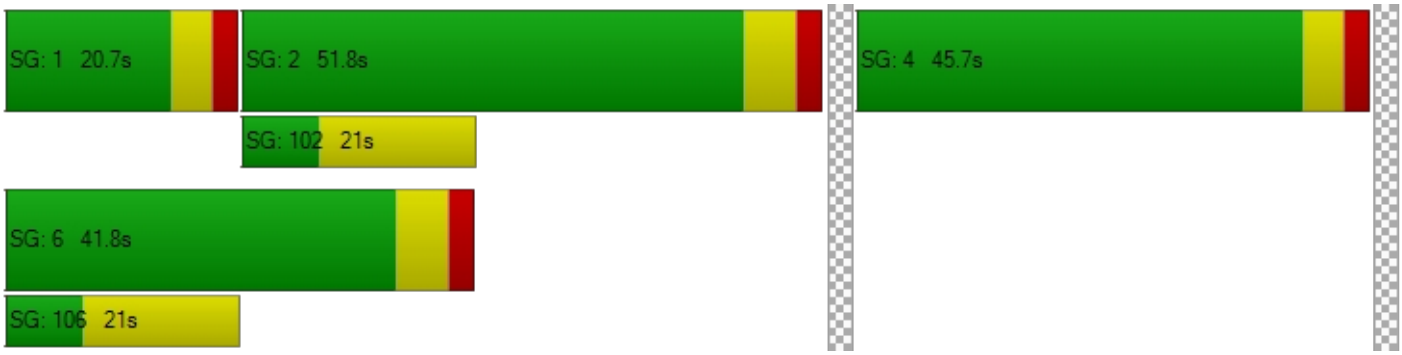
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 65.41 | 65.41 | 3.20 | 97.69 | 15.95 | 65.37 | |
| Stops [stops/h] | 893.44 | 906.09 | 25.39 | 422.94 | 116.47 | 1525.84 | |
| Fuel consumption [US gal/h] | 24.37 | 24.97 | 0.73 | 11.61 | 3.70 | 68.22 | |
| CO [g/h] | 1703.13 | 1745.70 | 50.88 | 811.83 | 258.65 | 4768.75 | |
| NOx [g/h] | 331.37 | 339.65 | 9.90 | 157.95 | 50.32 | 927.83 | |
| VOC [g/h] | 394.72 | 404.58 | 11.79 | 188.15 | 59.94 | 1105.20 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 50.07 | 50.07 | 42.88 | 42.88 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.354 | 3.116 | 2.652 | 1.756 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 844 | 656 | 750 | 0 |
| d_b, Bicycle Delay [s] | 17.81 | 24.06 | 20.82 | 53.32 |
| l_b,int, Bicycle LOS Score for Intersection | 2.892 | 2.287 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.199 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 0 | 17 | 0 | 0 | 0 | 0 | 302 | 37 | 3 | 394 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 61 | 0 | 17 | 0 | 0 | 0 | 0 | 302 | 37 | 3 | 394 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 17 | 0 | 5 | 0 | 0 | 0 | 0 | 82 | 10 | 1 | 107 | 0 |
| Total Analysis Volume [veh/h] | 66 | 0 | 18 | 0 | 0 | 0 | 0 | 328 | 40 | 3 | 428 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 8 | 0 | 3 | 0 | 11 | 11 | 0 | 11 | 11 |
| g / C, Green / Cycle | 0.26 | 0.23 | 0.00 | 0.08 | 0.00 | 0.31 | 0.31 | 0.01 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.01 | 0.00 | 0.00 | 0.00 | 0.09 | 0.03 | 0.00 | 0.12 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1481 | 1440 | 1900 | 1810 | 3466 | 1493 | 1810 | 3575 | 1615 |
| c, Capacity [veh/h] | 678 | 345 | 203 | 156 | 1 | 1065 | 459 | 18 | 1132 | 512 |
| d1, Uniform Delay [s] | 8.99 | 10.61 | 0.00 | 0.00 | 0.00 | 9.45 | 8.79 | 17.50 | 9.45 | 0.00 |
| k, delay calibration | 0.15 | 0.12 | 0.04 | 0.04 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.09 | 0.07 | 0.00 | 0.00 | 0.00 | 0.25 | 0.12 | 1.55 | 0.34 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.10 | 0.05 | 0.00 | 0.00 | 0.00 | 0.31 | 0.09 | 0.16 | 0.38 | 0.00 |
| d, Delay for Lane Group [s/veh] | 9.08 | 10.68 | 0.00 | 0.00 | 0.00 | 9.70 | 8.91 | 19.05 | 9.80 | 0.00 |
| Lane Group LOS | A | B | A | A | A | A | A | B | A | A |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.25 | 0.08 | 0.00 | 0.00 | 0.00 | 0.59 | 0.14 | 0.03 | 0.77 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 6.33 | 1.99 | 0.00 | 0.00 | 0.00 | 14.69 | 3.52 | 0.65 | 19.28 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.46 | 0.14 | 0.00 | 0.00 | 0.00 | 1.06 | 0.25 | 0.05 | 1.39 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 11.39 | 3.58 | 0.00 | 0.00 | 0.00 | 26.45 | 6.34 | 1.16 | 34.71 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.08 | 9.08 | 10.68 | 0.00 | 0.00 | 0.00 | 0.00 | 9.70 | 8.91 | 19.05 | 9.80 | 0.00 |
| Movement LOS | A | A | B | A | A | A | A | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 9.42 | | | 0.00 | | | 9.61 | | | 9.86 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 9.72 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.199 | | | | | | | | | | | |

**Emissions**

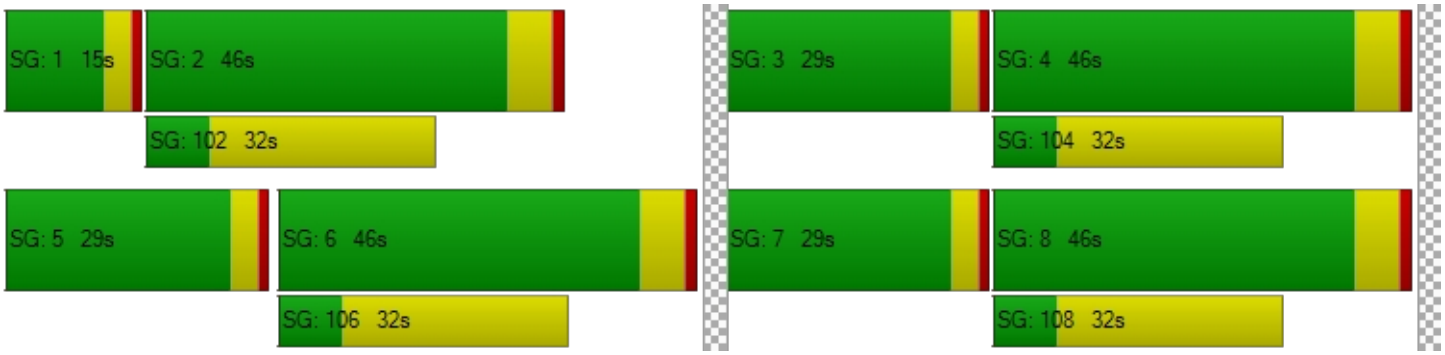
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.43 | 0.94 | 0.00 | 0.00 | 0.00 | 166.11 | 20.26 | 1.50 | 213.61 | 0.00 |
| Stops [stops/h] | 25.64 | 8.06 | 0.00 | 0.00 | 0.00 | 119.11 | 14.27 | 2.62 | 156.33 | 0.00 |
| Fuel consumption [US gal/h] | 0.56 | 0.17 | 0.00 | 0.00 | 0.00 | 8.04 | 0.97 | 0.10 | 10.41 | 0.00 |
| CO [g/h] | 39.04 | 11.98 | 0.00 | 0.00 | 0.00 | 561.89 | 67.80 | 7.13 | 727.44 | 0.00 |
| NOx [g/h] | 7.60 | 2.33 | 0.00 | 0.00 | 0.00 | 109.32 | 13.19 | 1.39 | 141.53 | 0.00 |
| VOC [g/h] | 9.05 | 2.78 | 0.00 | 0.00 | 0.00 | 130.22 | 15.71 | 1.65 | 168.59 | 0.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 8.47 | 8.47 | 8.47 | 8.47 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.945 | 1.883 | 2.696 | 2.606 |
| Crosswalk LOS | A | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3885 | 2252 | 2252 | 2252 |
| d_b, Bicycle Delay [s] | 15.77 | 0.28 | 0.28 | 0.28 |
| l_b,int, Bicycle LOS Score for Intersection | 1.698 | 1.560 | 1.863 | 1.915 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.291 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 18 | 3 | 8 | 111 | 193 | 98 | 17 | 0 | 1 | 25 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 18 | 3 | 8 | 111 | 193 | 98 | 17 | 0 | 1 | 25 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 5 | 1 | 2 | 30 | 52 | 27 | 5 | 0 | 0 | 7 | 2 |
| Total Analysis Volume [veh/h] | 0 | 20 | 3 | 9 | 121 | 210 | 107 | 18 | 0 | 1 | 27 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 9 | 1 | 10 | 10 | 8 | 12 | 12 | 0 | 5 | 5 |
| g / C, Green / Cycle | 0.00 | 0.23 | 0.03 | 0.26 | 0.26 | 0.20 | 0.32 | 0.32 | 0.00 | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.01 | 0.01 | 0.06 | 0.13 | 0.06 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 1828 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 0 | 423 | 48 | 483 | 410 | 352 | 1143 | 510 | 6 | 452 | 202 |
| d1, Uniform Delay [s] | 0.00 | 11.47 | 18.24 | 11.28 | 12.16 | 13.13 | 8.88 | 0.00 | 19.06 | 14.73 | 14.69 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.06 | 0.69 | 0.38 | 1.41 | 0.18 | 0.01 | 0.00 | 5.06 | 0.09 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.05 | 0.19 | 0.25 | 0.51 | 0.30 | 0.02 | 0.00 | 0.17 | 0.06 | 0.04 |
| d, Delay for Lane Group [s/veh] | 0.00 | 11.53 | 18.93 | 11.66 | 13.56 | 13.31 | 8.89 | 0.00 | 24.12 | 14.82 | 14.82 |
| Lane Group LOS | A | B | B | B | B | B | A | A | C | B | B |
| Critical Lane Group | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 0.11 | 0.07 | 0.61 | 1.20 | 0.66 | 0.04 | 0.00 | 0.02 | 0.08 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 2.85 | 1.76 | 15.24 | 30.10 | 16.48 | 1.01 | 0.00 | 0.38 | 2.08 | 1.33 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.20 | 0.13 | 1.10 | 2.17 | 1.19 | 0.07 | 0.00 | 0.03 | 0.15 | 0.10 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 5.12 | 3.17 | 27.43 | 54.19 | 29.67 | 1.82 | 0.00 | 0.68 | 3.75 | 2.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 11.53 | 11.53 | 18.93 | 11.66 | 13.56 | 13.31 | 8.89 | 0.00 | 24.12 | 14.82 | 14.82 |
| Movement LOS | A | B | B | B | B | B | B | A | A | C | B | B |
| d_A, Approach Delay [s/veh] | | 11.53 | | | 13.03 | | | 12.68 | | | 15.08 | |
| Approach LOS | | B | | | B | | | B | | | B | |
| d_I, Intersection Delay [s/veh] | 13.02 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.291 | | | | | | | | | | | |

**Emissions**

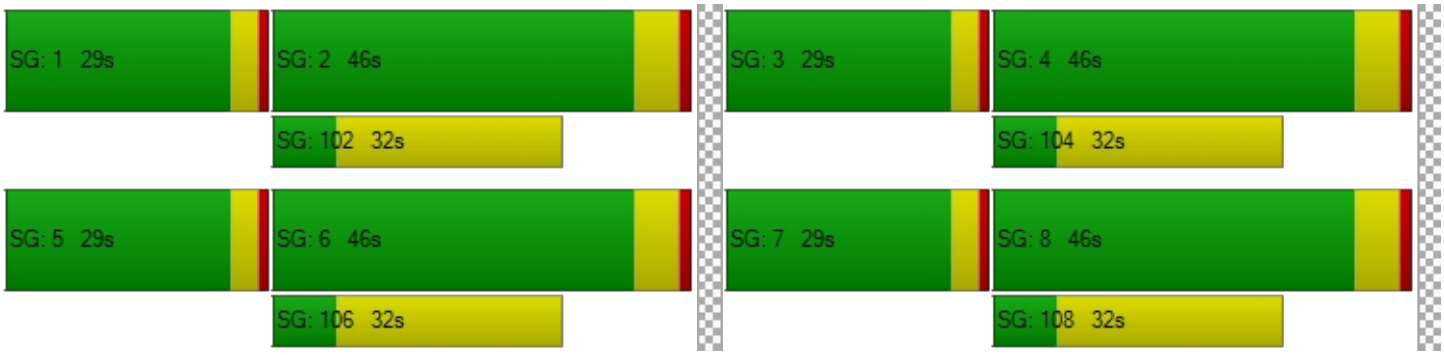
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 6.45 | 0.39 | 5.19 | 9.00 | 53.67 | 9.03 | 0.00 | 0.06 | 1.54 | 0.46 |
| Stops [stops/h] | 0.00 | 10.72 | 6.63 | 57.43 | 113.46 | 62.12 | 7.63 | 0.00 | 1.43 | 15.69 | 5.02 |
| Fuel consumption [US gal/h] | 0.00 | 0.41 | 0.13 | 1.18 | 2.30 | 2.84 | 0.45 | 0.00 | 0.02 | 0.33 | 0.10 |
| CO [g/h] | 0.00 | 28.55 | 9.12 | 82.43 | 160.71 | 198.70 | 31.20 | 0.00 | 1.73 | 23.03 | 7.14 |
| NOx [g/h] | 0.00 | 5.56 | 1.77 | 16.04 | 31.27 | 38.66 | 6.07 | 0.00 | 0.34 | 4.48 | 1.39 |
| VOC [g/h] | 0.00 | 6.62 | 2.11 | 19.10 | 37.25 | 46.05 | 7.23 | 0.00 | 0.40 | 5.34 | 1.66 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.69 | 9.69 | 9.69 | 9.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.132 | 2.253 | 2.460 | 2.417 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2094 | 2094 | 2094 | 2094 |
| d_b, Bicycle Delay [s] | 0.04 | 0.04 | 0.04 | 0.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.598 | 1.840 | 1.663 | 1.589 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.310 |

**Intersection Setup**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 249 | 26 | 10 | 120 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 249 | 26 | 10 | 120 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 68 | 7 | 3 | 33 | 0 |
| Total Analysis Volume [veh/h] | 0 | 271 | 28 | 11 | 130 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 3 | 0 | 1 | 6 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 25 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 11 | 0 | 11 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 4.0 | 4.0 | 0.0 |
| Minimum Recall | No | | No | Yes | Yes | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 32 | 32 | 32 | 32 | 32 | 32 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 10 | 2 | 14 | 8 | 8 |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.08 | 0.44 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.17 | 0.02 | 0.00 | 0.04 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 1589 | 1781 | 3560 | 3560 | 1589 |
| c, Capacity [veh/h] | 558 | 498 | 138 | 1558 | 839 | 375 |
| d1, Uniform Delay [s] | 0.00 | 9.13 | 13.90 | 5.10 | 9.75 | 0.00 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.34 | 0.26 | 0.00 | 0.12 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.54 | 0.20 | 0.01 | 0.15 | 0.00 |
| d, Delay for Lane Group [s/veh] | 0.00 | 9.48 | 14.16 | 5.10 | 9.87 | 0.00 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 1.10 | 0.16 | 0.01 | 0.28 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 27.56 | 4.05 | 0.31 | 6.98 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.98 | 0.29 | 0.02 | 0.50 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 49.61 | 7.29 | 0.55 | 12.56 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.48 | 14.16 | 5.10 | 9.87 | 0.00 |
| Movement LOS | A | A | B | A | A | A |
| d_A, Approach Delay [s/veh] | 9.48 | | 11.61 | | 9.87 | |
| Approach LOS | A | | B | | A | |
| d_I, Intersection Delay [s/veh] | 9.78 | | | | | |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.310 | | | | | |

**Emissions**

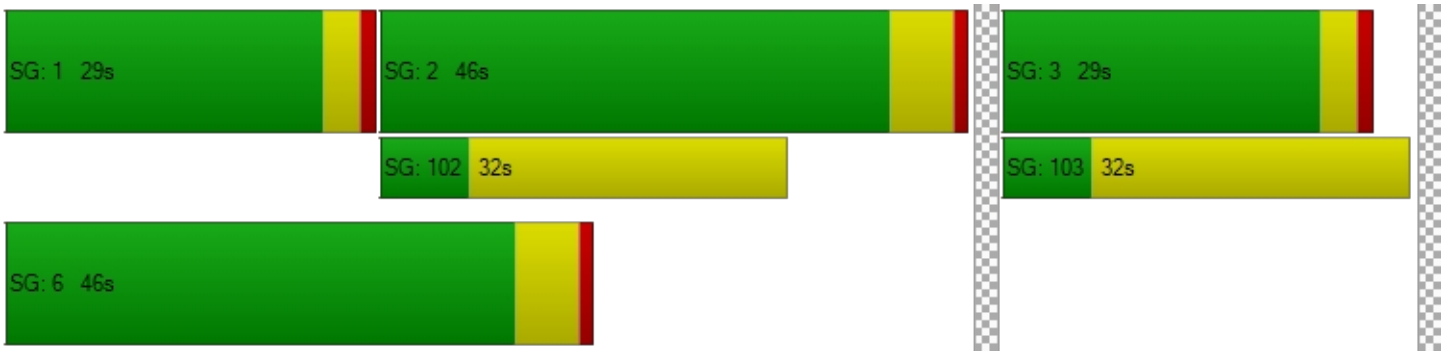
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 76.04 | 2.93 | 1.15 | 3.09 | 0.00 |
| Stops [stops/h] | 0.00 | 123.79 | 18.19 | 2.76 | 62.67 | 0.00 |
| Fuel consumption [US gal/h] | 0.00 | 4.34 | 0.30 | 0.07 | 0.73 | 0.00 |
| CO [g/h] | 0.00 | 303.15 | 21.09 | 5.17 | 51.35 | 0.00 |
| NOx [g/h] | 0.00 | 58.98 | 4.10 | 1.01 | 9.99 | 0.00 |
| VOC [g/h] | 0.00 | 70.26 | 4.89 | 1.20 | 11.90 | 0.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.92 | 6.92 | 6.92 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.972 | 2.321 | 2.262 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1560 | 2495 | 2495 |
| d_b, Bicycle Delay [s] | 0.78 | 0.98 | 0.98 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.592 | 1.667 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.231 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 4 | 0 | 237 | 76 | 4 | 266 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 128 | 4 | 0 | 237 | 76 | 4 | 266 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 1 | 0 | 64 | 21 | 1 | 72 |
| Total Analysis Volume [veh/h] | 139 | 4 | 0 | 258 | 83 | 4 | 289 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 7 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.24 | 0.24 | 0.00 | 0.33 | 0.33 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.00 | 0.00 | 0.07 | 0.05 | 0.00 | 0.08 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 3618 |
| c, Capacity [veh/h] | 423 | 387 | 1 | 1156 | 520 | 18 | 1239 |
| d1, Uniform Delay [s] | 9.02 | 8.33 | 0.00 | 6.91 | 6.76 | 14.11 | 6.76 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.17 | 0.00 | 0.00 | 0.13 | 0.20 | 2.16 | 0.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.33 | 0.01 | 0.00 | 0.22 | 0.16 | 0.22 | 0.23 |
| d, Delay for Lane Group [s/veh] | 9.19 | 8.34 | 0.00 | 7.05 | 6.95 | 16.27 | 6.89 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.50 | 0.01 | 0.00 | 0.23 | 0.16 | 0.03 | 0.39 |
| 50th-Percentile Queue Length [ft/ln] | 12.45 | 0.33 | 0.00 | 5.79 | 4.02 | 0.78 | 9.77 |
| 95th-Percentile Queue Length [veh/ln] | 0.90 | 0.02 | 0.00 | 0.42 | 0.29 | 0.06 | 0.70 |
| 95th-Percentile Queue Length [ft/ln] | 22.40 | 0.59 | 0.00 | 10.43 | 7.23 | 1.40 | 17.59 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.19 | 8.34 | 0.00 | 7.05 | 6.95 | 16.27 | 6.89 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.17 | | 7.02 | | | 7.02 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 7.41 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.231 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 104.03 | 2.99 | 0.00 | 128.77 | 41.43 | 5.00 | 360.90 |
| Stops [stops/h] | 62.64 | 1.65 | 0.00 | 58.33 | 20.21 | 3.91 | 98.39 |
| Fuel consumption [US gal/h] | 4.89 | 0.14 | 0.00 | 5.58 | 1.82 | 0.24 | 15.81 |
| CO [g/h] | 341.71 | 9.73 | 0.00 | 389.87 | 126.87 | 16.81 | 1104.83 |
| NOx [g/h] | 66.48 | 1.89 | 0.00 | 75.85 | 24.68 | 3.27 | 214.96 |
| VOC [g/h] | 79.19 | 2.25 | 0.00 | 90.36 | 29.40 | 3.90 | 256.06 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.42 | 10.85 | 10.85 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.112 | 2.614 | 2.361 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1538 | 2237 | 2237 |
| d_b, Bicycle Delay [s] | 0.76 | 0.20 | 0.20 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.841 | 1.801 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 5.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 450 | 85 | 34 | 61 | 19 | 145 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 450 | 85 | 34 | 61 | 19 | 145 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 23 | 9 | 17 | 5 | 39 |
| Total Analysis Volume [veh/h] | 489 | 92 | 37 | 66 | 21 | 158 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 25 | | 494 | | 40 | |
| Exiting Flow Rate [veh/h] | 203 | | 117 | | 562 | |
| Demand Flow Rate [veh/h] | 450 | 85 | 34 | 61 | 19 | 145 |
| Adjusted Demand Flow Rate [veh/h] | 489 | 92 | 37 | 66 | 21 | 158 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 0.99 | 1.00 | 0.96 | 0.98 | 0.85 | 0.96 |
| Entry Flow Rate [veh/h] | 495 | 92 | 51 | 56 | 25 | 166 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1320 | 1391 | 906 | 906 | 1370 | 1370 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1306 | 1391 | 870 | 888 | 1159 | 1309 |
| X, volume / capacity | 0.37 | 0.07 | 0.06 | 0.06 | 0.02 | 0.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 1.77 | 0.21 | 0.18 | 0.20 | 0.06 | 0.41 |
| 95th-Percentile Queue Length [ft] | 44.17 | 5.31 | 4.42 | 4.90 | 1.38 | 10.27 |
| Approach Delay [s/veh] | 5.77 | | 4.64 | | 3.68 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 5.20 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.506 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 142 | 34 | 2 | 2 | 69 | 435 | 143 | 252 | 52 | 15 | 515 | 16 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 142 | 34 | 2 | 2 | 69 | 217 | 143 | 252 | 52 | 15 | 515 | 16 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 9 | 1 | 1 | 19 | 59 | 39 | 68 | 14 | 4 | 140 | 4 |
| Total Analysis Volume [veh/h] | 154 | 37 | 2 | 2 | 75 | 236 | 155 | 274 | 57 | 16 | 560 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 10 | 27 | 27 | 1 | 18 | 18 | 10 | 30 | 30 | 3 | 23 | 23 |
| g / C, Green / Cycle | 0.11 | 0.30 | 0.30 | 0.01 | 0.20 | 0.20 | 0.11 | 0.33 | 0.33 | 0.04 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.01 | 0.00 | 0.00 | 0.04 | 0.15 | 0.05 | 0.08 | 0.04 | 0.01 | 0.16 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 193 | 939 | 479 | 11 | 363 | 318 | 351 | 1069 | 512 | 63 | 912 | 408 |
| d1, Uniform Delay [s] | 39.59 | 22.49 | 22.25 | 45.02 | 30.49 | 34.29 | 38.02 | 22.48 | 21.37 | 42.57 | 29.85 | 25.42 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.31 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.44 | 0.04 | 0.01 | 8.46 | 0.81 | 9.50 | 0.88 | 0.80 | 0.61 | 2.08 | 4.25 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.04 | 0.00 | 0.19 | 0.21 | 0.74 | 0.44 | 0.26 | 0.11 | 0.25 | 0.61 | 0.04 |
| d, Delay for Lane Group [s/veh] | 47.03 | 22.54 | 22.26 | 53.47 | 31.30 | 43.79 | 38.89 | 23.28 | 21.98 | 44.65 | 34.10 | 25.68 |
| Lane Group LOS | D | C | C | D | C | D | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.71 | 0.28 | 0.03 | 0.07 | 1.44 | 5.64 | 1.64 | 2.23 | 0.92 | 0.38 | 5.82 | 0.30 |
| 50th-Percentile Queue Length [ft/ln] | 92.63 | 7.05 | 0.77 | 1.73 | 35.95 | 140.95 | 40.98 | 55.67 | 23.01 | 9.56 | 145.44 | 7.58 |
| 95th-Percentile Queue Length [veh/ln] | 6.67 | 0.51 | 0.06 | 0.12 | 2.59 | 9.53 | 2.95 | 4.01 | 1.66 | 0.69 | 9.77 | 0.55 |
| 95th-Percentile Queue Length [ft/ln] | 166.74 | 12.69 | 1.38 | 3.11 | 64.70 | 238.30 | 73.77 | 100.20 | 41.42 | 17.20 | 244.34 | 13.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 47.03 | 22.54 | 22.26 | 53.47 | 31.30 | 43.79 | 38.89 | 23.28 | 21.98 | 44.65 | 34.10 | 25.68 |
| Movement LOS | D | C | C | D | C | D | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 42.08 | | | 40.86 | | | 28.11 | | | 34.14 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.58 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.506 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 14.26 | 3.43 | 0.19 | 0.14 | 5.33 | 16.76 | 21.42 | 37.87 | 7.88 | 19.96 | 698.44 | 21.20 |
| Stops [stops/h] | 146.86 | 22.35 | 1.22 | 2.74 | 56.99 | 223.47 | 129.96 | 176.52 | 36.48 | 15.15 | 461.19 | 12.01 |
| Fuel consumption [US gal/h] | 2.87 | 0.43 | 0.02 | 0.04 | 1.01 | 4.03 | 2.83 | 3.83 | 0.78 | 1.05 | 35.19 | 1.03 |
| CO [g/h] | 200.77 | 30.35 | 1.64 | 2.99 | 70.73 | 281.53 | 197.58 | 267.88 | 54.58 | 73.44 | 2459.50 | 71.86 |
| NOx [g/h] | 39.06 | 5.91 | 0.32 | 0.58 | 13.76 | 54.78 | 38.44 | 52.12 | 10.62 | 14.29 | 478.53 | 13.98 |
| VOC [g/h] | 46.53 | 7.03 | 0.38 | 0.69 | 16.39 | 65.25 | 45.79 | 62.08 | 12.65 | 17.02 | 570.01 | 16.65 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.08 | 35.08 | 35.08 | 35.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.508 | 2.754 | 2.824 | 2.944 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 440 | 661 | 881 | 881 |
| d_b, Bicycle Delay [s] | 27.61 | 20.37 | 14.22 | 14.22 |
| l_b,int, Bicycle LOS Score for Intersection | 1.719 | 2.436 | 1.961 | 2.049 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.295 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 127 | 2 | 50 | 154 | 180 | 52 | 186 | 13 | 1 | 287 | 97 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 127 | 2 | 50 | 154 | 180 | 52 | 186 | 13 | 1 | 287 | 97 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 35 | 1 | 14 | 42 | 49 | 14 | 51 | 4 | 0 | 78 | 26 |
| Total Analysis Volume [veh/h] | 33 | 138 | 2 | 54 | 167 | 196 | 57 | 202 | 14 | 1 | 312 | 105 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 17 | 7 | 19 | 19 | 7 | 17 | 17 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.07 | 0.24 | 0.09 | 0.27 | 0.27 | 0.10 | 0.24 | 0.24 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.08 | 0.02 | 0.09 | 0.12 | 0.02 | 0.06 | 0.01 | 0.00 | 0.09 | 0.04 |
| s, saturation flow rate [veh/h] | 1762 | 1766 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 121 | 424 | 324 | 495 | 426 | 327 | 830 | 386 | 6 | 535 | 421 |
| d1, Uniform Delay [s] | 31.13 | 22.11 | 29.39 | 20.90 | 21.67 | 29.24 | 21.67 | 20.59 | 35.02 | 27.90 | 26.45 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.45 | 1.55 | 0.09 | 2.28 | 4.38 | 0.09 | 0.32 | 0.08 | 5.09 | 2.15 | 0.66 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.33 | 0.17 | 0.34 | 0.46 | 0.17 | 0.24 | 0.04 | 0.17 | 0.58 | 0.25 |
| d, Delay for Lane Group [s/veh] | 31.58 | 23.66 | 29.48 | 23.19 | 26.05 | 29.34 | 21.99 | 20.67 | 40.11 | 30.05 | 27.11 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.53 | 2.00 | 0.39 | 2.25 | 2.87 | 0.43 | 1.32 | 0.18 | 0.02 | 2.23 | 0.70 |
| 50th-Percentile Queue Length [ft/ln] | 13.24 | 50.00 | 9.64 | 56.23 | 71.85 | 10.80 | 33.06 | 4.45 | 0.58 | 55.83 | 17.50 |
| 95th-Percentile Queue Length [veh/ln] | 0.95 | 3.60 | 0.69 | 4.05 | 5.17 | 0.78 | 2.38 | 0.32 | 0.04 | 4.02 | 1.26 |
| 95th-Percentile Queue Length [ft/ln] | 23.84 | 90.00 | 17.34 | 101.22 | 129.33 | 19.44 | 59.51 | 8.01 | 1.04 | 100.49 | 31.50 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.58 | 23.66 | 23.66 | 29.48 | 23.19 | 26.05 | 29.34 | 21.99 | 20.67 | 40.11 | 30.05 | 27.11 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.17 | | | 25.35 | | | 23.46 | | | 29.33 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.22 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.295 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.06 | 8.72 | 2.67 | 8.25 | 9.68 | 71.09 | 251.94 | 17.46 | 0.17 | 53.96 | 18.16 |
| Stops [stops/h] | 27.14 | 102.45 | 39.49 | 115.21 | 147.22 | 44.27 | 135.49 | 9.12 | 1.19 | 228.78 | 71.71 |
| Fuel consumption [US gal/h] | 0.45 | 1.60 | 1.02 | 2.83 | 3.62 | 3.51 | 12.02 | 0.83 | 0.05 | 9.77 | 3.09 |
| CO [g/h] | 31.22 | 111.78 | 71.26 | 198.01 | 253.28 | 245.45 | 840.47 | 57.88 | 3.16 | 682.68 | 215.78 |
| NOx [g/h] | 6.07 | 21.75 | 13.86 | 38.53 | 49.28 | 47.76 | 163.52 | 11.26 | 0.61 | 132.82 | 41.98 |
| VOC [g/h] | 7.24 | 25.91 | 16.51 | 45.89 | 58.70 | 56.89 | 194.79 | 13.41 | 0.73 | 158.22 | 50.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.00 | 25.00 | 25.00 | 25.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.204 | 2.747 | 2.924 | 2.784 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 569 | 569 | 854 | 854 |
| d_b, Bicycle Delay [s] | 17.99 | 17.99 | 11.54 | 11.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.845 | 2.248 | 1.785 | 1.904 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.008 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 618 | 737 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 618 | 737 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 168 | 200 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 672 | 801 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 11.01 | 9.40 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.01 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 29 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 29 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 8 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 32 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.59 | 8.39 | 0.00 | 0.00 | 7.28 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.49 | | 0.00 | | 3.64 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 4101: Owens Mountain Parkway & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.500 |

**Intersection Setup**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 142 | 177 | 0 | 0 | 71 | 435 | 0 | 0 | 0 | 15 | 0 | 16 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 142 | 177 | 0 | 0 | 71 | 435 | 0 | 0 | 0 | 15 | 0 | 16 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 48 | 0 | 0 | 19 | 118 | 0 | 0 | 0 | 4 | 0 | 4 |
| Total Analysis Volume [veh/h] | 154 | 192 | 0 | 0 | 77 | 473 | 0 | 0 | 0 | 16 | 0 | 17 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 43 | 43 | 43 | 43 | | 43 | 43 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 31 | 18 | 18 | | 4 | 4 |
| g / C, Green / Cycle | 0.22 | 0.73 | 0.42 | 0.42 | | 0.08 | 0.08 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.05 | 0.04 | 0.30 | | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1589 | | 1781 | 1589 |
| c, Capacity [veh/h] | 386 | 2596 | 784 | 667 | | 150 | 134 |
| d1, Uniform Delay [s] | 14.41 | 1.66 | 7.54 | 10.29 | | 18.14 | 18.17 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | | 0.04 | 0.04 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.25 | 0.02 | 0.08 | 2.00 | | 0.11 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.40 | 0.07 | 0.10 | 0.71 | | 0.11 | 0.13 |
| d, Delay for Lane Group [s/veh] | 14.66 | 1.68 | 7.61 | 12.29 | | 18.26 | 18.33 |
| Lane Group LOS | B | A | A | B | | B | B |
| Critical Lane Group | Yes | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.11 | 0.04 | 0.34 | 3.08 | | 0.13 | 0.14 |
| 50th-Percentile Queue Length [ft/ln] | 27.76 | 1.01 | 8.49 | 76.94 | | 3.35 | 3.58 |
| 95th-Percentile Queue Length [veh/ln] | 2.00 | 0.07 | 0.61 | 5.54 | | 0.24 | 0.26 |
| 95th-Percentile Queue Length [ft/ln] | 49.97 | 1.81 | 15.28 | 138.50 | | 6.03 | 6.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 14.66 | 1.68 | 0.00 | 0.00 | 7.61 | 12.29 | 0.00 | 0.00 | 0.00 | 18.26 | 0.00 | 18.33 |
| Movement LOS | B | A | | | A | B | | | | B | | B |
| d_A, Approach Delay [s/veh] | 7.46 | | | 11.63 | | | 0.00 | | | 18.29 | | |
| Approach LOS | A | | | B | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 10.31 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.500 | | | | | | | | | | | |

**Emissions**

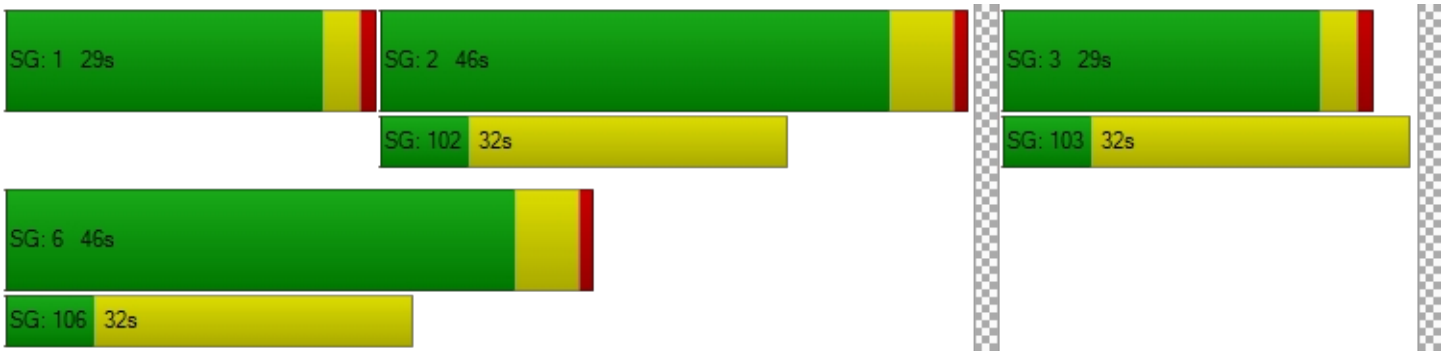
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 10.94 | 13.64 | 15.64 | 96.10 | | 0.95 | 1.01 |
| Stops [stops/h] | 93.42 | 6.78 | 28.57 | 258.93 | | 11.27 | 12.06 |
| Fuel consumption [US gal/h] | 1.43 | 0.66 | 0.92 | 6.57 | | 0.16 | 0.17 |
| CO [g/h] | 99.67 | 46.45 | 64.39 | 459.22 | | 11.23 | 11.99 |
| NOx [g/h] | 19.39 | 9.04 | 12.53 | 89.35 | | 2.19 | 2.33 |
| VOC [g/h] | 23.10 | 10.76 | 14.92 | 106.43 | | 2.60 | 2.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.81 | 11.81 | 11.81 | 11.81 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.481 | 2.272 | 1.977 | 1.907 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1870 | 1870 | 0 | 1168 |
| d_b, Bicycle Delay [s] | 0.09 | 0.09 | 21.40 | 3.70 |
| l_b,int, Bicycle LOS Score for Intersection | 1.845 | 2.013 | 4.132 | 1.560 |
| Bicycle LOS | A | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4102: Owens Mountain Parkway and SR 168 EB Ramp Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.211 |

**Intersection Setup**

| Name | Tollhouse | | | Tollhouse | | | SR 168 EB Off-Ramps | | | SR 168 EB On-Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Tollhouse | | | SR 168 EB Off-Ramps | | | SR 168 EB On-Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 176 | 2 | 2 | 84 | 0 | 143 | 0 | 52 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 176 | 2 | 2 | 84 | 0 | 143 | 0 | 52 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 48 | 1 | 1 | 23 | 0 | 39 | 0 | 14 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 191 | 2 | 2 | 91 | 0 | 155 | 0 | 57 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 8 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 40 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 25 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 14 | 0 | 14 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lag | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 8 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | 27 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 12 | 6 | 6 | |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.01 | 0.46 | 0.24 | 0.24 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.05 | 0.00 | 0.03 | 0.09 | 0.04 | |
| s, saturation flow rate [veh/h] | 1870 | 1863 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 573 | 570 | 13 | 1645 | 429 | 383 | |
| d1, Uniform Delay [s] | 6.84 | 6.84 | 13.29 | 4.00 | 8.50 | 8.05 | |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.14 | 0.14 | 5.44 | 0.01 | 0.51 | 0.18 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.17 | 0.17 | 0.15 | 0.06 | 0.36 | 0.15 | |
| d, Delay for Lane Group [s/veh] | 6.97 | 6.98 | 18.73 | 4.02 | 9.01 | 8.22 | |
| Lane Group LOS | A | A | B | A | A | A | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.03 | 0.06 | 0.53 | 0.18 | |
| 50th-Percentile Queue Length [ft/ln] | 6.36 | 6.36 | 0.71 | 1.39 | 13.29 | 4.57 | |
| 95th-Percentile Queue Length [veh/ln] | 0.46 | 0.46 | 0.05 | 0.10 | 0.96 | 0.33 | |
| 95th-Percentile Queue Length [ft/ln] | 11.45 | 11.45 | 1.28 | 2.50 | 23.91 | 8.22 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.97 | 6.98 | 18.73 | 4.02 | 0.00 | 9.01 | 0.00 | 8.22 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | A | | A | | | |
| d_A, Approach Delay [s/veh] | 6.97 | | | 4.33 | | | 8.80 | | | 0.00 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.26 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.211 | | | | | | | | | | | |

**Emissions**

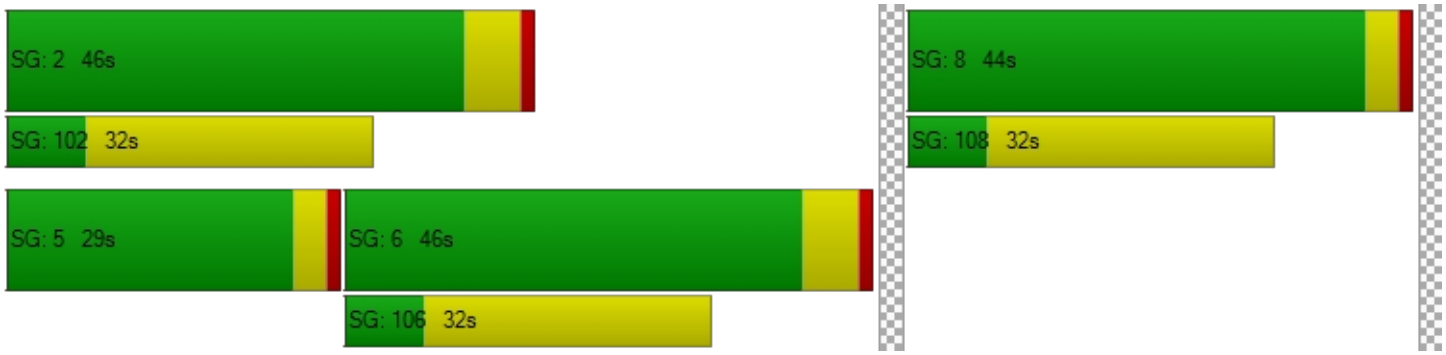
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.88 | 5.88 | 0.19 | 8.43 | 12.07 | 4.44 | |
| Stops [stops/h] | 34.18 | 34.20 | 3.84 | 14.95 | 71.42 | 24.55 | |
| Fuel consumption [US gal/h] | 0.57 | 0.57 | 0.04 | 0.50 | 1.18 | 0.41 | |
| CO [g/h] | 39.68 | 39.69 | 2.55 | 35.22 | 82.17 | 28.92 | |
| NOx [g/h] | 7.72 | 7.72 | 0.50 | 6.85 | 15.99 | 5.63 | |
| VOC [g/h] | 9.20 | 9.20 | 0.59 | 8.16 | 19.04 | 6.70 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.65 | 4.65 | 4.65 | 4.65 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.133 | 2.574 | 1.928 | 1.346 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2987 | 2987 | 2987 | 0 |
| d_b, Bicycle Delay [s] | 3.26 | 3.26 | 3.26 | 13.39 |
| l_b,int, Bicycle LOS Score for Intersection | 1.719 | 1.636 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4201: Shepherd Avenue & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.301 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 179 | 0 | 0 | 204 | 180 | 0 | 0 | 0 | 1 | 0 | 97 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 179 | 0 | 0 | 204 | 180 | 0 | 0 | 0 | 1 | 0 | 97 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 49 | 0 | 0 | 55 | 49 | 0 | 0 | 0 | 0 | 0 | 26 |
| Total Analysis Volume [veh/h] | 33 | 195 | 0 | 0 | 222 | 196 | 0 | 0 | 0 | 1 | 0 | 105 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 0 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 32 | 32 | 32 | 32 | | 32 | 32 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 17 | 10 | 10 | | 7 | 7 |
| g / C, Green / Cycle | 0.09 | 0.53 | 0.31 | 0.31 | | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.05 | 0.11 | 0.13 | | 0.00 | 0.07 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1604 | | 1781 | 1589 |
| c, Capacity [veh/h] | 161 | 1879 | 582 | 499 | | 391 | 349 |
| d1, Uniform Delay [s] | 13.35 | 3.74 | 8.46 | 8.64 | | 9.65 | 10.32 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.23 | 0.03 | 0.53 | 0.80 | | 0.00 | 0.68 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.10 | 0.36 | 0.42 | | 0.00 | 0.30 |
| d, Delay for Lane Group [s/veh] | 13.58 | 3.77 | 8.99 | 9.43 | | 9.65 | 11.00 |
| Lane Group LOS | B | A | A | A | | A | B |
| Critical Lane Group | Yes | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.18 | 0.14 | 0.61 | 0.65 | | 0.00 | 0.51 |
| 50th-Percentile Queue Length [ft/ln] | 4.54 | 3.46 | 15.32 | 16.21 | | 0.11 | 12.78 |
| 95th-Percentile Queue Length [veh/ln] | 0.33 | 0.25 | 1.10 | 1.17 | | 0.01 | 0.92 |
| 95th-Percentile Queue Length [ft/ln] | 8.18 | 6.23 | 27.58 | 29.19 | | 0.20 | 23.01 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.58 | 3.77 | 0.00 | 0.00 | 9.02 | 9.43 | 0.00 | 0.00 | 0.00 | 9.65 | 0.00 | 11.00 |
| Movement LOS | B | A | | | A | A | | | | A | | B |
| d_A, Approach Delay [s/veh] | 5.19 | | | 9.21 | | | 0.00 | | | 10.99 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.24 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.301 | | | | | | | | | | | |

**Emissions**

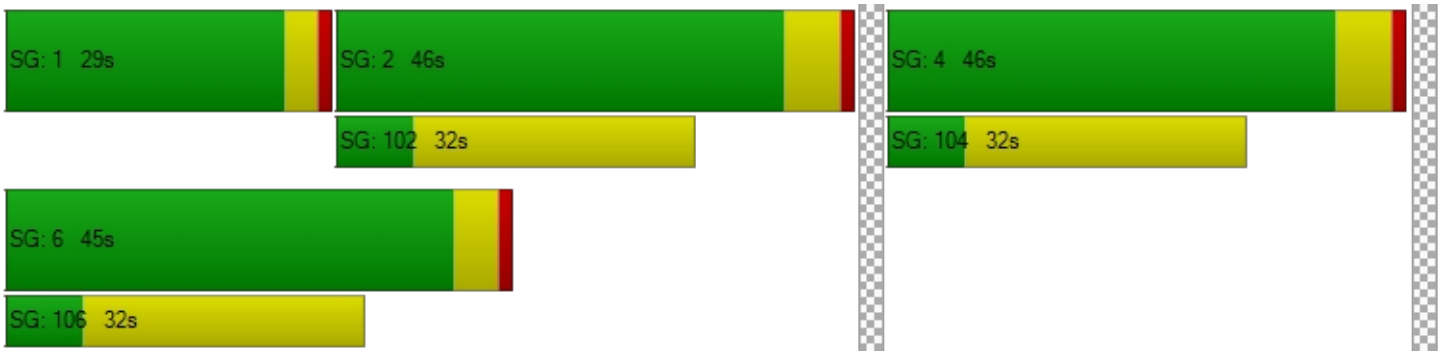
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.63 | 9.63 | 261.00 | 261.00 | | 0.09 | 9.15 |
| Stops [stops/h] | 20.74 | 31.59 | 69.97 | 74.03 | | 0.50 | 58.36 |
| Fuel consumption [US gal/h] | 0.27 | 0.72 | 10.20 | 10.28 | | 0.01 | 0.93 |
| CO [g/h] | 19.08 | 50.38 | 712.76 | 718.44 | | 0.58 | 65.30 |
| NOx [g/h] | 3.71 | 9.80 | 138.68 | 139.78 | | 0.11 | 12.71 |
| VOC [g/h] | 4.42 | 11.68 | 165.19 | 166.51 | | 0.13 | 15.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.69 | 6.69 | 6.69 | 6.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.590 | 2.356 | 1.580 | 1.908 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2537 | 2537 | 0 | 2537 |
| d_b, Bicycle Delay [s] | 1.14 | 1.14 | 15.77 | 1.14 |
| l_b,int, Bicycle LOS Score for Intersection | 1.748 | 1.904 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4202: Shepherd Avenue & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.156 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 157 | 2 | 50 | 155 | 0 | 52 | 0 | 13 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 157 | 2 | 50 | 155 | 0 | 52 | 0 | 13 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 43 | 1 | 14 | 42 | 0 | 14 | 0 | 4 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 171 | 2 | 54 | 168 | 0 | 57 | 0 | 14 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Split | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 8 | 8 | 4 | 16 | 6 | 6 | |
| g / C, Green / Cycle | 0.27 | 0.27 | 0.13 | 0.54 | 0.19 | 0.19 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.05 | 0.03 | 0.05 | 0.03 | 0.01 | |
| s, saturation flow rate [veh/h] | 1870 | 1862 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 511 | 509 | 242 | 1934 | 336 | 300 | |
| d1, Uniform Delay [s] | 8.25 | 8.26 | 11.49 | 3.27 | 10.14 | 9.91 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.22 | 0.22 | 0.17 | 0.03 | 0.34 | 0.09 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.17 | 0.17 | 0.22 | 0.09 | 0.17 | 0.05 | |
| d, Delay for Lane Group [s/veh] | 8.47 | 8.48 | 11.66 | 3.29 | 10.48 | 10.00 | |
| Lane Group LOS | A | A | B | A | B | A | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.31 | 0.31 | 0.25 | 0.09 | 0.26 | 0.06 | |
| 50th-Percentile Queue Length [ft/ln] | 7.85 | 7.85 | 6.22 | 2.15 | 6.41 | 1.54 | |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 0.57 | 0.45 | 0.15 | 0.46 | 0.11 | |
| 95th-Percentile Queue Length [ft/ln] | 14.13 | 14.13 | 11.19 | 3.87 | 11.54 | 2.77 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 8.48 | 8.48 | 11.66 | 3.29 | 0.00 | 10.48 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | B | | A | | | |
| d_A, Approach Delay [s/veh] | 8.48 | | | 5.33 | | | 10.39 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.27 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.156 | | | | | | | | | | | |

**Emissions**

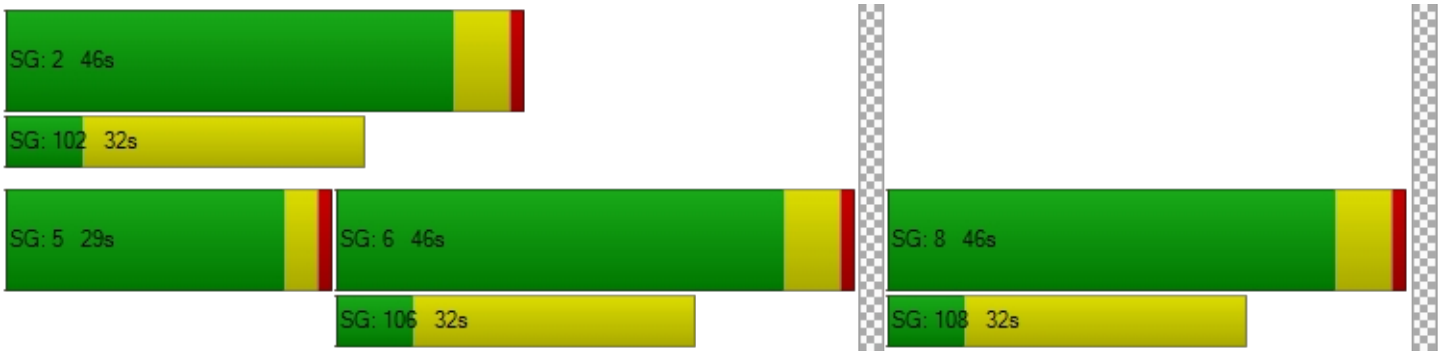
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.60 | 3.60 | 3.36 | 10.47 | 4.22 | 1.04 | |
| Stops [stops/h] | 38.02 | 38.04 | 30.13 | 20.81 | 31.05 | 7.45 | |
| Fuel consumption [US gal/h] | 0.51 | 0.51 | 0.43 | 0.66 | 0.47 | 0.11 | |
| CO [g/h] | 35.46 | 35.48 | 30.28 | 46.03 | 32.63 | 7.85 | |
| NOx [g/h] | 6.90 | 6.90 | 5.89 | 8.96 | 6.35 | 1.53 | |
| VOC [g/h] | 8.22 | 8.22 | 7.02 | 10.67 | 7.56 | 1.82 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.90 | 5.90 | 5.90 | 5.90 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.146 | 2.454 | 1.892 | 1.406 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2691 | 2691 | 2691 | 0 |
| d_b, Bicycle Delay [s] | 1.78 | 1.78 | 1.78 | 14.86 |
| l_b,int, Bicycle LOS Score for Intersection | 1.702 | 1.743 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4212: New Intersection**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name | International | International |
|---|---|---|
| Approach | Eastbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 |
| Speed [mph] | 30.00 | 30.00 |
| Grade [%] | 0.00 | 0.00 |
| Curb Present | No | No |
| Crosswalk | Yes | Yes |

**Volumes**

| Name | International | International |
|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | |
| Growth Factor | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 |
| Presence of On-Street Parking | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_di, Inbound Pedestrian Volume crossing m | 0 | 0 |
| v_co, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | 0 |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | 0 |
| Bicycle Volume [bicycles/h] | 0 | 0 |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive |
|---|---|---|
| Signal Group | 0 | 0 |
| Auxiliary Signal Groups | | |
| Maximum Green [s] | 0 | 0 |
| Amber [s] | 0.0 | 0.0 |
| All red [s] | 0.0 | 0.0 |
| Walk [s] | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 |
| Rest In Walk | | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | |
|---|---|---|
| Split [s] | 0 | 0 |
| Lead / Lag | - | - |
| Minimum Green [s] | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 |
| Minimum Recall | | |
| Maximum Recall | | |
| Pedestrian Recall | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

**Lane Group Results**

**Movement, Approach, & Intersection Results**

| | | |
|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | | |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | 0.00 | |
| Intersection LOS | A | |
| Intersection V/C | 0.000 | |

**Emissions**

**Other Modes**

| | | |
|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.00 | 45.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.950 | 1.725 |
| Crosswalk LOS | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 |
| d_b, Bicycle Delay [s] | 45.00 | 45.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.560 |
| Bicycle LOS | A | A |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Cumulative PM.pdf

Scenario 4 Cumulative PM
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.438 | 20.3 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | EB Right | 0.438 | 22.6 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Right | 0.578 | 32.6 | C |
| 4 | Minnewawa Ave & International Ave | Roundabout | HCM 7th Edition | SB Thru | | 4.3 | A |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.445 | 18.6 | B |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.596 | 23.0 | C |
| 7 | Clovis Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.332 | 8.3 | A |
| 8 | Clovis Ave & Behymer Ave | Signalized | HCM 7th Edition | SB Left | 0.465 | 11.4 | B |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.446 | 23.4 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.592 | 24.2 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.674 | 32.6 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.980 | 69.9 | E |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.772 | 33.6 | C |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.548 | 11.5 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.490 | 20.4 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | SB Left | 0.640 | 24.3 | C |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Left | 0.554 | 22.6 | C |
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.714 | 35.9 | D |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.715 | 27.5 | C |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.074 | 31.4 | D |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.717 | 28.1 | C |
| 23 | Fowler Ave & Teague Ave | Signalized | HCM 7th Edition | EB Left | 0.350 | 8.2 | A |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.522 | 14.6 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.639 | 22.1 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.501 | 12.6 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.925 | 62.3 | E |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.005 | 8.6 | A |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Right | 0.020 | 11.1 | B |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.056 | 16.3 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.402 | 15.6 | B |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | WB Left | 0.534 | 15.6 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | WB Left | | 9.4 | A |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.360 | 4.4 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 1.154 | 124.4 | F |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.139 | 8.8 | A |
| 37 | Locan Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.255 | 12.3 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Signalized | HCM 7th Edition | SB Right | 0.212 | 9.5 | A |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.191 | 7.0 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | WB Right | | 4.7 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.432 | 31.2 | C |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | NB Left | 0.287 | 26.2 | C |
| 43 | Shepherd Ave & Project Access South | Two-way stop | HCM 7th Edition | WB Thru | 0.008 | 0.0 | A |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.007 | 8.5 | A |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.256 | 4.0 | A |
| 4102 | Owens Mountain Parkway & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.175 | 8.1 | A |
| 4201 | Shepherd Avenue & SR 168 WB Ramps | Signalized | HCM 7th Edition | NB Left | 0.189 | 5.2 | A |
| 4202 | Shepherd Avenue & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.231 | 9.9 | A |
| 4214 | New Intersection | Signalized | HCM 7th Edition | | 0.000 | 0.0 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.438 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 250.00 | 100.00 | 250.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.61 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 219 | 831 | 48 | 27 | 391 | 89 | 13 | 64 | 230 | 27 | 73 | 68 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 219 | 831 | 48 | 27 | 391 | 89 | 13 | 64 | 230 | 27 | 73 | 68 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 60 | 226 | 13 | 7 | 106 | 24 | 4 | 17 | 63 | 7 | 20 | 18 |
| Total Analysis Volume [veh/h] | 238 | 903 | 52 | 29 | 425 | 97 | 14 | 70 | 250 | 29 | 79 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 8 | 23 | 23 | 3 | 17 | 17 | 2 | 13 | 13 | 3 | 14 | 14 |
| g / C, Green / Cycle | 0.12 | 0.36 | 0.36 | 0.05 | 0.27 | 0.27 | 0.03 | 0.21 | 0.21 | 0.05 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.17 | 0.03 | 0.01 | 0.08 | 0.06 | 0.00 | 0.02 | 0.16 | 0.02 | 0.02 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 5176 | 1615 | 3514 | 5159 | 1615 | 3514 | 3618 | 1604 | 1810 | 3549 | 1615 |
| c, Capacity [veh/h] | 437 | 1862 | 581 | 180 | 1397 | 437 | 98 | 762 | 338 | 92 | 796 | 362 |
| d1, Uniform Delay [s] | 26.12 | 15.77 | 13.45 | 28.83 | 18.40 | 17.96 | 30.12 | 20.18 | 23.44 | 29.05 | 19.55 | 20.03 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.40 | 0.64 | 0.21 | 0.15 | 0.40 | 0.82 | 0.24 | 0.12 | 7.31 | 0.71 | 0.09 | 0.47 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.49 | 0.09 | 0.16 | 0.30 | 0.22 | 0.14 | 0.09 | 0.74 | 0.31 | 0.10 | 0.20 |
| d, Delay for Lane Group [s/veh] | 26.51 | 16.41 | 13.66 | 28.98 | 18.79 | 18.78 | 30.36 | 20.30 | 30.75 | 29.77 | 19.64 | 20.50 |
| Lane Group LOS | C | B | B | C | B | B | C | C | C | C | B | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.51 | 2.83 | 0.44 | 0.19 | 1.45 | 1.03 | 0.10 | 0.38 | 3.75 | 0.43 | 0.45 | 0.88 |
| 50th-Percentile Queue Length [ft/ln] | 37.65 | 70.87 | 10.90 | 4.81 | 36.19 | 25.84 | 2.46 | 9.54 | 93.64 | 10.64 | 11.14 | 22.08 |
| 95th-Percentile Queue Length [veh/ln] | 2.71 | 5.10 | 0.78 | 0.35 | 2.61 | 1.86 | 0.18 | 0.69 | 6.74 | 0.77 | 0.80 | 1.59 |
| 95th-Percentile Queue Length [ft/ln] | 67.78 | 127.57 | 19.62 | 8.67 | 65.15 | 46.51 | 4.43 | 17.18 | 168.55 | 19.15 | 20.05 | 39.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.51 | 16.41 | 13.66 | 28.98 | 18.79 | 18.78 | 30.36 | 20.30 | 30.75 | 29.77 | 19.64 | 20.50 |
| Movement LOS | C | B | B | C | B | B | C | C | C | C | B | C |
| d_A, Approach Delay [s/veh] | 18.30 | | | 19.33 | | | 28.54 | | | 21.60 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.33 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.438 | | | | | | | | | | | |

**Emissions**

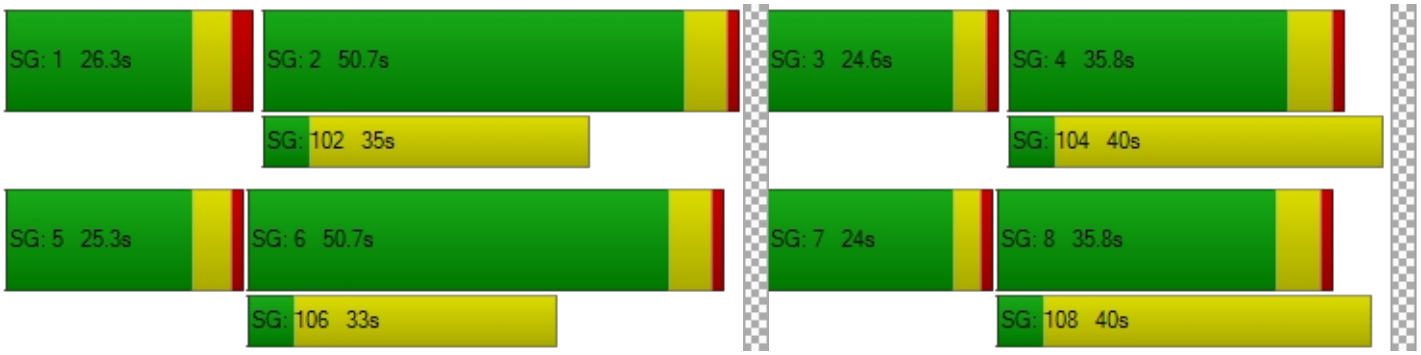
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 120.14 | 455.84 | 26.25 | 2.86 | 41.86 | 9.55 | 1.32 | 6.58 | 23.48 | 25.66 | 69.89 | 65.47 |
| Stops [stops/h] | 171.20 | 483.37 | 24.78 | 21.89 | 246.84 | 58.74 | 11.19 | 43.39 | 212.88 | 24.18 | 50.64 | 50.19 |
| Fuel consumption [US gal/h] | 7.94 | 25.70 | 1.40 | 0.60 | 6.82 | 1.59 | 0.27 | 1.05 | 5.02 | 1.37 | 3.47 | 3.28 |
| CO [g/h] | 554.70 | 1796.44 | 98.15 | 42.13 | 476.48 | 111.31 | 18.93 | 73.68 | 350.64 | 95.45 | 242.75 | 229.36 |
| NOx [g/h] | 107.92 | 349.52 | 19.10 | 8.20 | 92.70 | 21.66 | 3.68 | 14.33 | 68.22 | 18.57 | 47.23 | 44.62 |
| VOC [g/h] | 128.56 | 416.34 | 22.75 | 9.76 | 110.43 | 25.80 | 4.39 | 17.08 | 81.26 | 22.12 | 56.26 | 53.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.31 | 23.31 | 23.31 | 23.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.258 | 3.111 | 2.734 | 2.624 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1421 | 1421 | 947 | 947 |
| d_b, Bicycle Delay [s] | 2.66 | 2.66 | 8.77 | 8.77 |
| l_b,int, Bicycle LOS Score for Intersection | 2.216 | 1.863 | 1.835 | 1.710 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.438 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 1002 | 166 | 129 | 522 | 46 | 22 | 101 | 122 | 120 | 162 | 129 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 1002 | 166 | 129 | 522 | 46 | 22 | 101 | 122 | 120 | 162 | 129 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 272 | 45 | 35 | 142 | 13 | 6 | 27 | 33 | 33 | 44 | 35 |
| Total Analysis Volume [veh/h] | 97 | 1089 | 180 | 140 | 567 | 50 | 24 | 110 | 133 | 130 | 176 | 140 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 31 | 31 | 8 | 32 | 32 | 3 | 9 | 9 | 8 | 12 | 12 |
| g / C, Green / Cycle | 0.09 | 0.40 | 0.40 | 0.10 | 0.41 | 0.41 | 0.04 | 0.11 | 0.11 | 0.10 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.21 | 0.11 | 0.04 | 0.11 | 0.03 | 0.01 | 0.03 | 0.08 | 0.04 | 0.05 | 0.09 |
| s, saturation flow rate [veh/h] | 3459 | 5176 | 1615 | 3514 | 5135 | 1615 | 3514 | 3583 | 1605 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 315 | 2088 | 652 | 346 | 2110 | 664 | 149 | 413 | 185 | 342 | 542 | 242 |
| d1, Uniform Delay [s] | 32.93 | 17.46 | 15.52 | 32.78 | 15.11 | 13.87 | 35.77 | 31.27 | 33.05 | 32.77 | 29.43 | 30.66 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.20 | 0.66 | 0.74 | 0.28 | 0.22 | 0.16 | 0.19 | 0.41 | 6.16 | 0.26 | 0.77 | 4.84 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.52 | 0.28 | 0.40 | 0.27 | 0.08 | 0.16 | 0.27 | 0.72 | 0.38 | 0.32 | 0.58 |
| d, Delay for Lane Group [s/veh] | 33.13 | 18.12 | 16.26 | 33.06 | 15.33 | 14.02 | 35.95 | 31.68 | 39.21 | 33.03 | 30.21 | 35.50 |
| Lane Group LOS | C | B | B | C | B | B | D | C | D | C | C | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.79 | 4.28 | 1.96 | 1.15 | 1.93 | 0.49 | 0.21 | 0.91 | 2.59 | 1.13 | 1.48 | 2.68 |
| 50th-Percentile Queue Length [ft/ln] | 19.85 | 106.89 | 49.05 | 28.71 | 48.13 | 12.14 | 5.30 | 22.82 | 64.74 | 28.15 | 37.03 | 67.08 |
| 95th-Percentile Queue Length [veh/ln] | 1.43 | 7.67 | 3.53 | 2.07 | 3.47 | 0.87 | 0.38 | 1.64 | 4.66 | 2.03 | 2.67 | 4.83 |
| 95th-Percentile Queue Length [ft/ln] | 35.73 | 191.67 | 88.28 | 51.69 | 86.64 | 21.86 | 9.55 | 41.08 | 116.53 | 50.68 | 66.65 | 120.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.13 | 18.12 | 16.26 | 33.06 | 15.33 | 14.02 | 35.95 | 31.68 | 39.21 | 33.03 | 30.21 | 35.50 |
| Movement LOS | C | B | B | C | B | B | D | C | D | C | C | D |
| d_A, Approach Delay [s/veh] | 18.94 | | | 18.52 | | | 35.82 | | | 32.69 | | |
| Approach LOS | B | | | B | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.58 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.438 | | | | | | | | | | | |

**Emissions**

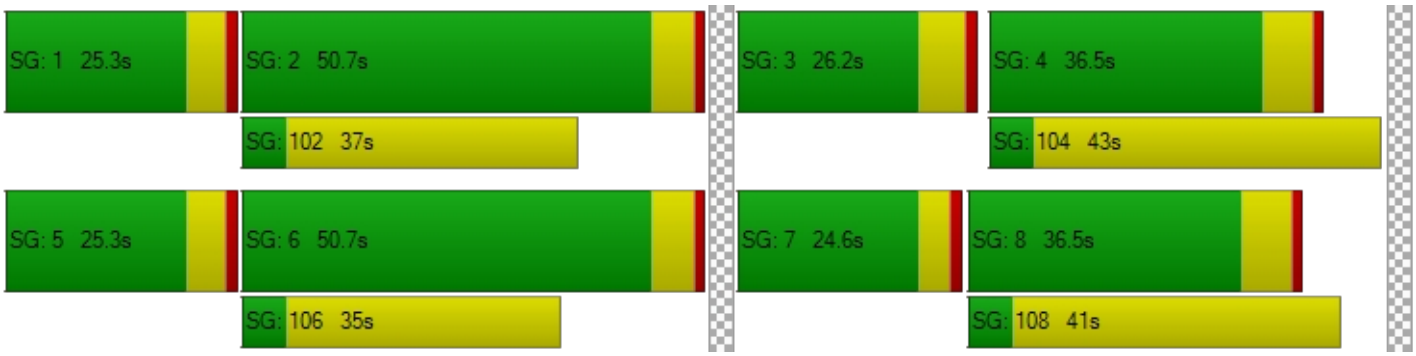
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 98.27 | 1103.23 | 182.35 | 70.67 | 286.22 | 25.24 | 2.61 | 11.97 | 14.47 | 134.87 | 182.59 | 145.24 |
| Stops [stops/h] | 73.94 | 597.23 | 91.34 | 106.96 | 268.91 | 22.62 | 19.75 | 85.00 | 120.57 | 104.87 | 137.91 | 124.93 |
| Fuel consumption [US gal/h] | 5.08 | 50.13 | 8.10 | 4.95 | 15.48 | 1.34 | 0.46 | 1.97 | 2.76 | 7.01 | 9.36 | 7.68 |
| CO [g/h] | 355.07 | 3503.97 | 566.49 | 346.04 | 1082.17 | 93.32 | 32.37 | 137.90 | 193.20 | 489.66 | 654.29 | 536.88 |
| NOx [g/h] | 69.08 | 681.75 | 110.22 | 67.33 | 210.55 | 18.16 | 6.30 | 26.83 | 37.59 | 95.27 | 127.30 | 104.46 |
| VOC [g/h] | 82.29 | 812.08 | 131.29 | 80.20 | 250.80 | 21.63 | 7.50 | 31.96 | 44.78 | 113.48 | 151.64 | 124.43 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 30.18 | 30.18 | 30.18 | 30.18 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.240 | 3.287 | 2.697 | 2.710 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1164 | 1164 | 776 | 776 |
| d_b, Bicycle Delay [s] | 6.75 | 6.75 | 14.48 | 14.48 |
| l_b,int, Bicycle LOS Score for Intersection | 2.311 | 1.976 | 1.780 | 1.928 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.578 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 267 | 821 | 319 | 123 | 809 | 48 | 75 | 473 | 171 | 149 | 492 | 333 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 267 | 821 | 319 | 123 | 809 | 48 | 75 | 473 | 171 | 149 | 492 | 333 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 73 | 223 | 87 | 33 | 220 | 13 | 20 | 129 | 46 | 40 | 134 | 90 |
| Total Analysis Volume [veh/h] | 290 | 892 | 347 | 134 | 879 | 52 | 82 | 514 | 186 | 162 | 535 | 362 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 10 | 30 | 30 | 8 | 28 | 28 | 7 | 21 | 21 | 8 | 23 | 23 |
| g / C, Green / Cycle | 0.11 | 0.32 | 0.32 | 0.08 | 0.30 | 0.30 | 0.08 | 0.23 | 0.23 | 0.09 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.17 | 0.22 | 0.04 | 0.17 | 0.03 | 0.02 | 0.14 | 0.12 | 0.05 | 0.15 | 0.22 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1591 | 3514 | 3600 | 1586 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 379 | 1674 | 521 | 296 | 1540 | 478 | 271 | 837 | 369 | 303 | 921 | 411 |
| d1, Uniform Delay [s] | 39.80 | 25.34 | 26.74 | 39.99 | 27.10 | 23.21 | 40.04 | 31.54 | 30.56 | 40.19 | 29.93 | 32.87 |
| k, delay calibration | 0.04 | 0.35 | 0.36 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.29 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.22 | 0.86 | 4.74 | 0.40 | 1.09 | 0.32 | 0.23 | 1.73 | 2.50 | 0.55 | 0.80 | 14.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.53 | 0.67 | 0.45 | 0.57 | 0.11 | 0.30 | 0.61 | 0.50 | 0.53 | 0.58 | 0.88 |
| d, Delay for Lane Group [s/veh] | 41.02 | 26.20 | 31.48 | 40.39 | 28.19 | 23.53 | 40.27 | 33.27 | 33.06 | 40.74 | 30.73 | 47.62 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.05 | 4.95 | 6.62 | 1.37 | 5.10 | 0.80 | 0.84 | 4.92 | 3.57 | 1.68 | 4.87 | 8.77 |
| 50th-Percentile Queue Length [ft/ln] | 76.34 | 123.77 | 165.44 | 34.37 | 127.61 | 19.88 | 20.89 | 123.05 | 89.17 | 41.88 | 121.69 | 219.19 |
| 95th-Percentile Queue Length [veh/ln] | 5.50 | 8.60 | 10.84 | 2.47 | 8.81 | 1.43 | 1.50 | 8.56 | 6.42 | 3.02 | 8.49 | 13.62 |
| 95th-Percentile Queue Length [ft/ln] | 137.40 | 215.00 | 270.92 | 61.87 | 220.24 | 35.78 | 37.60 | 214.00 | 160.51 | 75.39 | 212.14 | 340.59 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.02 | 26.20 | 31.48 | 40.39 | 28.19 | 23.53 | 40.27 | 33.27 | 33.06 | 40.74 | 30.73 | 47.62 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 30.21 | | | 29.50 | | | 33.95 | | | 38.03 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 32.57 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.578 | | | | | | | | | | | |

**Emissions**

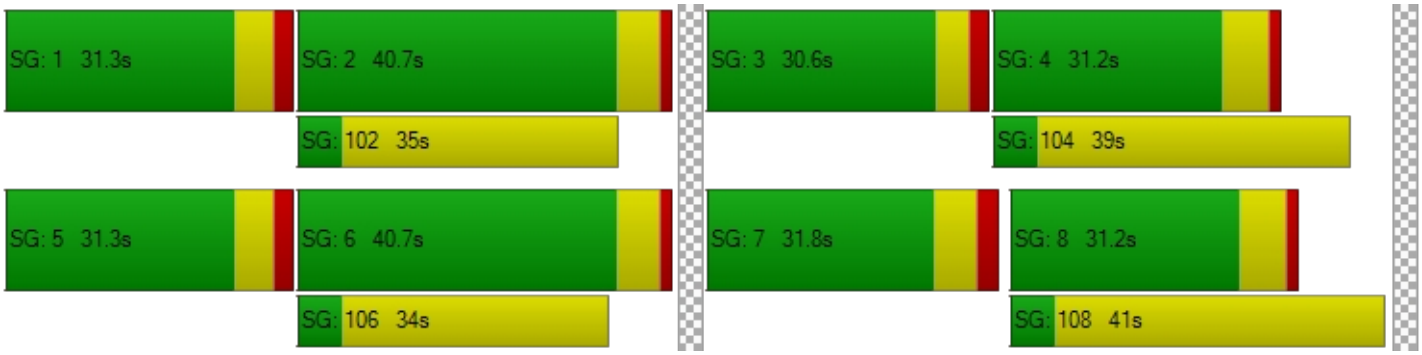
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 47.32 | 145.54 | 56.62 | 135.75 | 890.49 | 52.68 | 10.71 | 67.16 | 24.30 | 167.84 | 554.30 | 375.06 |
| Stops [stops/h] | 240.01 | 583.73 | 260.09 | 108.07 | 601.84 | 31.25 | 65.67 | 386.87 | 140.18 | 131.69 | 382.61 | 344.58 |
| Fuel consumption [US gal/h] | 7.69 | 18.59 | 8.11 | 7.31 | 44.10 | 2.49 | 2.04 | 11.67 | 4.22 | 8.99 | 27.78 | 21.36 |
| CO [g/h] | 537.51 | 1299.50 | 566.98 | 510.70 | 3082.70 | 174.25 | 142.51 | 815.56 | 294.78 | 628.06 | 1941.87 | 1492.86 |
| NOx [g/h] | 104.58 | 252.84 | 110.31 | 99.36 | 599.78 | 33.90 | 27.73 | 158.68 | 57.35 | 122.20 | 377.82 | 290.46 |
| VOC [g/h] | 124.57 | 301.17 | 131.40 | 118.36 | 714.45 | 40.38 | 33.03 | 189.01 | 68.32 | 145.56 | 450.05 | 345.98 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2764.41 | 0.00 |
| d_p, Pedestrian Delay [s] | 37.24 | 37.24 | 37.24 | 37.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.349 | 3.359 | 2.981 | 3.145 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 764 | 764 | 546 | 546 |
| d_b, Bicycle Delay [s] | 17.49 | 17.49 | 24.28 | 24.21 |
| l_b,int, Bicycle LOS Score for Intersection | 2.401 | 2.145 | 2.205 | 2.433 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 4.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 141 | 89 | 2 | 9 | 114 | 18 | 24 | 24 | 60 | 2 | 65 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 141 | 89 | 2 | 9 | 114 | 18 | 24 | 24 | 60 | 2 | 65 | 13 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 24 | 1 | 2 | 31 | 5 | 7 | 7 | 16 | 1 | 18 | 4 |
| Total Analysis Volume [veh/h] | 153 | 97 | 2 | 10 | 124 | 20 | 26 | 26 | 65 | 2 | 71 | 14 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 62 | | | 229 | | | 137 | | | 279 | | |
| Exiting Flow Rate [veh/h] | 192 | | | 137 | | | 247 | | | 38 | | |
| Demand Flow Rate [veh/h] | 141 | 89 | 2 | 9 | 114 | 18 | 24 | 24 | 60 | 2 | 65 | 13 |
| Adjusted Demand Flow Rate [veh/h] | 153 | 97 | 2 | 10 | 124 | 20 | 26 | 26 | 65 | 2 | 71 | 14 |

**Lanes**

| | | | | |
|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1380.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00102 | 0.00102 |
| HV Adjustment Factor | 0.99 | 1.00 | 1.00 | 1.00 |
| Entry Flow Rate [veh/h] | 255 | 155 | 118 | 87 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1296 | 1093 | 1201 | 1039 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1283 | 1089 | 1195 | 1039 |
| X, volume / capacity | 0.20 | 0.14 | 0.10 | 0.08 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| Lane LOS | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.73 | 0.49 | 0.32 | 0.27 |
| 95th-Percentile Queue Length [ft] | 18.25 | 12.31 | 8.12 | 6.84 |
| Approach Delay [s/veh] | 4.48 | 4.56 | 3.83 | 4.20 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 4.33 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.445 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 63 | 28 | 28 | 170 | 22 | 37 | 56 | 220 | 40 | 15 | 314 | 181 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 63 | 28 | 28 | 170 | 22 | 37 | 56 | 220 | 40 | 15 | 314 | 181 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 17 | 8 | 8 | 46 | 6 | 10 | 15 | 60 | 11 | 4 | 85 | 49 |
| Total Analysis Volume [veh/h] | 68 | 30 | 30 | 185 | 24 | 40 | 61 | 239 | 43 | 16 | 341 | 197 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 3.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 7 | 10 | 10 | 7 | 21 | 21 | 2 | 16 | 16 |
| g / C, Green / Cycle | 0.13 | 0.12 | 0.18 | 0.18 | 0.12 | 0.37 | 0.37 | 0.04 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.03 | 0.10 | 0.04 | 0.03 | 0.13 | 0.03 | 0.01 | 0.18 | 0.12 |
| s, saturation flow rate [veh/h] | 1810 | 1736 | 1810 | 1698 | 1810 | 1891 | 1568 | 1810 | 1894 | 1615 |
| c, Capacity [veh/h] | 233 | 213 | 333 | 302 | 219 | 694 | 575 | 80 | 549 | 468 |
| d1, Uniform Delay [s] | 22.34 | 22.58 | 21.00 | 19.89 | 22.64 | 13.00 | 11.67 | 26.12 | 17.42 | 16.27 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.12 | 0.12 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.78 | 0.54 | 0.49 | 0.25 | 0.32 | 0.06 | 0.46 | 1.90 | 0.99 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.29 | 0.28 | 0.56 | 0.21 | 0.28 | 0.34 | 0.07 | 0.20 | 0.62 | 0.42 |
| d, Delay for Lane Group [s/veh] | 22.59 | 23.36 | 21.54 | 20.38 | 22.90 | 13.32 | 11.73 | 26.57 | 19.32 | 17.26 |
| Lane Group LOS | C | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.78 | 0.72 | 2.09 | 0.71 | 0.70 | 1.99 | 0.32 | 0.21 | 3.73 | 1.98 |
| 50th-Percentile Queue Length [ft/ln] | 19.48 | 18.07 | 52.34 | 17.68 | 17.62 | 49.83 | 8.04 | 5.15 | 93.20 | 49.61 |
| 95th-Percentile Queue Length [veh/ln] | 1.40 | 1.30 | 3.77 | 1.27 | 1.27 | 3.59 | 0.58 | 0.37 | 6.71 | 3.57 |
| 95th-Percentile Queue Length [ft/ln] | 35.07 | 32.52 | 94.22 | 31.83 | 31.71 | 89.69 | 14.47 | 9.26 | 167.76 | 89.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.59 | 23.36 | 23.36 | 21.54 | 20.38 | 20.38 | 22.90 | 13.32 | 11.73 | 26.57 | 19.32 | 17.26 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 22.95 | | | 21.24 | | | 14.82 | | | 18.80 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.62 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.445 | | | | | | | | | | | |

**Emissions**

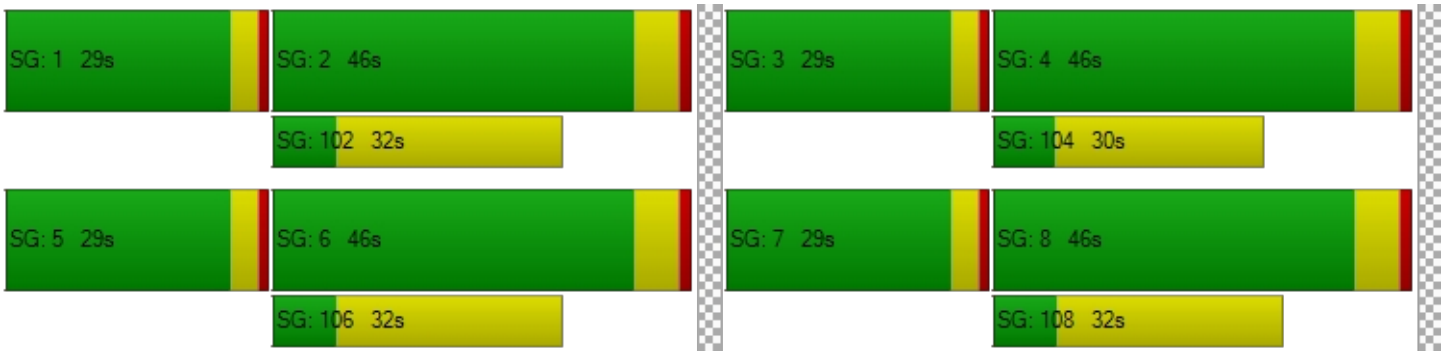
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 68.32 | 60.28 | 93.13 | 32.22 | 63.28 | 247.95 | 44.61 | 9.82 | 209.32 | 120.92 |
| Stops [stops/h] | 49.65 | 46.05 | 133.39 | 45.06 | 44.89 | 126.98 | 20.49 | 13.11 | 237.52 | 126.43 |
| Fuel consumption [US gal/h] | 3.40 | 3.02 | 5.38 | 1.84 | 3.14 | 11.56 | 2.05 | 0.56 | 11.27 | 6.37 |
| CO [g/h] | 237.62 | 211.19 | 376.16 | 128.66 | 219.31 | 807.79 | 143.46 | 39.37 | 787.76 | 445.17 |
| NOx [g/h] | 46.23 | 41.09 | 73.19 | 25.03 | 42.67 | 157.17 | 27.91 | 7.66 | 153.27 | 86.61 |
| VOC [g/h] | 55.07 | 48.95 | 87.18 | 29.82 | 50.83 | 187.21 | 33.25 | 9.13 | 182.57 | 103.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.32 | 18.32 | 18.32 | 18.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.156 | 2.089 | 2.555 | 2.351 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1416 | 1416 | 1416 | 1416 |
| d_b, Bicycle Delay [s] | 2.41 | 2.41 | 2.41 | 2.41 |
| l_b,int, Bicycle LOS Score for Intersection | 1.771 | 1.970 | 2.126 | 2.474 |
| Bicycle LOS | A | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.596 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 296 | 203 | 104 | 16 | 93 | 47 | 94 | 559 | 44 | 97 | 478 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 296 | 203 | 104 | 16 | 93 | 47 | 94 | 559 | 44 | 97 | 478 | 7 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 80 | 55 | 28 | 4 | 25 | 13 | 25 | 150 | 12 | 26 | 128 | 2 |
| Total Analysis Volume [veh/h] | 318 | 218 | 112 | 17 | 100 | 51 | 101 | 601 | 47 | 104 | 514 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 20 | 20 | 3 | 9 | 9 | 16 | 16 | 9 | 16 | 16 |
| g / C, Green / Cycle | 0.21 | 0.31 | 0.31 | 0.05 | 0.15 | 0.14 | 0.24 | 0.24 | 0.15 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.06 | 0.07 | 0.01 | 0.08 | 0.06 | 0.17 | 0.03 | 0.06 | 0.14 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3592 | 1615 | 1810 | 1785 | 1810 | 3618 | 1615 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 381 | 1126 | 506 | 82 | 265 | 261 | 884 | 395 | 264 | 890 | 397 |
| d1, Uniform Delay [s] | 24.13 | 16.01 | 16.16 | 29.34 | 25.26 | 24.74 | 21.84 | 18.76 | 24.69 | 21.15 | 18.23 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.87 | 0.08 | 0.22 | 1.23 | 1.92 | 0.93 | 0.93 | 0.13 | 0.95 | 0.60 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.84 | 0.19 | 0.22 | 0.21 | 0.57 | 0.39 | 0.68 | 0.12 | 0.39 | 0.58 | 0.02 |
| d, Delay for Lane Group [s/veh] | 29.00 | 16.09 | 16.37 | 30.57 | 27.18 | 25.67 | 22.77 | 18.89 | 25.65 | 21.74 | 18.25 |
| Lane Group LOS | C | B | B | C | C | C | C | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.53 | 1.01 | 1.06 | 0.26 | 2.04 | 1.28 | 3.56 | 0.48 | 1.32 | 2.93 | 0.08 |
| 50th-Percentile Queue Length [ft/ln] | 113.18 | 25.19 | 26.56 | 6.41 | 50.89 | 32.00 | 89.06 | 11.95 | 32.93 | 73.31 | 1.97 |
| 95th-Percentile Queue Length [veh/ln] | 8.02 | 1.81 | 1.91 | 0.46 | 3.66 | 2.30 | 6.41 | 0.86 | 2.37 | 5.28 | 0.14 |
| 95th-Percentile Queue Length [ft/ln] | 200.42 | 45.35 | 47.81 | 11.54 | 91.60 | 57.60 | 160.30 | 21.50 | 59.28 | 131.96 | 3.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.00 | 16.09 | 16.37 | 30.57 | 27.18 | 27.18 | 25.67 | 22.77 | 18.89 | 25.65 | 21.74 | 18.25 |
| Movement LOS | C | B | B | C | C | C | C | C | B | C | C | B |
| d_A, Approach Delay [s/veh] | 22.47 | | | 27.53 | | | 22.92 | | | 22.35 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.98 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.596 | | | | | | | | | | | |

**Emissions**

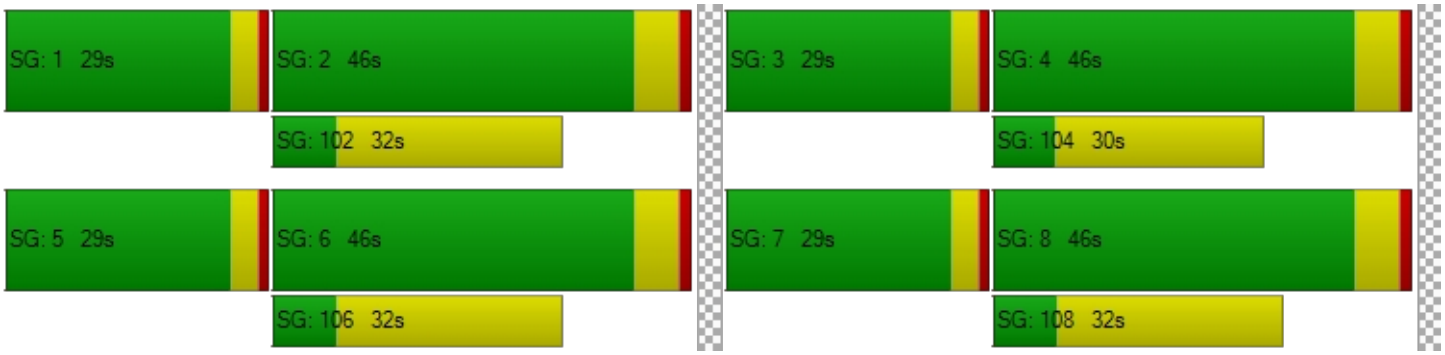
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.07 | 26.10 | 13.41 | 17.08 | 151.71 | 104.64 | 622.68 | 48.70 | 52.08 | 257.40 | 4.01 |
| Stops [stops/h] | 256.12 | 114.02 | 60.10 | 14.51 | 115.16 | 72.41 | 403.06 | 27.03 | 74.53 | 331.79 | 4.47 |
| Fuel consumption [US gal/h] | 6.37 | 3.03 | 1.58 | 0.87 | 7.47 | 5.14 | 29.82 | 2.23 | 3.43 | 15.99 | 0.23 |
| CO [g/h] | 444.99 | 211.53 | 110.45 | 60.93 | 521.97 | 359.53 | 2084.72 | 155.62 | 239.83 | 1117.51 | 16.25 |
| NOx [g/h] | 86.58 | 41.16 | 21.49 | 11.85 | 101.56 | 69.95 | 405.61 | 30.28 | 46.66 | 217.43 | 3.16 |
| VOC [g/h] | 103.13 | 49.02 | 25.60 | 14.12 | 120.97 | 83.32 | 483.15 | 36.07 | 55.58 | 258.99 | 3.77 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.77 | 21.77 | 21.77 | 21.77 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.544 | 2.293 | 2.876 | 2.801 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1257 | 1257 | 1257 | 1257 |
| d_b, Bicycle Delay [s] | 4.39 | 4.39 | 4.39 | 4.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.094 | 1.837 | 2.178 | 2.076 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.332 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 56 | 674 | 0 | 0 | 344 | 0 | 0 | 0 | 12 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 56 | 674 | 0 | 0 | 344 | 0 | 0 | 0 | 12 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 183 | 0 | 0 | 93 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 61 | 733 | 0 | 0 | 374 | 0 | 0 | 0 | 13 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 25 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 15 | 15 | 0 | 10 | 10 | 0 | 3 | 3 | 0 | 3 | 3 |
| g / C, Green / Cycle | 0.14 | 0.43 | 0.43 | 0.00 | 0.29 | 0.29 | 0.00 | 0.09 | 0.09 | 0.00 | 0.09 | 0.09 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.21 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 259 | 1549 | 692 | 1 | 1033 | 461 | 1 | 171 | 145 | 1 | 171 | 145 |
| d1, Uniform Delay [s] | 12.79 | 6.80 | 0.00 | 0.00 | 9.52 | 0.00 | 0.00 | 0.00 | 14.08 | 0.00 | 0.00 | 0.00 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.17 | 0.24 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.24 | 0.47 | 0.00 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| d, Delay for Lane Group [s/veh] | 12.96 | 7.04 | 0.00 | 0.00 | 9.83 | 0.00 | 0.00 | 0.00 | 14.49 | 0.00 | 0.00 | 0.00 |
| Lane Group LOS | B | A | A | A | A | A | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.34 | 1.17 | 0.00 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 8.41 | 29.17 | 0.00 | 0.00 | 20.74 | 0.00 | 0.00 | 0.00 | 2.25 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.61 | 2.10 | 0.00 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.14 | 52.50 | 0.00 | 0.00 | 37.33 | 0.00 | 0.00 | 0.00 | 4.05 | 0.00 | 0.00 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.96 | 7.04 | 0.00 | 0.00 | 9.83 | 0.00 | 0.00 | 0.00 | 14.49 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A | A | A | B | A | A | A |
| d_A, Approach Delay [s/veh] | 7.50 | | | 9.83 | | | 14.49 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.31 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.332 | | | | | | | | | | | |

**Emissions**

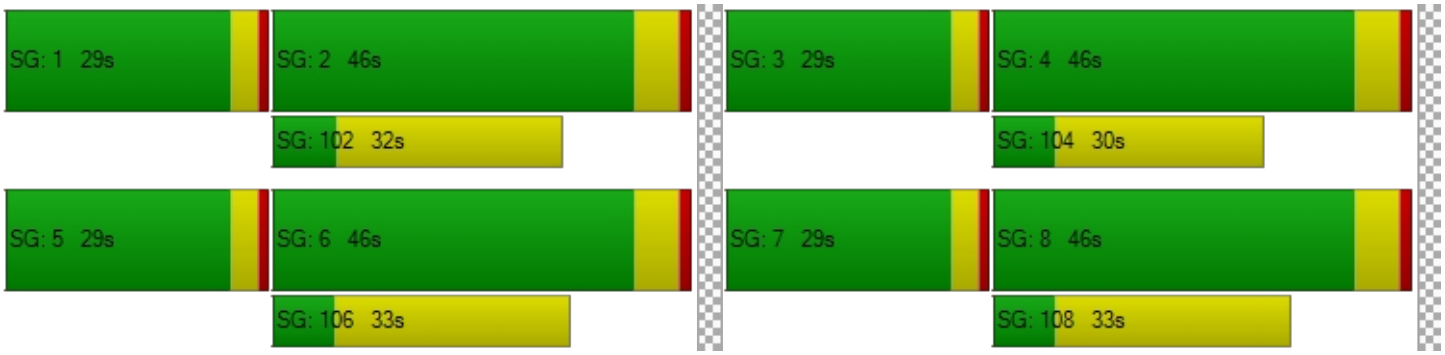
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 31.88 | 383.10 | 0.00 | 0.00 | 8.84 | 0.00 | 0.00 | 0.00 | 9.81 | 0.00 | 0.00 | 0.00 |
| Stops [stops/h] | 35.93 | 249.15 | 0.00 | 0.00 | 177.18 | 0.00 | 0.00 | 0.00 | 9.62 | 0.00 | 0.00 | 0.00 |
| Fuel consumption [US gal/h] | 1.67 | 18.20 | 0.00 | 0.00 | 2.09 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 |
| CO [g/h] | 116.87 | 1272.04 | 0.00 | 0.00 | 146.16 | 0.00 | 0.00 | 0.00 | 34.61 | 0.00 | 0.00 | 0.00 |
| NOx [g/h] | 22.74 | 247.49 | 0.00 | 0.00 | 28.44 | 0.00 | 0.00 | 0.00 | 6.73 | 0.00 | 0.00 | 0.00 |
| VOC [g/h] | 27.08 | 294.81 | 0.00 | 0.00 | 33.87 | 0.00 | 0.00 | 0.00 | 8.02 | 0.00 | 0.00 | 0.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.65 | 7.65 | 7.65 | 7.65 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.697 | 2.572 | 2.088 | 2.070 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2373 | 2373 | 2373 | 2373 |
| d_b, Bicycle Delay [s] | 0.59 | 0.59 | 0.59 | 0.59 |
| l_b,int, Bicycle LOS Score for Intersection | 2.215 | 1.868 | 1.581 | 1.560 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.465 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 94 | 1005 | 0 | 2 | 455 | 0 | 0 | 22 | 45 | 0 | 6 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 94 | 1005 | 0 | 2 | 455 | 0 | 0 | 22 | 45 | 0 | 6 | 1 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 273 | 0 | 1 | 124 | 0 | 0 | 6 | 12 | 0 | 2 | 0 |
| Total Analysis Volume [veh/h] | 102 | 1092 | 0 | 2 | 495 | 0 | 0 | 24 | 49 | 0 | 7 | 1 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 0 | 13 | 13 | 0 | 7 | 7 | 0 | 7 | 7 |
| g / C, Green / Cycle | 0.18 | 0.46 | 0.46 | 0.01 | 0.29 | 0.29 | 0.00 | 0.17 | 0.17 | 0.00 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.31 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 320 | 1655 | 739 | 11 | 1038 | 464 | 0 | 313 | 266 | 0 | 313 | 266 |
| d1, Uniform Delay [s] | 15.81 | 9.15 | 0.00 | 21.89 | 12.91 | 0.00 | 0.00 | 15.55 | 15.84 | 0.00 | 15.41 | 15.36 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.21 | 0.49 | 0.00 | 2.76 | 0.49 | 0.00 | 0.00 | 0.16 | 0.50 | 0.00 | 0.05 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.32 | 0.66 | 0.00 | 0.18 | 0.48 | 0.00 | 0.00 | 0.08 | 0.18 | 0.00 | 0.02 | 0.00 |
| d, Delay for Lane Group [s/veh] | 16.02 | 9.64 | 0.00 | 24.65 | 13.39 | 0.00 | 0.00 | 15.71 | 16.34 | 0.00 | 15.46 | 15.37 |
| Lane Group LOS | B | A | A | C | B | A | A | B | B | A | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.80 | 3.02 | 0.00 | 0.03 | 1.74 | 0.00 | 0.00 | 0.18 | 0.37 | 0.00 | 0.06 | 0.01 |
| 50th-Percentile Queue Length [ft/ln] | 19.90 | 75.40 | 0.00 | 0.68 | 43.48 | 0.00 | 0.00 | 4.38 | 9.34 | 0.00 | 1.39 | 0.20 |
| 95th-Percentile Queue Length [veh/ln] | 1.43 | 5.43 | 0.00 | 0.05 | 3.13 | 0.00 | 0.00 | 0.32 | 0.67 | 0.00 | 0.10 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 35.82 | 135.72 | 0.00 | 1.23 | 78.26 | 0.00 | 0.00 | 7.89 | 16.81 | 0.00 | 2.50 | 0.36 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 16.02 | 9.64 | 0.00 | 24.65 | 13.39 | 0.00 | 0.00 | 15.71 | 16.34 | 0.00 | 15.46 | 15.37 |
| Movement LOS | B | A | A | C | B | A | A | B | B | A | B | B |
| d_A, Approach Delay [s/veh] | 10.19 | | | 13.44 | | | 16.13 | | | 15.45 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 11.37 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.465 | | | | | | | | | | | |

**Emissions**

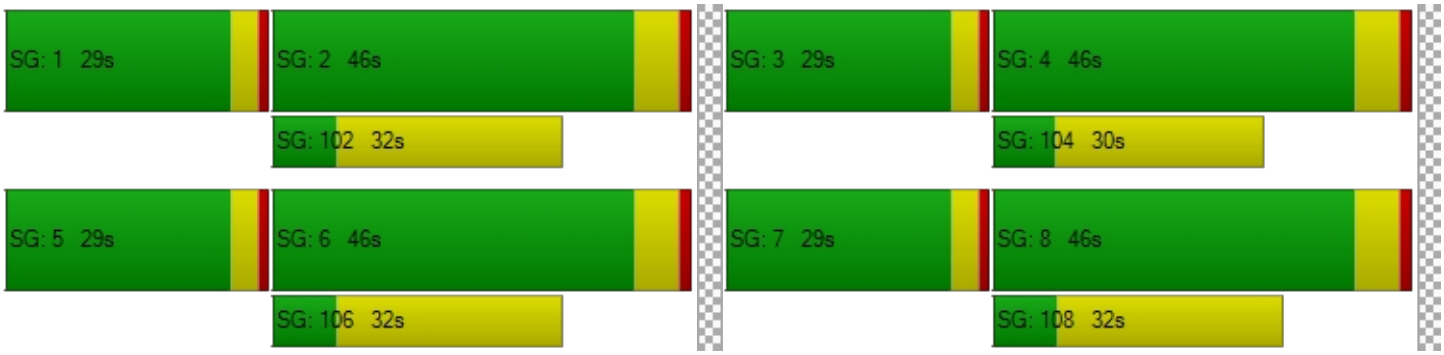
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 105.43 | 1128.76 | 0.00 | 1.05 | 258.71 | 0.00 | 0.00 | 14.73 | 30.08 | 0.00 | 2.74 | 0.39 |
| Stops [stops/h] | 64.90 | 491.82 | 0.00 | 2.22 | 283.61 | 0.00 | 0.00 | 14.30 | 30.45 | 0.00 | 4.53 | 0.65 |
| Fuel consumption [US gal/h] | 5.03 | 51.33 | 0.00 | 0.07 | 13.57 | 0.00 | 0.00 | 0.76 | 1.57 | 0.00 | 0.16 | 0.02 |
| CO [g/h] | 351.71 | 3587.76 | 0.00 | 4.57 | 948.28 | 0.00 | 0.00 | 53.09 | 109.93 | 0.00 | 11.16 | 1.60 |
| NOx [g/h] | 68.43 | 698.05 | 0.00 | 0.89 | 184.50 | 0.00 | 0.00 | 10.33 | 21.39 | 0.00 | 2.17 | 0.31 |
| VOC [g/h] | 81.51 | 831.50 | 0.00 | 1.06 | 219.77 | 0.00 | 0.00 | 12.30 | 25.48 | 0.00 | 2.59 | 0.37 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.45 | 12.45 | 12.45 | 12.45 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.694 | 2.670 | 2.156 | 2.098 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1812 | 1812 | 1812 | 1812 |
| d_b, Bicycle Delay [s] | 0.20 | 0.20 | 0.20 | 0.20 |
| l_b,int, Bicycle LOS Score for Intersection | 2.545 | 1.970 | 1.680 | 1.573 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.446 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 233 | 382 | 102 | 193 | 217 | 29 | 45 | 507 | 87 | 37 | 389 | 284 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 233 | 382 | 102 | 193 | 217 | 29 | 45 | 507 | 87 | 37 | 389 | 284 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 101 | 27 | 51 | 57 | 8 | 12 | 133 | 23 | 10 | 102 | 75 |
| Total Analysis Volume [veh/h] | 245 | 402 | 107 | 203 | 228 | 31 | 47 | 534 | 92 | 39 | 409 | 299 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 15 | 15 | 11 | 15 | 15 | 8 | 20 | 20 | 7 | 20 | 20 |
| g / C, Green / Cycle | 0.17 | 0.21 | 0.21 | 0.16 | 0.21 | 0.21 | 0.11 | 0.29 | 0.29 | 0.10 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.11 | 0.07 | 0.06 | 0.06 | 0.02 | 0.01 | 0.15 | 0.06 | 0.01 | 0.11 | 0.19 |
| s, saturation flow rate [veh/h] | 3514 | 3578 | 1610 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1612 |
| c, Capacity [veh/h] | 582 | 757 | 341 | 576 | 760 | 339 | 385 | 1066 | 474 | 329 | 1031 | 459 |
| d1, Uniform Delay [s] | 26.07 | 24.38 | 23.17 | 25.83 | 23.18 | 22.15 | 27.98 | 20.32 | 18.37 | 28.55 | 20.07 | 21.84 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.18 | 1.30 | 1.17 | 0.14 | 1.12 | 0.59 | 0.05 | 0.54 | 0.29 | 0.06 | 0.37 | 2.30 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.42 | 0.53 | 0.31 | 0.35 | 0.30 | 0.09 | 0.12 | 0.50 | 0.19 | 0.12 | 0.40 | 0.65 |
| d, Delay for Lane Group [s/veh] | 26.25 | 25.67 | 24.34 | 25.96 | 24.30 | 22.73 | 28.03 | 20.86 | 18.66 | 28.61 | 20.43 | 24.14 |
| Lane Group LOS | C | C | C | C | C | C | C | C | B | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.67 | 2.78 | 1.45 | 1.44 | 1.62 | 0.45 | 0.32 | 3.16 | 1.00 | 0.29 | 2.57 | 4.30 |
| 50th-Percentile Queue Length [ft/ln] | 41.63 | 69.39 | 36.15 | 35.95 | 40.56 | 11.16 | 8.05 | 78.94 | 24.93 | 7.22 | 64.26 | 107.51 |
| 95th-Percentile Queue Length [veh/ln] | 3.00 | 5.00 | 2.60 | 2.59 | 2.92 | 0.80 | 0.58 | 5.68 | 1.79 | 0.52 | 4.63 | 7.70 |
| 95th-Percentile Queue Length [ft/ln] | 74.94 | 124.90 | 65.07 | 64.70 | 73.01 | 20.09 | 14.48 | 142.09 | 44.87 | 12.99 | 115.67 | 192.54 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.25 | 25.67 | 24.34 | 25.96 | 24.30 | 22.73 | 28.03 | 20.86 | 18.66 | 28.61 | 20.43 | 24.14 |
| Movement LOS | C | C | C | C | C | C | C | C | B | C | C | C |
| d_A, Approach Delay [s/veh] | 25.67 | | | 24.93 | | | 21.06 | | | 22.34 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.42 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.446 | | | | | | | | | | | |

**Emissions**

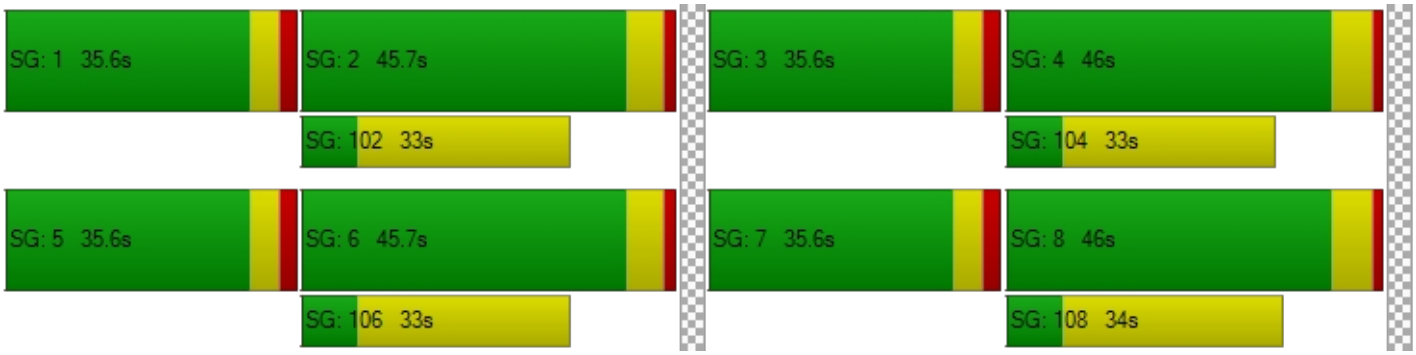
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 249.44 | 409.29 | 108.94 | 209.83 | 235.68 | 32.04 | 23.54 | 267.41 | 46.07 | 19.55 | 205.03 | 149.89 |
| Stops [stops/h] | 172.57 | 287.61 | 74.93 | 149.00 | 168.13 | 23.13 | 33.35 | 327.21 | 51.66 | 29.92 | 266.38 | 222.83 |
| Fuel consumption [US gal/h] | 12.00 | 19.71 | 5.20 | 10.53 | 11.76 | 1.59 | 1.57 | 16.24 | 2.69 | 1.20 | 11.61 | 8.87 |
| CO [g/h] | 839.11 | 1377.44 | 363.19 | 736.32 | 821.91 | 111.16 | 109.62 | 1135.49 | 187.70 | 83.68 | 811.75 | 620.04 |
| NOx [g/h] | 163.26 | 268.00 | 70.66 | 143.26 | 159.91 | 21.63 | 21.33 | 220.93 | 36.52 | 16.28 | 157.94 | 120.64 |
| VOC [g/h] | 194.47 | 319.23 | 84.17 | 170.65 | 190.48 | 25.76 | 25.41 | 263.16 | 43.50 | 19.39 | 188.13 | 143.70 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5537.30 | 0.00 | 6559.20 |
| d_p, Pedestrian Delay [s] | 24.61 | 24.61 | 24.61 | 24.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.915 | 2.859 | 2.987 | 2.905 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1151 | 1151 | 1151 | 1151 |
| d_b, Bicycle Delay [s] | 6.25 | 6.25 | 6.25 | 6.25 |
| l_b,int, Bicycle LOS Score for Intersection | 2.182 | 1.941 | 2.115 | 2.176 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.592 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 91 | 879 | 43 | 52 | 430 | 27 | 32 | 572 | 84 | 30 | 663 | 108 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 91 | 879 | 43 | 52 | 430 | 27 | 32 | 572 | 84 | 30 | 663 | 108 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 231 | 11 | 14 | 113 | 7 | 8 | 151 | 22 | 8 | 174 | 28 |
| Total Analysis Volume [veh/h] | 96 | 925 | 45 | 55 | 453 | 28 | 34 | 602 | 88 | 32 | 698 | 114 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 28 | 28 | 7 | 26 | 26 | 5 | 22 | 22 | 5 | 22 | 22 |
| g / C, Green / Cycle | 0.11 | 0.36 | 0.36 | 0.09 | 0.34 | 0.34 | 0.07 | 0.28 | 0.28 | 0.06 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.26 | 0.03 | 0.03 | 0.13 | 0.02 | 0.02 | 0.17 | 0.05 | 0.02 | 0.19 | 0.07 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1564 | 1801 | 3595 | 1614 | 1810 | 3612 | 1606 | 1810 | 3586 | 1615 |
| c, Capacity [veh/h] | 204 | 1291 | 560 | 162 | 1206 | 541 | 122 | 1020 | 453 | 117 | 1003 | 452 |
| d1, Uniform Delay [s] | 32.45 | 21.62 | 16.55 | 33.34 | 19.72 | 17.54 | 34.58 | 24.11 | 21.26 | 34.75 | 25.14 | 21.78 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.63 | 1.15 | 0.09 | 0.46 | 0.30 | 0.06 | 0.46 | 0.84 | 0.32 | 0.46 | 1.30 | 0.43 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.72 | 0.08 | 0.34 | 0.38 | 0.05 | 0.28 | 0.59 | 0.19 | 0.27 | 0.70 | 0.25 |
| d, Delay for Lane Group [s/veh] | 33.08 | 22.77 | 16.64 | 33.80 | 20.01 | 17.60 | 35.04 | 24.95 | 21.57 | 35.21 | 26.44 | 22.21 |
| Lane Group LOS | C | C | B | C | C | B | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.62 | 6.62 | 0.49 | 0.93 | 2.85 | 0.32 | 0.59 | 4.44 | 1.15 | 0.56 | 5.39 | 1.53 |
| 50th-Percentile Queue Length [ft/ln] | 40.47 | 165.57 | 12.31 | 23.37 | 71.28 | 7.93 | 14.77 | 110.91 | 28.82 | 13.94 | 134.67 | 38.18 |
| 95th-Percentile Queue Length [veh/ln] | 2.91 | 10.84 | 0.89 | 1.68 | 5.13 | 0.57 | 1.06 | 7.89 | 2.07 | 1.00 | 9.19 | 2.75 |
| 95th-Percentile Queue Length [ft/ln] | 72.85 | 271.09 | 22.15 | 42.06 | 128.30 | 14.27 | 26.58 | 197.27 | 51.87 | 25.10 | 229.83 | 68.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.08 | 22.77 | 16.64 | 33.80 | 20.01 | 17.60 | 35.04 | 24.95 | 21.57 | 35.21 | 26.44 | 22.21 |
| Movement LOS | C | C | B | C | C | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 23.44 | | | 21.30 | | | 25.01 | | | 26.20 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.17 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.592 | | | | | | | | | | | |

**Emissions**

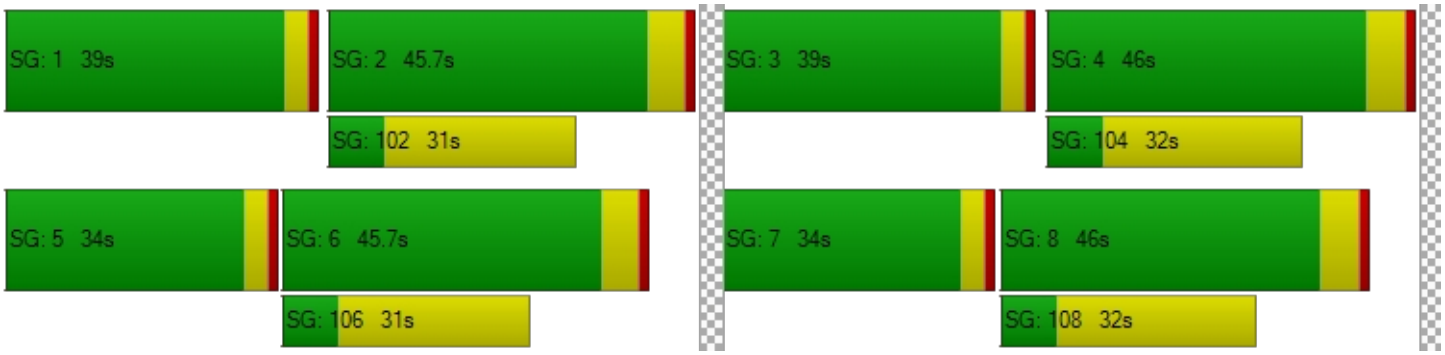
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 50.40 | 485.65 | 23.63 | 56.00 | 461.21 | 28.51 | 2.94 | 52.07 | 7.61 | 19.26 | 420.07 | 68.61 |
| Stops [stops/h] | 74.89 | 612.72 | 22.77 | 43.24 | 263.76 | 14.66 | 27.32 | 410.43 | 53.32 | 25.80 | 498.35 | 70.65 |
| Fuel consumption [US gal/h] | 3.30 | 28.55 | 1.25 | 2.84 | 20.93 | 1.26 | 0.68 | 9.94 | 1.31 | 1.21 | 24.35 | 3.75 |
| CO [g/h] | 231.02 | 1995.77 | 87.05 | 198.19 | 1463.28 | 88.06 | 47.74 | 695.11 | 91.58 | 84.59 | 1702.11 | 261.81 |
| NOx [g/h] | 44.95 | 388.31 | 16.94 | 38.56 | 284.70 | 17.13 | 9.29 | 135.24 | 17.82 | 16.46 | 331.17 | 50.94 |
| VOC [g/h] | 53.54 | 462.54 | 20.18 | 45.93 | 339.13 | 20.41 | 11.06 | 161.10 | 21.23 | 19.60 | 394.48 | 60.68 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.69 | 28.69 | 28.69 | 28.69 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.928 | 2.922 | 2.822 | 2.822 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1028 | 1028 | 1028 | 1028 |
| d_b, Bicycle Delay [s] | 9.19 | 9.19 | 9.19 | 9.19 |
| l_b,int, Bicycle LOS Score for Intersection | 2.439 | 2.002 | 2.157 | 2.256 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.674 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 97 | 843 | 208 | 44 | 517 | 17 | 19 | 353 | 176 | 56 | 203 | 107 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 97 | 843 | 208 | 44 | 517 | 17 | 19 | 353 | 176 | 56 | 203 | 107 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 229 | 57 | 12 | 140 | 5 | 5 | 96 | 48 | 15 | 55 | 29 |
| Total Analysis Volume [veh/h] | 105 | 916 | 226 | 48 | 562 | 18 | 21 | 384 | 191 | 61 | 221 | 116 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 32 | 32 | 8 | 29 | 29 | 4 | 25 | 25 | 8 | 28 | 28 |
| g / C, Green / Cycle | 0.13 | 0.36 | 0.36 | 0.09 | 0.32 | 0.32 | 0.05 | 0.28 | 0.28 | 0.09 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.31 | 0.32 | 0.03 | 0.16 | 0.16 | 0.01 | 0.20 | 0.12 | 0.03 | 0.12 | 0.07 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1746 | 1810 | 1874 | 1853 | 1810 | 1874 | 1577 | 1761 | 1876 | 1583 |
| c, Capacity [veh/h] | 227 | 674 | 622 | 171 | 610 | 603 | 87 | 522 | 440 | 159 | 602 | 508 |
| d1, Uniform Delay [s] | 36.04 | 26.71 | 26.91 | 37.39 | 23.93 | 23.94 | 40.67 | 29.04 | 26.21 | 38.04 | 23.21 | 22.06 |
| k, delay calibration | 0.11 | 0.37 | 0.38 | 0.11 | 0.11 | 0.11 | 0.11 | 0.15 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.47 | 11.49 | 13.86 | 0.89 | 0.58 | 0.59 | 1.40 | 2.76 | 0.68 | 1.51 | 0.37 | 0.23 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.87 | 0.89 | 0.28 | 0.48 | 0.48 | 0.24 | 0.73 | 0.43 | 0.38 | 0.37 | 0.23 |
| d, Delay for Lane Group [s/veh] | 37.50 | 38.20 | 40.77 | 38.28 | 24.51 | 24.53 | 42.07 | 31.80 | 26.89 | 39.55 | 23.58 | 22.29 |
| Lane Group LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.09 | 12.66 | 12.32 | 0.96 | 4.60 | 4.56 | 0.46 | 7.25 | 3.16 | 1.26 | 3.36 | 1.67 |
| 50th-Percentile Queue Length [ft/ln] | 52.32 | 316.40 | 307.92 | 24.12 | 114.95 | 113.92 | 11.39 | 181.28 | 78.95 | 31.39 | 83.90 | 41.87 |
| 95th-Percentile Queue Length [veh/ln] | 3.77 | 18.49 | 18.07 | 1.74 | 8.11 | 8.06 | 0.82 | 11.67 | 5.68 | 2.26 | 6.04 | 3.01 |
| 95th-Percentile Queue Length [ft/ln] | 94.18 | 462.25 | 451.81 | 43.42 | 202.86 | 201.45 | 20.51 | 291.68 | 142.11 | 56.50 | 151.02 | 75.37 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.50 | 39.12 | 40.77 | 38.28 | 24.52 | 24.53 | 42.07 | 31.80 | 26.89 | 39.55 | 23.58 | 22.29 |
| Movement LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 39.28 | | | 25.57 | | | 30.59 | | | 25.65 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 32.58 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.674 | | | | | | | | | | | |

**Emissions**

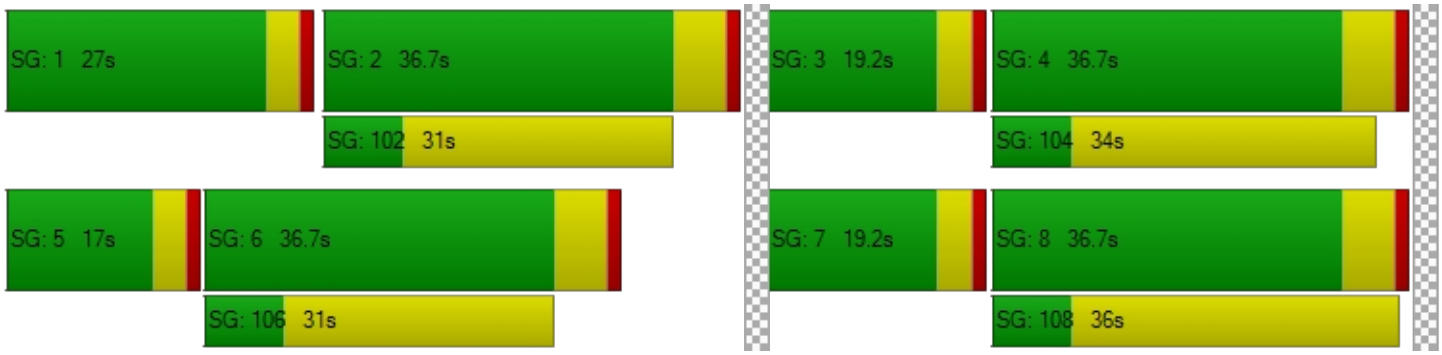
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 55.79 | 313.13 | 293.62 | 25.20 | 152.99 | 151.53 | 2.11 | 38.50 | 19.15 | 29.03 | 105.18 | 55.21 |
| Stops [stops/h] | 85.08 | 514.48 | 500.70 | 39.22 | 186.91 | 185.25 | 18.53 | 294.77 | 128.37 | 51.04 | 136.42 | 68.09 |
| Fuel consumption [US gal/h] | 3.77 | 21.71 | 20.87 | 1.73 | 9.02 | 8.94 | 0.48 | 7.47 | 3.30 | 2.12 | 6.36 | 3.27 |
| CO [g/h] | 263.62 | 1517.65 | 1459.13 | 120.61 | 630.61 | 624.78 | 33.71 | 522.14 | 230.50 | 148.24 | 444.72 | 228.23 |
| NOx [g/h] | 51.29 | 295.28 | 283.89 | 23.47 | 122.69 | 121.56 | 6.56 | 101.59 | 44.85 | 28.84 | 86.53 | 44.41 |
| VOC [g/h] | 61.10 | 351.73 | 338.17 | 27.95 | 146.15 | 144.80 | 7.81 | 121.01 | 53.42 | 34.36 | 103.07 | 52.89 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.96 | 33.96 | 33.96 | 33.96 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.954 | 2.790 | 2.473 | 2.516 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 700 | 700 | 700 | 700 |
| d_b, Bicycle Delay [s] | 18.70 | 18.70 | 18.70 | 18.72 |
| l_b,int, Bicycle LOS Score for Intersection | 2.588 | 2.078 | 2.543 | 2.216 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 69.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.980 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 449.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 582 | 491 | 320 | 259 | 335 | 420 | 692 | 1510 | 484 | 353 | 1297 | 119 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 582 | 491 | 320 | 259 | 335 | 420 | 692 | 1510 | 484 | 353 | 1297 | 119 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 153 | 129 | 84 | 68 | 88 | 111 | 182 | 397 | 127 | 93 | 341 | 31 |
| Total Analysis Volume [veh/h] | 613 | 517 | 337 | 273 | 353 | 442 | 728 | 1589 | 509 | 372 | 1365 | 125 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 28 | 45 | 0 | 19 | 36 | 0 | 24 | 44 | 0 | 24 | 44 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 139 | 139 | 139 | 139 | 139 | 139 | 139 | 139 | 139 | 139 | 139 | 139 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 37 | 37 | 14 | 27 | 27 | 30 | 55 | 55 | 17 | 42 | 42 |
| g / C, Green / Cycle | 0.17 | 0.26 | 0.26 | 0.10 | 0.19 | 0.19 | 0.22 | 0.40 | 0.40 | 0.12 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.26 | 0.14 | 0.21 | 0.08 | 0.07 | 0.16 | 0.21 | 0.31 | 0.32 | 0.11 | 0.26 | 0.08 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2769 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 408 | 946 | 422 | 353 | 990 | 532 | 750 | 2044 | 637 | 425 | 1561 | 486 |
| d1, Uniform Delay [s] | 57.32 | 43.93 | 47.63 | 60.71 | 48.59 | 53.71 | 53.96 | 36.48 | 36.93 | 59.88 | 45.83 | 36.53 |
| k, delay calibration | 0.04 | 0.04 | 0.22 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 227.66 | 0.18 | 6.94 | 1.37 | 0.25 | 3.84 | 4.68 | 2.99 | 10.09 | 2.27 | 7.12 | 1.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.50 | 0.55 | 0.80 | 0.77 | 0.36 | 0.83 | 0.97 | 0.78 | 0.80 | 0.87 | 0.87 | 0.26 |
| d, Delay for Lane Group [s/veh] | 284.97 | 44.11 | 54.57 | 62.08 | 48.83 | 57.54 | 58.64 | 39.47 | 47.02 | 62.15 | 52.95 | 37.80 |
| Lane Group LOS | F | D | D | E | D | E | E | D | D | E | D | D |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 19.92 | 7.58 | 11.49 | 4.67 | 3.50 | 7.51 | 12.75 | 15.61 | 16.42 | 6.44 | 15.44 | 3.33 |
| 50th-Percentile Queue Length [ft/ln] | 498.07 | 189.48 | 287.34 | 116.69 | 87.58 | 187.75 | 318.73 | 390.31 | 410.62 | 160.94 | 386.08 | 83.21 |
| 95th-Percentile Queue Length [veh/ln] | 32.03 | 12.09 | 17.05 | 8.21 | 6.31 | 12.00 | 18.60 | 22.09 | 23.07 | 10.60 | 21.89 | 5.99 |
| 95th-Percentile Queue Length [ft/ln] | 800.87 | 302.36 | 426.34 | 205.27 | 157.65 | 300.11 | 465.12 | 552.31 | 576.78 | 264.96 | 547.20 | 149.77 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 284.97 | 44.11 | 54.57 | 62.08 | 48.83 | 57.54 | 58.64 | 39.47 | 47.02 | 62.15 | 52.95 | 37.80 |
| Movement LOS | F | D | D | E | D | E | E | D | D | E | D | D |
| d_A, Approach Delay [s/veh] | 147.16 | | | 55.82 | | | 45.77 | | | 53.77 | | |
| Approach LOS | F | | | E | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 69.91 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.980 | | | | | | | | | | | |

**Emissions**

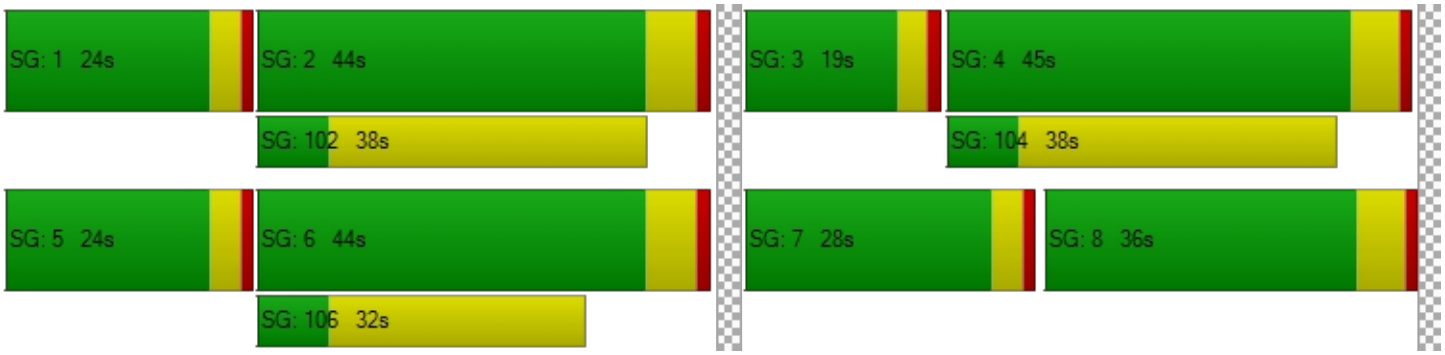
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 44.81 | 37.79 | 24.64 | 145.05 | 187.55 | 234.84 | 82.84 | 180.81 | 57.92 | 185.66 | 681.24 | 62.38 |
| Stops [stops/h] | 1034.36 | 393.51 | 298.36 | 242.34 | 272.83 | 389.91 | 661.91 | 1215.86 | 426.37 | 334.23 | 1202.67 | 86.40 |
| Fuel consumption [US gal/h] | 47.31 | 9.86 | 7.56 | 11.43 | 13.33 | 18.07 | 19.76 | 34.08 | 12.16 | 15.22 | 53.01 | 4.17 |
| CO [g/h] | 3306.80 | 689.21 | 528.14 | 799.19 | 931.67 | 1263.29 | 1380.94 | 2381.88 | 849.73 | 1064.14 | 3705.55 | 291.77 |
| NOx [g/h] | 643.38 | 134.10 | 102.76 | 155.49 | 181.27 | 245.79 | 268.68 | 463.43 | 165.33 | 207.04 | 720.96 | 56.77 |
| VOC [g/h] | 766.38 | 159.73 | 122.40 | 185.22 | 215.92 | 292.78 | 320.05 | 552.02 | 196.93 | 246.62 | 858.80 | 67.62 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 58.78 | 58.78 | 42.35 | 58.78 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.185 | 3.503 | 3.832 | 3.530 |
| Crosswalk LOS | C | D | D | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 567 | 437 | 548 | 548 |
| d_b, Bicycle Delay [s] | 35.61 | 42.39 | 36.55 | 36.55 |
| l_b,int, Bicycle LOS Score for Intersection | 2.366 | 2.147 | 3.114 | 2.584 |
| Bicycle LOS | B | B | C | B |

## Sequence

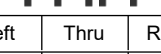
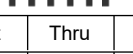
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.772 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 736 | 0 | 1075 | 0 | 0 | 0 | 0 | 1619 | 433 | 0 | 1955 | 238 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 736 | 0 | 1075 | 0 | 0 | 0 | 0 | 1619 | 433 | 0 | 1955 | 238 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 196 | 0 | 286 | 0 | 0 | 0 | 0 | 431 | 115 | 0 | 520 | 63 |
| Total Analysis Volume [veh/h] | 783 | 0 | 1144 | 0 | 0 | 0 | 0 | 1722 | 461 | 0 | 2080 | 253 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.40 | | 0.33 | 0.24 | 0.16 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4443 | 828 |
| d1, Uniform Delay [s] | 31.44 | 41.08 | | 23.11 | 20.29 | 18.27 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.59 | 41.37 | | 1.23 | 0.36 | 0.95 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.49 | 1.07 | | 0.65 | 0.47 | 0.31 |
| d, Delay for Lane Group [s/veh] | 32.03 | 82.45 | | 24.34 | 20.65 | 19.22 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 6.11 | 22.30 | | 12.49 | 7.85 | 4.47 |
| 50th-Percentile Queue Length [ft/ln] | 152.85 | 557.57 | | 312.34 | 196.15 | 111.68 |
| 95th-Percentile Queue Length [veh/ln] | 10.17 | 31.45 | | 18.29 | 12.44 | 7.93 |
| 95th-Percentile Queue Length [ft/ln] | 254.23 | 786.18 | | 457.27 | 311.00 | 198.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.03 | 0.00 | 82.45 | 0.00 | 0.00 | 0.00 | 0.00 | 24.34 | 0.00 | 0.00 | 20.65 | 19.22 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 61.96 | | | 0.00 | | | 19.45 | | | 20.50 | | |
| Approach LOS | E | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 33.55 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.772 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.64 | 149.96 | | 270.97 | 236.67 | 28.79 |
| Stops [stops/h] | 500.79 | 1217.82 | | 1023.32 | 1071.07 | 121.96 |
| Fuel consumption [US gal/h] | 17.84 | 46.83 | | 30.54 | 30.17 | 3.49 |
| CO [g/h] | 1246.87 | 3273.28 | | 2134.87 | 2108.94 | 244.16 |
| NOx [g/h] | 242.60 | 636.86 | | 415.37 | 410.32 | 47.50 |
| VOC [g/h] | 288.97 | 758.62 | | 494.78 | 488.77 | 56.59 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.045 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.507 | 2.329 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.548 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 62 | 0 | 377 | 0 | 2001 | 572 | 0 | 1987 | 766 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 62 | 0 | 377 | 0 | 2001 | 572 | 0 | 1987 | 766 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 16 | 0 | 100 | 0 | 532 | 152 | 0 | 528 | 204 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 66 | 0 | 401 | 0 | 2129 | 609 | 0 | 2114 | 815 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 23 | 23 | 93 | 93 | 93 |
| g / C, Green / Cycle | | 0.18 | 0.18 | 0.71 | 0.71 | 0.71 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.14 | 0.31 | 0.38 | 0.31 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 634 | 515 | 4889 | 1138 | 4921 |
| d1, Uniform Delay [s] | | 44.40 | 50.70 | 7.66 | 8.55 | 7.62 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.18 | 6.24 | 0.28 | 1.81 | 0.28 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.10 | 0.78 | 0.44 | 0.54 | 0.43 |
| d, Delay for Lane Group [s/veh] | | 44.58 | 56.94 | 7.95 | 10.35 | 7.89 |
| Lane Group LOS | | D | E | A | B | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.91 | 6.67 | 5.30 | 7.22 | 5.23 |
| 50th-Percentile Queue Length [ft/ln] | | 22.81 | 166.66 | 132.62 | 180.46 | 130.87 |
| 95th-Percentile Queue Length [veh/ln] | | 1.64 | 10.90 | 9.08 | 11.62 | 8.99 |
| 95th-Percentile Queue Length [ft/ln] | | 41.05 | 272.52 | 227.05 | 290.62 | 224.67 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 44.58 | 0.00 | 56.94 | 0.00 | 7.95 | 10.35 | 0.00 | 7.89 | 0.00 |
| Movement LOS | | | | D | | E | | A | B | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 55.19 | | | 8.48 | | | 5.79 | | |
| Approach LOS | A | | | E | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 11.51 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.548 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 10.17 | 61.79 | 206.16 | 58.97 | 332.66 |
| Stops [stops/h] | | 50.58 | 369.61 | 588.22 | 200.11 | 580.47 |
| Fuel consumption [US gal/h] | | 1.30 | 9.23 | 17.82 | 5.79 | 22.02 |
| CO [g/h] | | 90.65 | 645.30 | 1245.85 | 404.91 | 1538.88 |
| NOx [g/h] | | 17.64 | 125.55 | 242.40 | 78.78 | 299.41 |
| VOC [g/h] | | 21.01 | 149.56 | 288.74 | 93.84 | 356.65 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.029 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1143 | 1143 | |
| d_b, Bicycle Delay [s] | 64.93 | 29.59 | 11.93 | 11.93 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.689 | 2.432 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.490 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 145 | 128 | 30 | 30 | 91 | 96 | 130 | 586 | 99 | 29 | 569 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 145 | 128 | 30 | 30 | 91 | 96 | 130 | 586 | 99 | 29 | 569 | 30 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 34 | 8 | 8 | 24 | 26 | 35 | 156 | 26 | 8 | 151 | 8 |
| Total Analysis Volume [veh/h] | 154 | 136 | 32 | 32 | 97 | 102 | 138 | 623 | 105 | 31 | 605 | 32 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 14 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lag | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 15 | 15 | 5 | 10 | 10 | 10 | 23 | 23 | 5 | 18 | 18 |
| g / C, Green / Cycle | 0.16 | 0.24 | 0.24 | 0.08 | 0.15 | 0.15 | 0.16 | 0.36 | 0.36 | 0.07 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.07 | 0.02 | 0.02 | 0.05 | 0.06 | 0.08 | 0.17 | 0.07 | 0.02 | 0.17 | 0.02 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 287 | 445 | 378 | 135 | 286 | 243 | 281 | 1293 | 577 | 132 | 996 | 445 |
| d1, Uniform Delay [s] | 24.77 | 20.14 | 19.06 | 27.95 | 24.34 | 24.66 | 24.73 | 15.81 | 13.97 | 28.04 | 20.09 | 17.02 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.58 | 0.42 | 0.10 | 0.33 | 0.99 | 1.64 | 0.50 | 0.43 | 0.23 | 0.33 | 0.99 | 0.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.54 | 0.31 | 0.08 | 0.24 | 0.34 | 0.42 | 0.49 | 0.48 | 0.18 | 0.23 | 0.61 | 0.07 |
| d, Delay for Lane Group [s/veh] | 25.35 | 20.56 | 19.17 | 28.27 | 25.33 | 26.30 | 25.23 | 16.24 | 14.20 | 28.37 | 21.08 | 17.13 |
| Lane Group LOS | C | C | B | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.96 | 1.52 | 0.34 | 0.43 | 1.26 | 1.37 | 1.72 | 2.93 | 0.89 | 0.43 | 3.68 | 0.33 |
| 50th-Percentile Queue Length [ft/ln] | 49.11 | 37.95 | 8.44 | 10.82 | 31.44 | 34.17 | 42.90 | 73.23 | 22.15 | 10.86 | 92.05 | 8.29 |
| 95th-Percentile Queue Length [veh/ln] | 3.54 | 2.73 | 0.61 | 0.78 | 2.26 | 2.46 | 3.09 | 5.27 | 1.59 | 0.78 | 6.63 | 0.60 |
| 95th-Percentile Queue Length [ft/ln] | 88.39 | 68.32 | 15.18 | 19.47 | 56.60 | 61.50 | 77.22 | 131.81 | 39.87 | 19.56 | 165.69 | 14.92 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.35 | 20.56 | 19.17 | 28.27 | 25.33 | 26.30 | 25.23 | 16.24 | 14.20 | 28.37 | 21.08 | 17.13 |
| Movement LOS | C | C | B | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 22.71 | | | 26.17 | | | 17.42 | | | 21.23 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.42 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.490 | | | | | | | | | | | |

**Emissions**

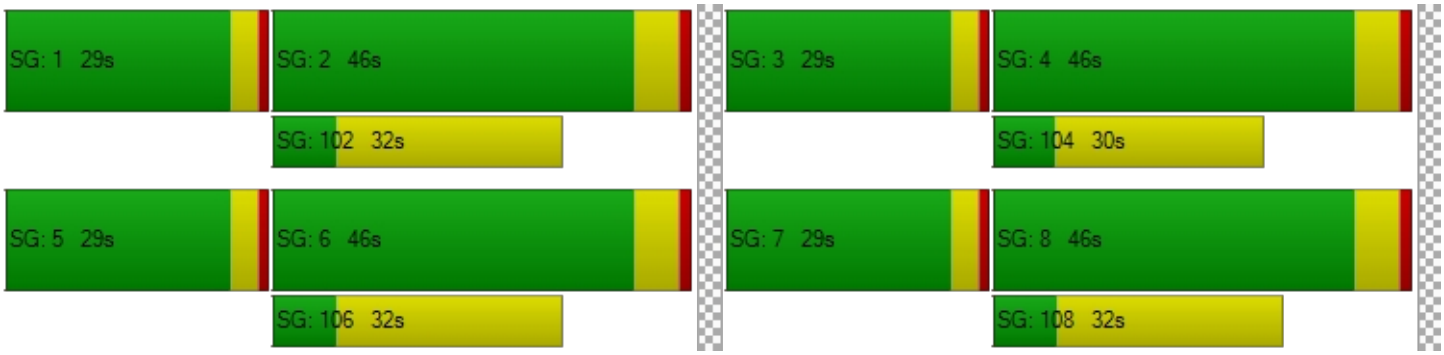
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 155.05 | 136.92 | 32.22 | 32.07 | 97.21 | 102.22 | 69.18 | 312.31 | 52.64 | 15.28 | 298.16 | 15.77 |
| Stops [stops/h] | 110.29 | 85.25 | 18.94 | 24.30 | 70.62 | 76.74 | 96.36 | 328.92 | 49.75 | 24.40 | 413.48 | 18.61 |
| Fuel consumption [US gal/h] | 7.48 | 6.32 | 1.46 | 1.59 | 4.71 | 5.00 | 4.50 | 17.57 | 2.83 | 0.94 | 17.07 | 0.85 |
| CO [g/h] | 522.88 | 441.94 | 102.38 | 110.82 | 329.24 | 349.77 | 314.86 | 1227.91 | 197.80 | 66.04 | 1193.15 | 59.60 |
| NOx [g/h] | 101.73 | 85.98 | 19.92 | 21.56 | 64.06 | 68.05 | 61.26 | 238.91 | 38.48 | 12.85 | 232.14 | 11.60 |
| VOC [g/h] | 121.18 | 102.42 | 23.73 | 25.68 | 76.30 | 81.06 | 72.97 | 284.58 | 45.84 | 15.31 | 276.52 | 13.81 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.00 | 22.00 | 22.00 | 22.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.315 | 2.309 | 2.902 | 2.691 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1248 | 1248 | 1248 | 1248 |
| d_b, Bicycle Delay [s] | 4.54 | 4.54 | 4.54 | 4.54 |
| l_b,int, Bicycle LOS Score for Intersection | 2.091 | 1.941 | 2.274 | 2.111 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 24.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.640 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 274 | 294 | 57 | 11 | 253 | 22 | 24 | 405 | 200 | 31 | 499 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 274 | 294 | 57 | 11 | 253 | 22 | 24 | 405 | 200 | 31 | 499 | 15 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 74 | 80 | 15 | 3 | 69 | 6 | 7 | 110 | 54 | 8 | 136 | 4 |
| Total Analysis Volume [veh/h] | 298 | 320 | 62 | 12 | 275 | 24 | 26 | 440 | 217 | 34 | 542 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 2 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 0 | | | 3 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 28 | 28 | 2 | 16 | 4 | 20 | 20 | 5 | 21 | 21 |
| g / C, Green / Cycle | 0.20 | 0.39 | 0.39 | 0.03 | 0.22 | 0.06 | 0.28 | 0.28 | 0.08 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.17 | 0.04 | 0.01 | 0.16 | 0.01 | 0.18 | 0.19 | 0.02 | 0.15 | 0.15 |
| s, saturation flow rate [veh/h] | 1762 | 1900 | 1615 | 1810 | 1873 | 1810 | 1892 | 1678 | 1752 | 1900 | 1881 |
| c, Capacity [veh/h] | 346 | 735 | 625 | 59 | 418 | 113 | 534 | 474 | 133 | 562 | 556 |
| d1, Uniform Delay [s] | 27.98 | 16.28 | 14.08 | 33.91 | 25.85 | 32.12 | 22.71 | 22.78 | 31.36 | 20.96 | 20.96 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.47 | 0.44 | 0.07 | 0.61 | 3.24 | 0.38 | 2.02 | 2.37 | 0.37 | 1.13 | 1.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.86 | 0.44 | 0.10 | 0.20 | 0.71 | 0.23 | 0.65 | 0.66 | 0.26 | 0.50 | 0.50 |
| d, Delay for Lane Group [s/veh] | 30.45 | 16.72 | 14.15 | 34.52 | 29.10 | 32.50 | 24.73 | 25.14 | 31.74 | 22.09 | 22.11 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.71 | 3.43 | 0.57 | 0.20 | 4.63 | 0.41 | 4.86 | 4.42 | 0.53 | 3.63 | 3.60 |
| 50th-Percentile Queue Length [ft/ln] | 117.81 | 85.74 | 14.31 | 5.01 | 115.64 | 10.29 | 121.43 | 110.54 | 13.25 | 90.65 | 89.95 |
| 95th-Percentile Queue Length [veh/ln] | 8.27 | 6.17 | 1.03 | 0.36 | 8.15 | 0.74 | 8.47 | 7.87 | 0.95 | 6.53 | 6.48 |
| 95th-Percentile Queue Length [ft/ln] | 206.81 | 154.34 | 25.76 | 9.01 | 203.81 | 18.53 | 211.79 | 196.75 | 23.84 | 163.17 | 161.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.45 | 16.72 | 14.15 | 34.52 | 29.10 | 29.10 | 32.50 | 24.82 | 25.14 | 31.74 | 22.10 | 22.11 |
| Movement LOS | C | B | B | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 22.50 | | | 29.30 | | | 25.21 | | | 22.65 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.29 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.640 | | | | | | | | | | | |

**Emissions**

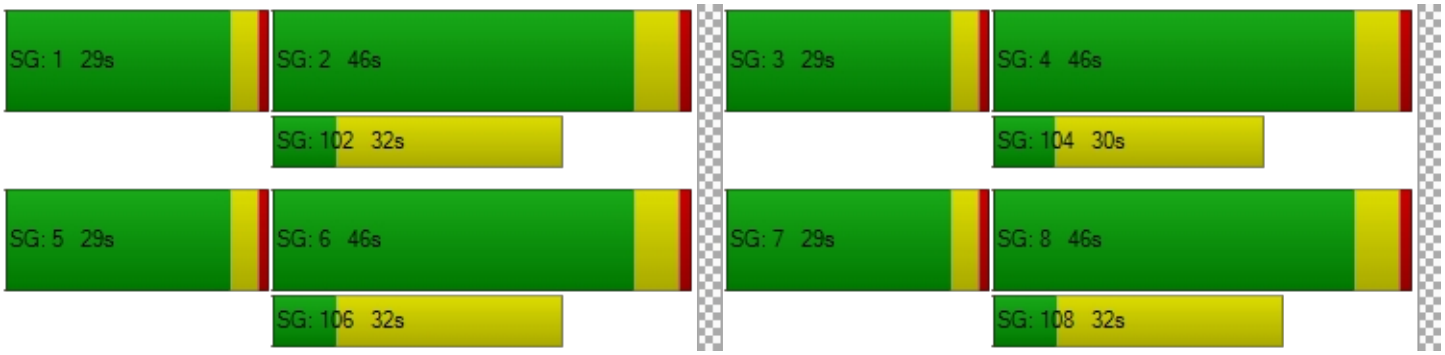
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 148.18 | 159.12 | 30.83 | 12.08 | 301.03 | 15.65 | 208.20 | 187.20 | 16.96 | 139.76 | 138.56 |
| Stops [stops/h] | 236.08 | 171.82 | 28.68 | 10.03 | 231.72 | 20.62 | 243.33 | 221.50 | 26.54 | 181.65 | 180.25 |
| Fuel consumption [US gal/h] | 9.86 | 8.68 | 1.59 | 0.62 | 14.97 | 0.96 | 11.90 | 10.76 | 1.13 | 8.31 | 8.24 |
| CO [g/h] | 689.27 | 606.68 | 111.27 | 43.56 | 1046.41 | 67.44 | 832.02 | 752.29 | 79.05 | 580.77 | 576.02 |
| NOx [g/h] | 134.11 | 118.04 | 21.65 | 8.48 | 203.59 | 13.12 | 161.88 | 146.37 | 15.38 | 113.00 | 112.07 |
| VOC [g/h] | 159.75 | 140.60 | 25.79 | 10.10 | 242.52 | 15.63 | 192.83 | 174.35 | 18.32 | 134.60 | 133.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.77 | 25.77 | 25.77 | 25.77 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.640 | 2.256 | 2.740 | 2.611 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1113 | 1113 | 1113 | 1113 |
| d_b, Bicycle Delay [s] | 7.06 | 7.06 | 7.06 | 7.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.682 | 2.073 | 2.123 | 2.048 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.554 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 85 | 487 | 71 | 75 | 274 | 97 | 166 | 300 | 121 | 40 | 258 | 84 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 85 | 487 | 71 | 75 | 274 | 97 | 166 | 300 | 121 | 40 | 258 | 84 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 128 | 19 | 20 | 72 | 26 | 44 | 79 | 32 | 11 | 68 | 22 |
| Total Analysis Volume [veh/h] | 89 | 513 | 75 | 79 | 288 | 102 | 175 | 316 | 127 | 42 | 272 | 88 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 15 | 15 | 8 | 14 | 14 | 10 | 18 | 18 | 5 | 14 | 14 |
| g / C, Green / Cycle | 0.13 | 0.24 | 0.24 | 0.12 | 0.23 | 0.23 | 0.16 | 0.29 | 0.29 | 0.09 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.16 | 0.16 | 0.04 | 0.11 | 0.11 | 0.10 | 0.17 | 0.08 | 0.02 | 0.15 | 0.06 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1781 | 1810 | 1868 | 1680 | 1810 | 1892 | 1549 | 1810 | 1874 | 1577 |
| c, Capacity [veh/h] | 232 | 445 | 425 | 224 | 434 | 390 | 283 | 556 | 455 | 158 | 421 | 354 |
| d1, Uniform Delay [s] | 24.83 | 21.53 | 21.56 | 25.04 | 20.60 | 20.70 | 24.58 | 18.68 | 16.93 | 26.60 | 21.93 | 19.83 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.03 | 1.78 | 1.89 | 0.94 | 0.77 | 0.93 | 2.20 | 0.92 | 0.33 | 0.89 | 1.67 | 0.36 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.67 | 0.68 | 0.35 | 0.46 | 0.48 | 0.62 | 0.57 | 0.28 | 0.27 | 0.65 | 0.25 |
| d, Delay for Lane Group [s/veh] | 25.87 | 23.31 | 23.45 | 25.98 | 21.37 | 21.63 | 26.78 | 19.59 | 17.26 | 27.50 | 23.60 | 20.19 |
| Lane Group LOS | C | C | C | C | C | C | C | B | B | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.16 | 3.73 | 3.60 | 1.01 | 2.29 | 2.16 | 2.30 | 3.42 | 1.23 | 0.56 | 3.32 | 0.95 |
| 50th-Percentile Queue Length [ft/ln] | 29.04 | 93.25 | 89.91 | 25.36 | 57.15 | 53.99 | 57.62 | 85.41 | 30.87 | 14.10 | 83.11 | 23.78 |
| 95th-Percentile Queue Length [veh/ln] | 2.09 | 6.71 | 6.47 | 1.83 | 4.11 | 3.89 | 4.15 | 6.15 | 2.22 | 1.02 | 5.98 | 1.71 |
| 95th-Percentile Queue Length [ft/ln] | 52.27 | 167.86 | 161.84 | 45.66 | 102.86 | 97.18 | 103.72 | 153.74 | 55.56 | 25.38 | 149.60 | 42.80 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.87 | 23.37 | 23.45 | 25.98 | 21.45 | 21.63 | 26.78 | 19.59 | 17.26 | 27.50 | 23.60 | 20.19 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 23.71 | | | 22.25 | | | 21.15 | | | 23.26 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.58 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.554 | | | | | | | | | | | |

**Emissions**

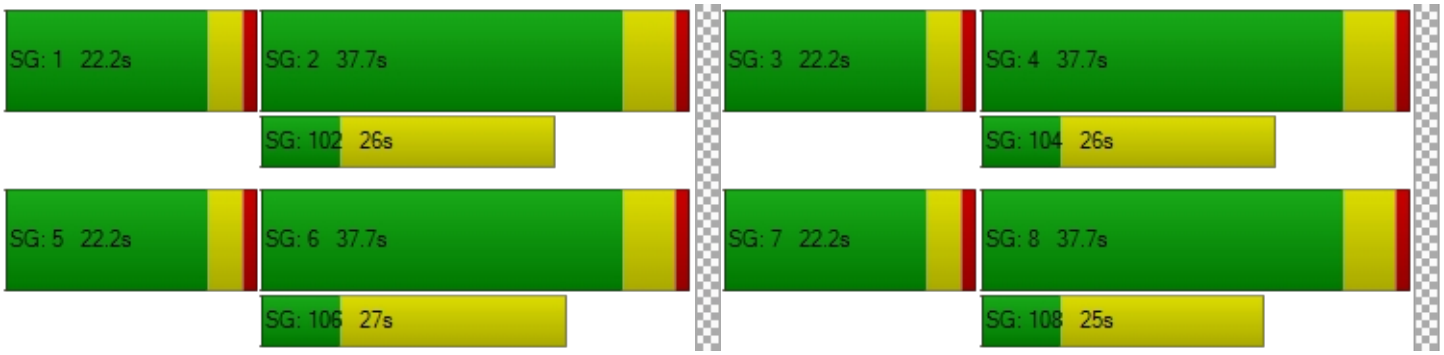
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.09 | 162.11 | 155.62 | 39.28 | 100.24 | 93.69 | 83.29 | 150.40 | 60.44 | 20.70 | 134.03 | 43.36 |
| Stops [stops/h] | 67.25 | 215.96 | 208.22 | 58.74 | 132.34 | 125.03 | 133.45 | 197.80 | 71.48 | 32.65 | 192.47 | 55.06 |
| Fuel consumption [US gal/h] | 2.85 | 9.35 | 8.99 | 2.49 | 5.96 | 5.60 | 5.47 | 8.87 | 3.41 | 1.35 | 8.29 | 2.53 |
| CO [g/h] | 199.34 | 653.70 | 628.71 | 174.37 | 416.48 | 391.10 | 382.21 | 620.33 | 238.13 | 94.39 | 579.74 | 177.03 |
| NOx [g/h] | 38.78 | 127.19 | 122.32 | 33.93 | 81.03 | 76.09 | 74.36 | 120.69 | 46.33 | 18.37 | 112.80 | 34.44 |
| VOC [g/h] | 46.20 | 151.50 | 145.71 | 40.41 | 96.52 | 90.64 | 88.58 | 143.77 | 55.19 | 21.88 | 134.36 | 41.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.06 | 21.06 | 21.06 | 21.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.574 | 2.644 | 2.506 | 2.429 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1029 | 1029 | 1029 | 1029 |
| d_b, Bicycle Delay [s] | 7.32 | 7.33 | 7.33 | 7.33 |
| l_b,int, Bicycle LOS Score for Intersection | 2.118 | 1.947 | 2.579 | 2.223 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.714 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 256 | 449 | 160 | 186 | 236 | 132 | 106 | 1384 | 562 | 119 | 1170 | 84 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 256 | 449 | 160 | 186 | 236 | 132 | 106 | 1384 | 562 | 119 | 1170 | 84 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 67 | 117 | 42 | 48 | 61 | 34 | 28 | 360 | 146 | 31 | 305 | 22 |
| Total Analysis Volume [veh/h] | 267 | 468 | 167 | 194 | 246 | 138 | 110 | 1442 | 585 | 124 | 1219 | 88 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 23 | 23 | 13 | 15 | 15 | 13 | 67 | 67 | 13 | 67 | 67 |
| g / C, Green / Cycle | 0.16 | 0.18 | 0.18 | 0.10 | 0.12 | 0.12 | 0.10 | 0.50 | 0.50 | 0.10 | 0.51 | 0.51 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.13 | 0.10 | 0.06 | 0.07 | 0.09 | 0.03 | 0.28 | 0.36 | 0.04 | 0.24 | 0.05 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 260 | 634 | 284 | 347 | 426 | 190 | 343 | 2603 | 808 | 343 | 2596 | 813 |
| d1, Uniform Delay [s] | 55.56 | 51.39 | 49.85 | 56.82 | 55.21 | 56.26 | 55.58 | 22.62 | 25.66 | 55.75 | 21.31 | 17.21 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 23.54 | 1.37 | 1.55 | 0.53 | 0.99 | 4.18 | 0.20 | 0.86 | 5.58 | 0.24 | 0.61 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.03 | 0.74 | 0.59 | 0.56 | 0.58 | 0.73 | 0.32 | 0.55 | 0.72 | 0.36 | 0.47 | 0.11 |
| d, Delay for Lane Group [s/veh] | 79.09 | 52.76 | 51.40 | 57.35 | 56.20 | 60.44 | 55.78 | 23.47 | 31.24 | 55.99 | 21.93 | 17.48 |
| Lane Group LOS | F | D | D | E | E | E | E | C | C | E | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.10 | 7.35 | 5.13 | 3.13 | 3.95 | 4.67 | 1.73 | 10.40 | 15.33 | 1.91 | 7.92 | 1.42 |
| 50th-Percentile Queue Length [ft/ln] | 127.52 | 183.81 | 128.23 | 78.15 | 98.85 | 116.86 | 43.17 | 260.11 | 383.32 | 47.76 | 197.93 | 35.48 |
| 95th-Percentile Queue Length [veh/ln] | 8.91 | 11.80 | 8.84 | 5.63 | 7.12 | 8.22 | 3.11 | 15.69 | 21.75 | 3.44 | 12.53 | 2.55 |
| 95th-Percentile Queue Length [ft/ln] | 222.67 | 294.98 | 221.09 | 140.66 | 177.92 | 205.50 | 77.71 | 392.36 | 543.87 | 85.97 | 313.29 | 63.86 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 79.09 | 52.76 | 51.40 | 57.35 | 56.20 | 60.44 | 55.78 | 23.47 | 31.24 | 55.99 | 21.93 | 17.48 |
| Movement LOS | F | D | D | E | E | E | E | C | C | E | C | B |
| d_A, Approach Delay [s/veh] | 60.30 | | | 57.60 | | | 27.26 | | | 24.61 | | |
| Approach LOS | E | | | E | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.89 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.714 | | | | | | | | | | | |

**Emissions**

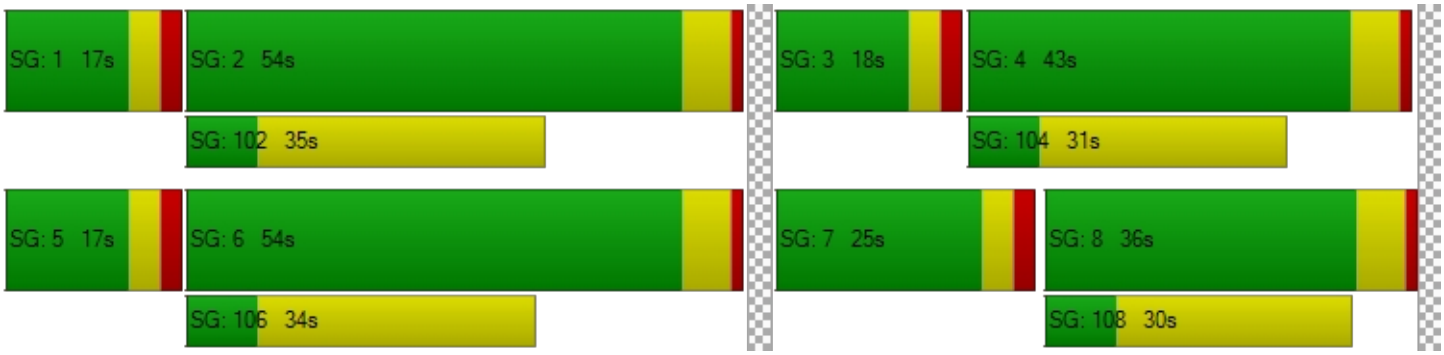
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.95 | 48.98 | 17.48 | 104.83 | 132.93 | 74.57 | 54.90 | 719.66 | 291.96 | 14.29 | 140.50 | 10.14 |
| Stops [stops/h] | 277.98 | 400.69 | 139.77 | 170.35 | 215.48 | 127.37 | 94.11 | 850.54 | 417.81 | 104.12 | 647.21 | 38.67 |
| Fuel consumption [US gal/h] | 8.03 | 10.71 | 3.75 | 7.52 | 9.48 | 5.47 | 4.03 | 41.21 | 18.05 | 3.20 | 18.30 | 1.14 |
| CO [g/h] | 561.19 | 748.95 | 261.83 | 525.68 | 662.36 | 382.39 | 281.59 | 2880.80 | 1261.41 | 223.48 | 1279.34 | 79.79 |
| NOx [g/h] | 109.19 | 145.72 | 50.94 | 102.28 | 128.87 | 74.40 | 54.79 | 560.50 | 245.42 | 43.48 | 248.91 | 15.52 |
| VOC [g/h] | 130.06 | 173.58 | 60.68 | 121.83 | 153.51 | 88.62 | 65.26 | 667.65 | 292.34 | 51.79 | 296.50 | 18.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.52 | 55.52 | 55.52 | 55.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.957 | 2.786 | 3.275 | 3.393 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.02 | 39.23 | 26.59 | 26.59 |
| l_b,int, Bicycle LOS Score for Intersection | 2.304 | 2.036 | 2.735 | 2.347 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.715 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 425 | 119 | 3 | 0 | 95 | 24 | 23 | 2 | 332 | 0 | 1 | 6 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 425 | 119 | 3 | 0 | 95 | 24 | 23 | 2 | 332 | 0 | 1 | 6 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 115 | 32 | 1 | 0 | 26 | 7 | 6 | 1 | 90 | 0 | 0 | 2 |
| Total Analysis Volume [veh/h] | 462 | 129 | 3 | 0 | 103 | 26 | 25 | 2 | 361 | 0 | 1 | 7 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 30 | 0 | 9 | 4 | 20 | 0 | 16 |
| g / C, Green / Cycle | 0.32 | 0.46 | 0.00 | 0.14 | 0.06 | 0.30 | 0.00 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.29 | 0.07 | 0.00 | 0.07 | 0.01 | 0.22 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1595 | 1873 | 1810 | 1835 | 1810 | 1616 | 1810 | 1646 |
| c, Capacity [veh/h] | 505 | 857 | 0 | 258 | 112 | 484 | 0 | 391 |
| d1, Uniform Delay [s] | 21.63 | 10.42 | 0.00 | 26.14 | 29.37 | 20.83 | 0.00 | 19.22 |
| k, delay calibration | 0.23 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.06 | 0.09 | 0.00 | 2.12 | 0.37 | 3.57 | 0.00 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.91 | 0.15 | 0.00 | 0.50 | 0.22 | 0.75 | 0.00 | 0.02 |
| d, Delay for Lane Group [s/veh] | 34.69 | 10.51 | 0.00 | 28.26 | 29.75 | 24.41 | 0.00 | 19.26 |
| Lane Group LOS | C | B | A | C | C | C | A | B |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 7.63 | 0.92 | 0.00 | 1.83 | 0.37 | 5.12 | 0.00 | 0.09 |
| 50th-Percentile Queue Length [ft/ln] | 190.68 | 23.04 | 0.00 | 45.82 | 9.31 | 127.91 | 0.00 | 2.31 |
| 95th-Percentile Queue Length [veh/ln] | 12.16 | 1.66 | 0.00 | 3.30 | 0.67 | 8.83 | 0.00 | 0.17 |
| 95th-Percentile Queue Length [ft/ln] | 303.91 | 41.46 | 0.00 | 82.47 | 16.76 | 220.65 | 0.00 | 4.16 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.69 | 10.51 | 10.51 | 0.00 | 28.26 | 28.26 | 29.75 | 24.41 | 24.41 | 0.00 | 19.26 | 19.26 |
| Movement LOS | C | B | B | A | C | C | C | C | C | A | B | B |
| d_A, Approach Delay [s/veh] | 29.32 | | | 28.26 | | | 24.75 | | | 19.26 | | |
| Approach LOS | C | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 27.54 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.715 | | | | | | | | | | | |

**Emissions**

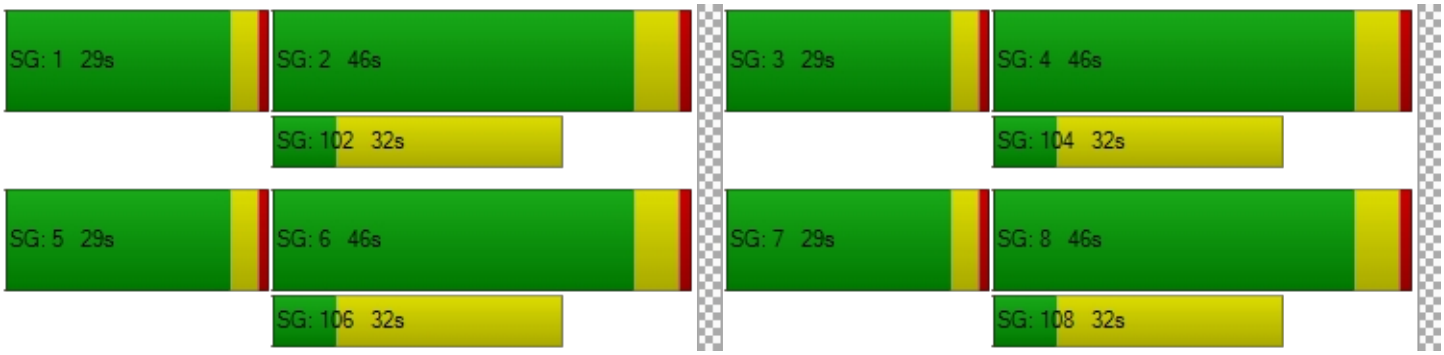
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 231.75 | 66.21 | 0.00 | 5.90 | 12.57 | 182.54 | 0.00 | 3.03 |
| Stops [stops/h] | 418.02 | 50.50 | 0.00 | 100.44 | 20.41 | 280.41 | 0.00 | 5.06 |
| Fuel consumption [US gal/h] | 16.40 | 3.18 | 0.00 | 2.19 | 0.78 | 10.87 | 0.00 | 0.18 |
| CO [g/h] | 1146.55 | 222.28 | 0.00 | 153.28 | 54.63 | 759.58 | 0.00 | 12.86 |
| NOx [g/h] | 223.08 | 43.25 | 0.00 | 29.82 | 10.63 | 147.79 | 0.00 | 2.50 |
| VOC [g/h] | 265.72 | 51.52 | 0.00 | 35.52 | 12.66 | 176.04 | 0.00 | 2.98 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.76 | 22.76 | 22.76 | 22.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.439 | 2.064 | 2.208 | 1.927 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1218 | 1218 | 1218 | 1218 |
| d_b, Bicycle Delay [s] | 5.02 | 5.02 | 5.02 | 5.02 |
| l_b,int, Bicycle LOS Score for Intersection | 2.540 | 1.772 | 2.200 | 1.573 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 31.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.074 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 805 | 10 | 10 | 475 | 10 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 805 | 10 | 10 | 475 | 10 | 10 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 219 | 3 | 3 | 129 | 3 | 3 |
| Total Analysis Volume [veh/h] | 875 | 11 | 11 | 516 | 11 | 11 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.01 | 0.01 | 0.07 | 0.03 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 9.72 | 0.00 | 31.44 | 17.46 |
| Movement LOS | A | A | A | A | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.02 | 0.02 | 0.35 | 0.35 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.46 | 0.46 | 8.79 | 8.79 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.20 | | 24.45 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.45 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.717 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 231 | 477 | 24 | 138 | 173 | 23 | 131 | 371 | 198 | 27 | 444 | 196 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 231 | 477 | 24 | 138 | 173 | 23 | 131 | 371 | 198 | 27 | 444 | 196 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 60 | 124 | 6 | 36 | 45 | 6 | 34 | 97 | 52 | 7 | 116 | 51 |
| Total Analysis Volume [veh/h] | 241 | 497 | 25 | 144 | 180 | 24 | 136 | 386 | 206 | 28 | 463 | 204 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 24 | 24 | 9 | 21 | 21 | 8 | 25 | 25 | 4 | 21 | 21 |
| g / C, Green / Cycle | 0.16 | 0.32 | 0.32 | 0.11 | 0.27 | 0.27 | 0.10 | 0.32 | 0.32 | 0.05 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.27 | 0.02 | 0.08 | 0.10 | 0.01 | 0.08 | 0.16 | 0.17 | 0.02 | 0.18 | 0.19 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1885 | 1615 | 1810 | 1900 | 1681 | 1787 | 1900 | 1706 |
| c, Capacity [veh/h] | 288 | 590 | 510 | 199 | 504 | 431 | 177 | 611 | 540 | 84 | 515 | 462 |
| d1, Uniform Delay [s] | 31.77 | 24.84 | 18.53 | 33.47 | 23.12 | 21.22 | 34.28 | 21.46 | 21.50 | 35.92 | 25.38 | 25.42 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.11 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.51 | 3.35 | 0.04 | 1.86 | 0.43 | 0.05 | 2.67 | 1.24 | 1.42 | 0.86 | 2.94 | 3.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.84 | 0.84 | 0.05 | 0.72 | 0.36 | 0.06 | 0.77 | 0.51 | 0.52 | 0.33 | 0.68 | 0.69 |
| d, Delay for Lane Group [s/veh] | 34.28 | 28.19 | 18.57 | 35.32 | 23.55 | 21.28 | 36.95 | 22.71 | 22.92 | 36.78 | 28.32 | 28.78 |
| Lane Group LOS | C | C | B | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.26 | 8.14 | 0.29 | 2.55 | 2.50 | 0.30 | 2.50 | 4.45 | 4.00 | 0.50 | 5.55 | 5.08 |
| 50th-Percentile Queue Length [ft/ln] | 106.48 | 203.55 | 7.26 | 63.74 | 62.47 | 7.62 | 62.62 | 111.28 | 99.96 | 12.44 | 138.74 | 127.10 |
| 95th-Percentile Queue Length [veh/ln] | 7.64 | 12.82 | 0.52 | 4.59 | 4.50 | 0.55 | 4.51 | 7.91 | 7.20 | 0.90 | 9.41 | 8.78 |
| 95th-Percentile Queue Length [ft/ln] | 191.10 | 320.54 | 13.07 | 114.73 | 112.45 | 13.72 | 112.72 | 197.78 | 179.93 | 22.38 | 235.33 | 219.54 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.28 | 28.19 | 18.57 | 35.32 | 23.55 | 21.28 | 36.95 | 22.75 | 22.92 | 36.78 | 28.43 | 28.78 |
| Movement LOS | C | C | B | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 29.80 | | | 28.26 | | | 25.45 | | | 28.87 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.08 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.717 | | | | | | | | | | | |

**Emissions**

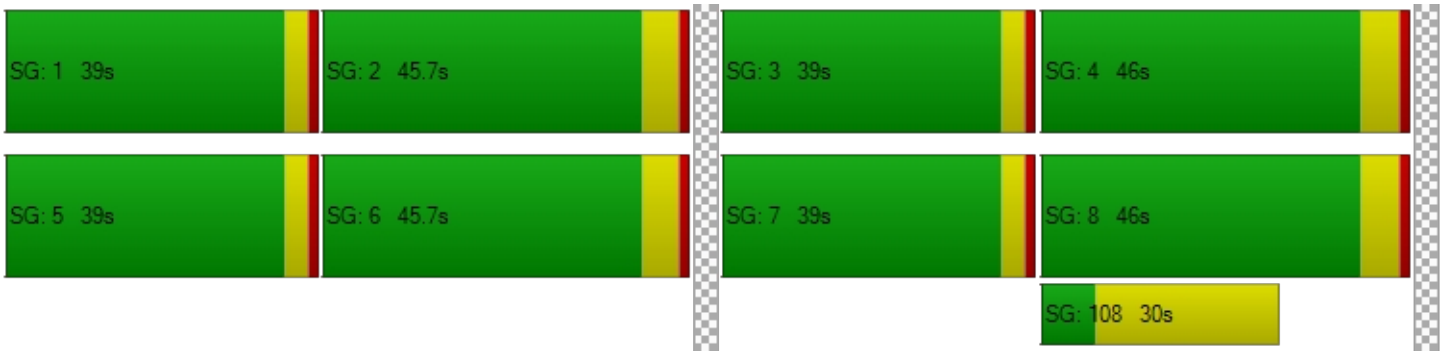
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 121.19 | 249.93 | 12.57 | 71.77 | 89.71 | 11.96 | 67.02 | 154.26 | 137.48 | 7.34 | 91.74 | 83.08 |
| Stops [stops/h] | 197.29 | 377.13 | 13.46 | 118.09 | 115.75 | 14.12 | 116.02 | 206.17 | 185.20 | 23.04 | 257.06 | 235.49 |
| Fuel consumption [US gal/h] | 8.29 | 16.11 | 0.69 | 4.96 | 5.38 | 0.69 | 4.56 | 9.00 | 8.05 | 0.81 | 9.04 | 8.25 |
| CO [g/h] | 579.35 | 1125.86 | 48.42 | 346.95 | 375.84 | 48.20 | 318.96 | 628.93 | 562.37 | 56.55 | 631.58 | 576.89 |
| NOx [g/h] | 112.72 | 219.05 | 9.42 | 67.50 | 73.12 | 9.38 | 62.06 | 122.37 | 109.42 | 11.00 | 122.88 | 112.24 |
| VOC [g/h] | 134.27 | 260.93 | 11.22 | 80.41 | 87.10 | 11.17 | 73.92 | 145.76 | 130.33 | 13.11 | 146.37 | 133.70 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.64 | 31.27 | 31.00 | 31.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.732 | 2.560 | 2.673 | 2.701 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1029 | 1029 | 1029 | 1029 |
| d_b, Bicycle Delay [s] | 9.15 | 9.15 | 9.15 | 9.15 |
| l_b,int, Bicycle LOS Score for Intersection | 2.819 | 2.134 | 2.160 | 2.133 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.350 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 9 | 729 | 10 | 9 | 407 | 6 | 2 | 3 | 5 | 5 | 7 | 8 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 729 | 10 | 9 | 407 | 6 | 2 | 3 | 5 | 5 | 7 | 8 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 190 | 3 | 2 | 106 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |
| Total Analysis Volume [veh/h] | 9 | 759 | 10 | 9 | 424 | 6 | 2 | 3 | 5 | 5 | 7 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 13 | 13 | 1 | 13 | 13 | 0 | 3 | 3 | 1 | 3 | 3 |
| g / C, Green / Cycle | 0.03 | 0.38 | 0.38 | 0.03 | 0.38 | 0.38 | 0.01 | 0.09 | 0.09 | 0.02 | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.21 | 0.01 | 0.01 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1729 | 3600 | 1615 | 1691 | 3603 | 1615 | 1810 | 1900 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 47 | 1383 | 620 | 46 | 1384 | 620 | 12 | 167 | 142 | 28 | 184 | 156 |
| d1, Uniform Delay [s] | 15.68 | 7.92 | 6.29 | 15.68 | 7.09 | 6.28 | 16.29 | 13.74 | 13.76 | 16.02 | 13.49 | 13.51 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.72 | 0.37 | 0.01 | 0.76 | 0.18 | 0.01 | 2.58 | 0.07 | 0.15 | 1.11 | 0.14 | 0.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.55 | 0.02 | 0.20 | 0.31 | 0.01 | 0.17 | 0.02 | 0.04 | 0.18 | 0.04 | 0.05 |
| d, Delay for Lane Group [s/veh] | 16.40 | 8.29 | 6.30 | 16.44 | 7.26 | 6.29 | 18.87 | 13.80 | 13.91 | 17.13 | 13.63 | 13.73 |
| Lane Group LOS | B | A | A | B | A | A | B | B | B | B | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.06 | 1.39 | 0.03 | 0.06 | 0.69 | 0.02 | 0.02 | 0.02 | 0.03 | 0.04 | 0.04 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 1.59 | 34.78 | 0.74 | 1.60 | 17.34 | 0.45 | 0.52 | 0.48 | 0.83 | 0.98 | 1.12 | 1.32 |
| 95th-Percentile Queue Length [veh/ln] | 0.11 | 2.50 | 0.05 | 0.12 | 1.25 | 0.03 | 0.04 | 0.03 | 0.06 | 0.07 | 0.08 | 0.09 |
| 95th-Percentile Queue Length [ft/ln] | 2.87 | 62.60 | 1.33 | 2.88 | 31.21 | 0.81 | 0.93 | 0.87 | 1.50 | 1.77 | 2.01 | 2.37 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 16.40 | 8.29 | 6.30 | 16.44 | 7.26 | 6.29 | 18.87 | 13.80 | 13.91 | 17.13 | 13.63 | 13.73 |
| Movement LOS | B | A | A | B | A | A | B | B | B | B | B | B |
| d_A, Approach Delay [s/veh] | 8.36 | | | 7.44 | | | 14.87 | | | 14.54 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.19 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.350 | | | | | | | | | | | |

**Emissions**

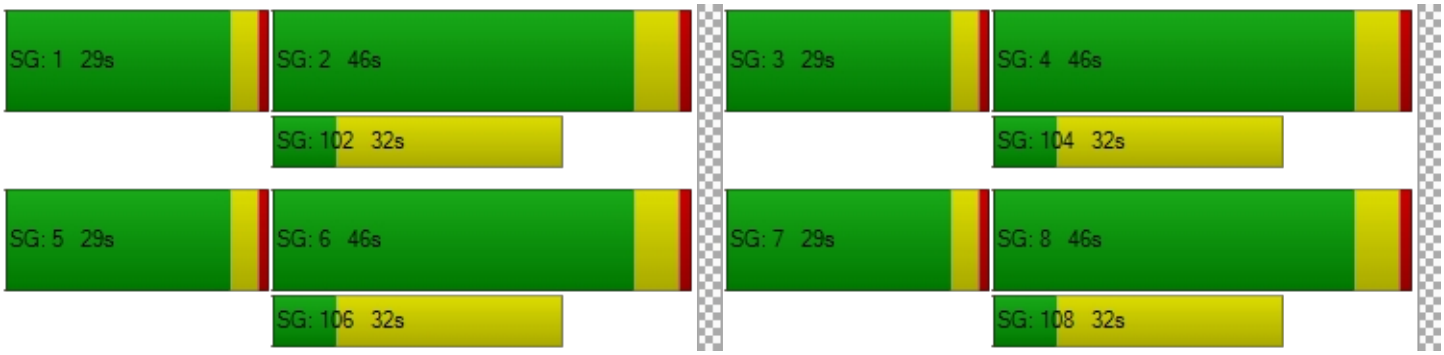
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.51 | 380.13 | 5.01 | 4.53 | 213.22 | 3.02 | 0.25 | 0.38 | 0.63 | 0.53 | 0.75 | 0.85 |
| Stops [stops/h] | 6.98 | 304.78 | 3.24 | 7.01 | 151.94 | 1.98 | 2.27 | 2.12 | 3.65 | 4.30 | 4.90 | 5.77 |
| Fuel consumption [US gal/h] | 0.25 | 18.61 | 0.24 | 0.26 | 10.24 | 0.14 | 0.03 | 0.04 | 0.06 | 0.06 | 0.08 | 0.09 |
| CO [g/h] | 17.77 | 1301.11 | 16.56 | 17.83 | 716.04 | 9.98 | 2.14 | 2.50 | 4.22 | 4.41 | 5.40 | 6.25 |
| NOx [g/h] | 3.46 | 253.15 | 3.22 | 3.47 | 139.32 | 1.94 | 0.42 | 0.49 | 0.82 | 0.86 | 1.05 | 1.22 |
| VOC [g/h] | 4.12 | 301.54 | 3.84 | 4.13 | 165.95 | 2.31 | 0.50 | 0.58 | 0.98 | 1.02 | 1.25 | 1.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.27 | 7.27 | 7.27 | 7.27 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.700 | 2.586 | 2.076 | 2.078 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2434 | 2434 | 2434 | 2434 |
| d_b, Bicycle Delay [s] | 0.78 | 0.78 | 0.78 | 0.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.201 | 1.922 | 1.576 | 1.593 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.522 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 223 | 602 | 60 | 49 | 343 | 35 | 49 | 300 | 114 | 46 | 324 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 223 | 602 | 60 | 49 | 343 | 35 | 49 | 300 | 114 | 46 | 324 | 65 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 164 | 16 | 13 | 93 | 10 | 13 | 82 | 31 | 13 | 88 | 18 |
| Total Analysis Volume [veh/h] | 242 | 654 | 65 | 53 | 373 | 38 | 53 | 326 | 124 | 50 | 352 | 71 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 14 | 14 | 2 | 9 | 9 | 2 | 6 | 6 | 2 | 6 | 6 |
| g / C, Green / Cycle | 0.17 | 0.34 | 0.34 | 0.05 | 0.22 | 0.22 | 0.05 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.18 | 0.04 | 0.03 | 0.10 | 0.02 | 0.03 | 0.09 | 0.08 | 0.03 | 0.10 | 0.04 |
| s, saturation flow rate [veh/h] | 1810 | 3583 | 1595 | 1810 | 3606 | 1584 | 1810 | 3618 | 1590 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 316 | 1238 | 551 | 82 | 780 | 343 | 82 | 587 | 258 | 79 | 580 | 259 |
| d1, Uniform Delay [s] | 15.60 | 10.40 | 8.85 | 18.62 | 13.59 | 12.48 | 18.62 | 15.31 | 15.09 | 18.67 | 15.50 | 14.64 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.47 | 0.50 | 0.13 | 3.11 | 0.65 | 0.20 | 3.11 | 0.61 | 1.03 | 3.11 | 0.77 | 0.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.53 | 0.12 | 0.64 | 0.48 | 0.11 | 0.64 | 0.56 | 0.48 | 0.63 | 0.61 | 0.27 |
| d, Delay for Lane Group [s/veh] | 17.07 | 10.90 | 8.99 | 21.73 | 14.24 | 12.68 | 21.73 | 15.92 | 16.12 | 21.77 | 16.27 | 15.06 |
| Lane Group LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.67 | 1.54 | 0.27 | 0.49 | 1.26 | 0.24 | 0.45 | 1.06 | 0.83 | 0.42 | 1.16 | 0.45 |
| 50th-Percentile Queue Length [ft/ln] | 41.66 | 38.42 | 6.66 | 12.14 | 31.50 | 6.04 | 11.21 | 26.49 | 20.77 | 10.62 | 29.12 | 11.26 |
| 95th-Percentile Queue Length [veh/ln] | 3.00 | 2.77 | 0.48 | 0.87 | 2.27 | 0.44 | 0.81 | 1.91 | 1.50 | 0.76 | 2.10 | 0.81 |
| 95th-Percentile Queue Length [ft/ln] | 74.98 | 69.15 | 11.98 | 21.86 | 56.70 | 10.88 | 20.18 | 47.68 | 37.39 | 19.11 | 52.41 | 20.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 17.07 | 10.90 | 8.99 | 21.73 | 14.24 | 12.68 | 21.73 | 15.92 | 16.12 | 21.77 | 16.27 | 15.06 |
| Movement LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 12.32 | | | 14.97 | | | 16.58 | | | 16.67 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 14.58 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.522 | | | | | | | | | | | |

**Emissions**

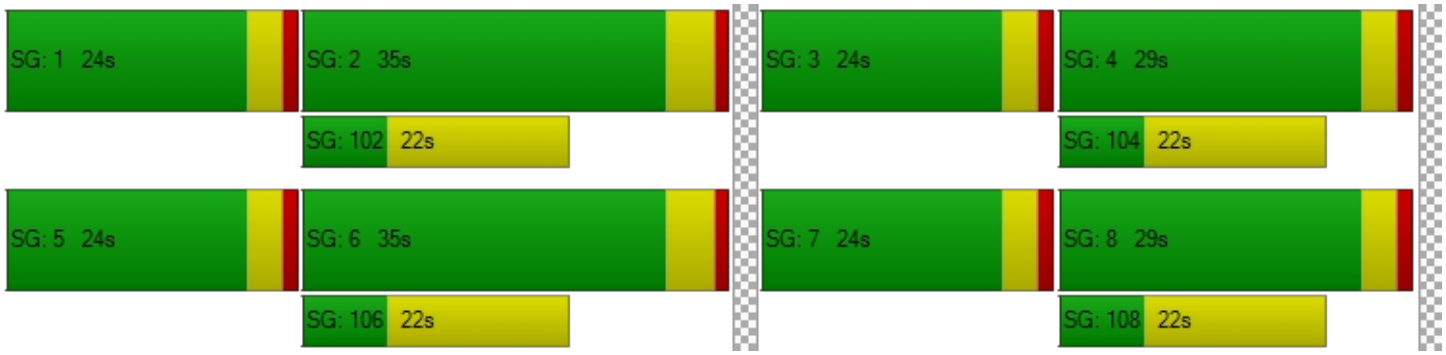
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 120.71 | 326.22 | 32.42 | 26.54 | 186.81 | 19.03 | 26.44 | 162.60 | 61.85 | 50.08 | 352.57 | 71.12 |
| Stops [stops/h] | 151.81 | 280.01 | 24.25 | 44.25 | 229.60 | 22.03 | 40.87 | 193.08 | 75.70 | 38.69 | 212.21 | 41.03 |
| Fuel consumption [US gal/h] | 6.87 | 16.11 | 1.53 | 1.57 | 10.04 | 1.00 | 1.65 | 9.03 | 3.47 | 2.42 | 15.89 | 3.17 |
| CO [g/h] | 479.94 | 1126.36 | 107.08 | 109.86 | 701.78 | 70.13 | 115.24 | 631.26 | 242.42 | 169.11 | 1110.67 | 221.27 |
| NOx [g/h] | 93.38 | 219.15 | 20.83 | 21.37 | 136.54 | 13.64 | 22.42 | 122.82 | 47.17 | 32.90 | 216.10 | 43.05 |
| VOC [g/h] | 111.23 | 261.04 | 24.82 | 25.46 | 162.65 | 16.25 | 26.71 | 146.30 | 56.18 | 39.19 | 257.41 | 51.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.29 | 10.29 | 10.29 | 10.29 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.771 | 2.605 | 2.680 | 2.736 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1519 | 1519 | 1265 | 1265 |
| d_b, Bicycle Delay [s] | 1.15 | 1.15 | 2.67 | 2.67 |
| l_b,int, Bicycle LOS Score for Intersection | 2.352 | 1.942 | 1.975 | 1.950 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.639 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 43 | 931 | 108 | 49 | 522 | 35 | 41 | 335 | 81 | 79 | 285 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 43 | 931 | 108 | 49 | 522 | 35 | 41 | 335 | 81 | 79 | 285 | 27 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 242 | 28 | 13 | 136 | 9 | 11 | 87 | 21 | 21 | 74 | 7 |
| Total Analysis Volume [veh/h] | 45 | 970 | 113 | 51 | 544 | 36 | 43 | 349 | 84 | 82 | 297 | 28 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 24 | 24 | 6 | 24 | 24 | 5 | 17 | 17 | 7 | 19 | 19 |
| g / C, Green / Cycle | 0.08 | 0.34 | 0.34 | 0.08 | 0.35 | 0.35 | 0.07 | 0.24 | 0.24 | 0.10 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.27 | 0.07 | 0.03 | 0.15 | 0.02 | 0.02 | 0.18 | 0.05 | 0.05 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1608 | 1810 | 3595 | 1595 | 1810 | 1888 | 1598 | 1810 | 1900 | 1593 |
| c, Capacity [veh/h] | 136 | 1238 | 553 | 148 | 1259 | 558 | 133 | 452 | 383 | 188 | 512 | 429 |
| d1, Uniform Delay [s] | 30.35 | 20.40 | 16.02 | 30.05 | 17.24 | 14.96 | 30.45 | 24.58 | 21.15 | 29.16 | 21.92 | 18.82 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.41 | 1.12 | 0.18 | 1.37 | 0.23 | 0.05 | 1.38 | 2.83 | 0.29 | 1.60 | 1.05 | 0.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.33 | 0.78 | 0.20 | 0.34 | 0.43 | 0.06 | 0.32 | 0.77 | 0.22 | 0.44 | 0.58 | 0.07 |
| d, Delay for Lane Group [s/veh] | 31.76 | 21.52 | 16.20 | 31.43 | 17.47 | 15.01 | 31.83 | 27.42 | 21.44 | 30.76 | 22.97 | 18.88 |
| Lane Group LOS | C | C | B | C | B | B | C | C | C | C | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.71 | 6.19 | 1.12 | 0.83 | 3.12 | 0.36 | 0.71 | 5.37 | 1.07 | 1.26 | 3.83 | 0.31 |
| 50th-Percentile Queue Length [ft/ln] | 17.69 | 154.71 | 28.12 | 20.75 | 77.90 | 9.02 | 17.68 | 134.35 | 26.74 | 31.38 | 95.80 | 7.64 |
| 95th-Percentile Queue Length [veh/ln] | 1.27 | 10.27 | 2.02 | 1.49 | 5.61 | 0.65 | 1.27 | 9.18 | 1.93 | 2.26 | 6.90 | 0.55 |
| 95th-Percentile Queue Length [ft/ln] | 31.85 | 256.70 | 50.61 | 37.36 | 140.22 | 16.23 | 31.83 | 229.40 | 48.13 | 56.48 | 172.44 | 13.76 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.76 | 21.52 | 16.20 | 31.43 | 17.47 | 15.01 | 31.83 | 27.42 | 21.44 | 30.76 | 22.97 | 18.88 |
| Movement LOS | C | C | B | C | B | B | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 21.40 | | | 18.46 | | | 26.76 | | | 24.26 | | |
| Approach LOS | C | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.10 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.639 | | | | | | | | | | | |

**Emissions**

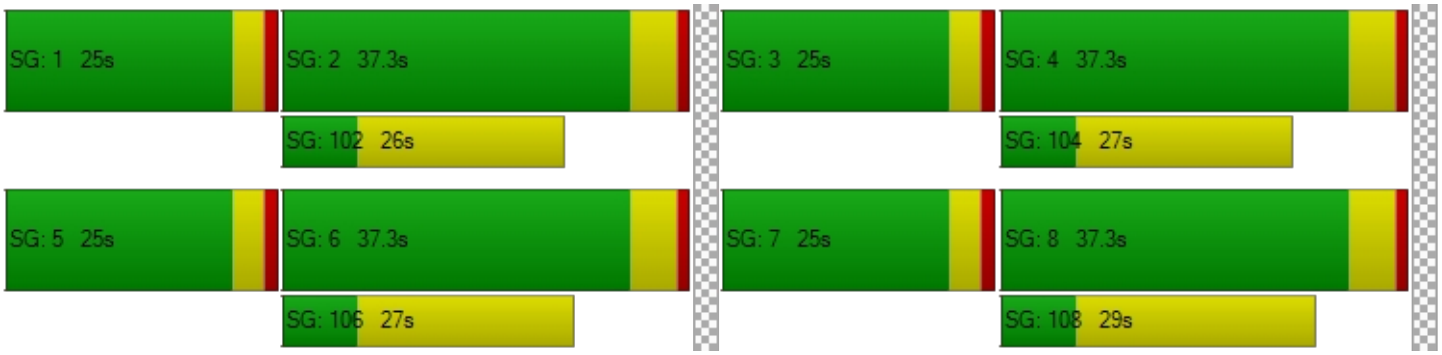
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.00 | 193.89 | 22.59 | 25.44 | 271.35 | 17.96 | 21.19 | 171.98 | 41.39 | 8.47 | 30.66 | 2.89 |
| Stops [stops/h] | 36.87 | 644.76 | 58.59 | 43.25 | 324.67 | 18.79 | 36.85 | 279.96 | 55.72 | 65.39 | 199.63 | 15.93 |
| Fuel consumption [US gal/h] | 1.06 | 18.91 | 1.88 | 1.61 | 14.90 | 0.95 | 1.35 | 10.57 | 2.38 | 1.62 | 4.92 | 0.40 |
| CO [g/h] | 73.93 | 1321.92 | 131.08 | 112.70 | 1041.43 | 66.62 | 94.67 | 739.11 | 166.24 | 112.99 | 344.00 | 28.29 |
| NOx [g/h] | 14.38 | 257.20 | 25.50 | 21.93 | 202.63 | 12.96 | 18.42 | 143.80 | 32.34 | 21.98 | 66.93 | 5.50 |
| VOC [g/h] | 17.13 | 306.37 | 30.38 | 26.12 | 241.36 | 15.44 | 21.94 | 171.29 | 38.53 | 26.19 | 79.73 | 6.56 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.43 | 24.43 | 24.43 | 24.43 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.886 | 2.812 | 2.452 | 2.453 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 926 | 926 | 926 | 926 |
| d_b, Bicycle Delay [s] | 9.96 | 9.97 | 9.96 | 9.97 |
| l_b,int, Bicycle LOS Score for Intersection | 2.490 | 2.080 | 2.345 | 2.231 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.501 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 325 | 1112 | 0 | 0 | 440 | 257 | 0 | 0 | 0 | 136 | 0 | 10 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 325 | 1112 | 0 | 0 | 440 | 257 | 0 | 0 | 0 | 136 | 0 | 10 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 86 | 296 | 0 | 0 | 117 | 68 | 0 | 0 | 0 | 36 | 0 | 3 |
| Total Analysis Volume [veh/h] | 346 | 1183 | 0 | 0 | 468 | 273 | 0 | 0 | 0 | 145 | 0 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 7 | 30 | 17 | 17 | | 7 | 7 |
| g / C, Green / Cycle | 0.15 | 0.59 | 0.33 | 0.33 | | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.33 | 0.20 | 0.22 | | 0.08 | 0.01 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1649 | | 1787 | 1615 |
| c, Capacity [veh/h] | 508 | 2136 | 630 | 552 | | 255 | 230 |
| d1, Uniform Delay [s] | 20.19 | 6.11 | 13.74 | 14.23 | | 19.92 | 18.43 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.60 | 0.42 | 1.63 | 2.64 | | 4.21 | 0.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.55 | 0.59 | 0.67 | | 0.57 | 0.05 |
| d, Delay for Lane Group [s/veh] | 20.79 | 6.53 | 15.37 | 16.87 | | 24.14 | 18.61 |
| Lane Group LOS | C | A | B | B | | C | B |
| Critical Lane Group | No | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.62 | 1.93 | 2.88 | 3.10 | | 1.53 | 0.10 |
| 50th-Percentile Queue Length [ft/ln] | 40.62 | 48.18 | 72.07 | 77.40 | | 38.31 | 2.45 |
| 95th-Percentile Queue Length [veh/ln] | 2.92 | 3.47 | 5.19 | 5.57 | | 2.76 | 0.18 |
| 95th-Percentile Queue Length [ft/ln] | 73.12 | 86.72 | 129.72 | 139.32 | | 68.95 | 4.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.79 | 6.53 | 0.00 | 0.00 | 15.68 | 16.87 | 0.00 | 0.00 | 0.00 | 24.14 | 0.00 | 18.61 |
| Movement LOS | C | A | | | B | B | | | | C | | B |
| d_A, Approach Delay [s/veh] | 9.76 | | | 16.12 | | | 0.00 | | | 23.75 | | |
| Approach LOS | A | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 12.60 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.501 | | | | | | | | | | | |

**Emissions**

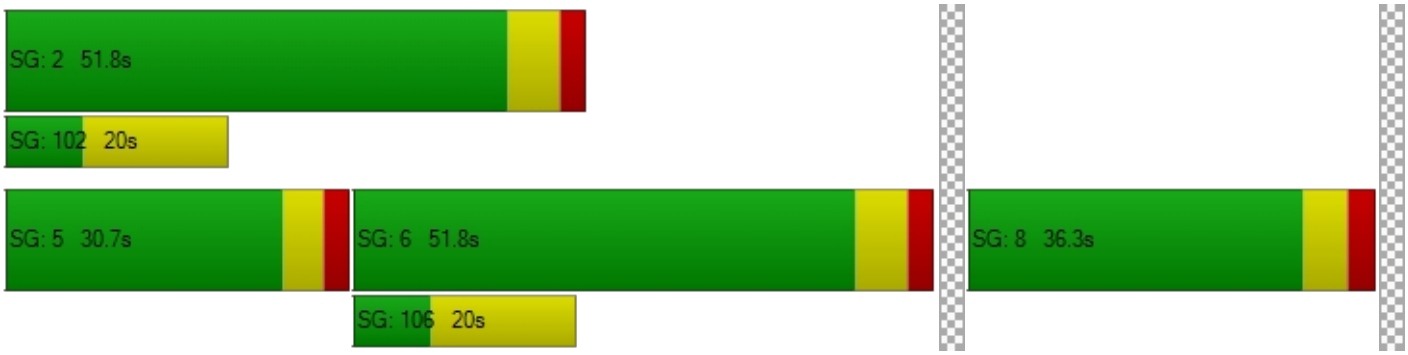
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.40 | 127.88 | 74.06 | 74.06 | | 12.46 | 0.95 |
| Stops [stops/h] | 235.33 | 279.07 | 208.74 | 224.17 | | 110.96 | 7.11 |
| Fuel consumption [US gal/h] | 5.67 | 9.43 | 6.29 | 6.60 | | 3.19 | 0.21 |
| CO [g/h] | 396.49 | 658.85 | 439.85 | 461.21 | | 222.98 | 14.35 |
| NOx [g/h] | 77.14 | 128.19 | 85.58 | 89.73 | | 43.38 | 2.79 |
| VOC [g/h] | 91.89 | 152.69 | 101.94 | 106.89 | | 51.68 | 3.33 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.23 | 22.23 | 15.08 | 15.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.957 | 2.820 | 1.983 | 1.820 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1810 | 1810 | 0 | 1207 |
| d_b, Bicycle Delay [s] | 0.22 | 0.22 | 24.86 | 3.91 |
| l_b,int, Bicycle LOS Score for Intersection | 2.821 | 2.171 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 62.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.925 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1133 | 307 | 18 | 560 | 0 | 574 | 0 | 622 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1133 | 307 | 18 | 560 | 0 | 574 | 0 | 622 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 295 | 80 | 5 | 146 | 0 | 149 | 0 | 162 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1180 | 320 | 19 | 583 | 0 | 598 | 0 | 648 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 3 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.03 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.40 | 0.43 | 0.01 | 0.16 | 0.17 | 0.40 | |
| s, saturation flow rate [veh/h] | 1889 | 1757 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 926 | 861 | 45 | 2040 | 1038 | 478 | |
| d1, Uniform Delay [s] | 21.55 | 22.67 | 47.96 | 10.91 | 29.70 | 35.05 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 7.61 | 11.74 | 2.38 | 0.35 | 1.09 | 173.32 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.87 | 0.43 | 0.29 | 0.58 | 1.36 | |
| d, Delay for Lane Group [s/veh] | 29.16 | 34.41 | 50.34 | 11.26 | 30.79 | 208.37 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 15.41 | 16.96 | 0.48 | 3.00 | 5.74 | 33.54 | |
| 50th-Percentile Queue Length [ft/ln] | 385.26 | 424.07 | 12.03 | 74.91 | 143.40 | 838.45 | |
| 95th-Percentile Queue Length [veh/ln] | 21.85 | 23.72 | 0.87 | 5.39 | 9.66 | 50.78 | |
| 95th-Percentile Queue Length [ft/ln] | 546.21 | 592.93 | 21.65 | 134.84 | 241.59 | 1269.42 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 31.07 | 34.41 | 50.34 | 11.26 | 0.00 | 30.79 | 0.00 | 208.37 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 31.79 | | | 12.50 | | | 123.14 | | | 0.00 | | |
| Approach LOS | C | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 62.32 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.925 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 49.77 | 49.77 | 2.05 | 63.02 | 71.07 | 77.01 | |
| Stops [stops/h] | 555.02 | 610.93 | 17.32 | 215.84 | 413.17 | 1207.91 | |
| Fuel consumption [US gal/h] | 11.69 | 13.04 | 0.48 | 6.18 | 13.80 | 52.48 | |
| CO [g/h] | 816.80 | 911.25 | 33.58 | 432.01 | 964.51 | 3668.69 | |
| NOx [g/h] | 158.92 | 177.30 | 6.53 | 84.05 | 187.66 | 713.79 | |
| VOC [g/h] | 189.30 | 211.19 | 7.78 | 100.12 | 223.54 | 850.25 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.004 | 2.982 | 2.687 | 1.885 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.797 | 2.056 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.005 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 0 | 1 | 1 | 0 |
| Total Analysis Volume [veh/h] | 5 | 4 | 0 | 4 | 2 | 0 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.60 | 8.37 | 0.00 | 0.00 | 7.24 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.66 | 0.66 | 0.00 | 0.00 | 0.09 | 0.09 |
| d_A, Approach Delay [s/veh] | 8.50 | | 0.00 | | 7.24 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.07 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.020 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 11 | 13 | 402 | 739 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 11 | 13 | 402 | 739 | 2 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 3 | 4 | 109 | 201 | 1 |
| Total Analysis Volume [veh/h] | 0 | 12 | 14 | 437 | 803 | 2 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 21.35 | 11.09 | 9.49 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.05 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.52 | 1.52 | 1.31 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.09 | | 0.29 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.21 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.056 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 18 | 12 | 378 | 62 | 3 | 707 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 18 | 12 | 378 | 62 | 3 | 707 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 3 | 99 | 16 | 1 | 186 |
| Total Analysis Volume [veh/h] | 19 | 13 | 398 | 65 | 3 | 744 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.06 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 16.30 | 10.05 | 0.00 | 0.00 | 8.26 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.23 | 0.23 | 0.00 | 0.00 | 0.01 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 5.82 | 5.82 | 0.00 | 0.00 | 0.20 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.76 | | 0.00 | | 0.03 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.37 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.402 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 325 | 81 | 49 | 0 | 0 | 0 | 30 | 208 | 151 | 15 | 325 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 325 | 81 | 49 | 0 | 0 | 0 | 30 | 208 | 151 | 15 | 325 | 1 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 86 | 21 | 13 | 0 | 0 | 0 | 8 | 55 | 40 | 4 | 86 | 0 |
| Total Analysis Volume [veh/h] | 342 | 85 | 52 | 0 | 0 | 0 | 32 | 219 | 159 | 16 | 342 | 1 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 14 | 14 | 3 | 3 | 4 | 13 | 13 | 3 | 12 | 12 |
| g / C, Green / Cycle | 0.29 | 0.29 | 0.29 | 0.06 | 0.06 | 0.08 | 0.26 | 0.26 | 0.06 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.04 | 0.03 | 0.00 | 0.00 | 0.02 | 0.06 | 0.10 | 0.01 | 0.09 | 0.00 |
| s, saturation flow rate [veh/h] | 1800 | 1900 | 1615 | 1810 | 1900 | 1810 | 3600 | 1591 | 1659 | 3606 | 1615 |
| c, Capacity [veh/h] | 517 | 546 | 464 | 112 | 117 | 144 | 941 | 416 | 102 | 878 | 393 |
| d1, Uniform Delay [s] | 15.29 | 12.97 | 12.80 | 0.00 | 0.00 | 21.03 | 14.16 | 14.75 | 21.68 | 15.41 | 13.96 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.55 | 0.05 | 0.04 | 0.00 | 0.00 | 0.29 | 0.27 | 1.23 | 0.26 | 0.60 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.66 | 0.16 | 0.11 | 0.00 | 0.00 | 0.22 | 0.23 | 0.38 | 0.16 | 0.39 | 0.00 |
| d, Delay for Lane Group [s/veh] | 15.84 | 13.02 | 12.84 | 0.00 | 0.00 | 21.31 | 14.43 | 15.98 | 21.94 | 16.02 | 13.97 |
| Lane Group LOS | B | B | B | A | A | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.93 | 0.61 | 0.37 | 0.00 | 0.00 | 0.29 | 0.76 | 1.23 | 0.15 | 1.29 | 0.01 |
| 50th-Percentile Queue Length [ft/ln] | 73.16 | 15.19 | 9.19 | 0.00 | 0.00 | 7.32 | 18.88 | 30.80 | 3.77 | 32.16 | 0.18 |
| 95th-Percentile Queue Length [veh/ln] | 5.27 | 1.09 | 0.66 | 0.00 | 0.00 | 0.53 | 1.36 | 2.22 | 0.27 | 2.32 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 131.68 | 27.34 | 16.54 | 0.00 | 0.00 | 13.17 | 33.99 | 55.44 | 6.79 | 57.89 | 0.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 15.84 | 13.02 | 12.84 | 0.00 | 0.00 | 0.00 | 21.31 | 14.43 | 15.98 | 21.94 | 16.02 | 13.97 |
| Movement LOS | B | B | B | A | A | A | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 15.01 | | | 0.00 | | | 15.57 | | | 16.27 | | |
| Approach LOS | B | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.56 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.402 | | | | | | | | | | | |

**Emissions**

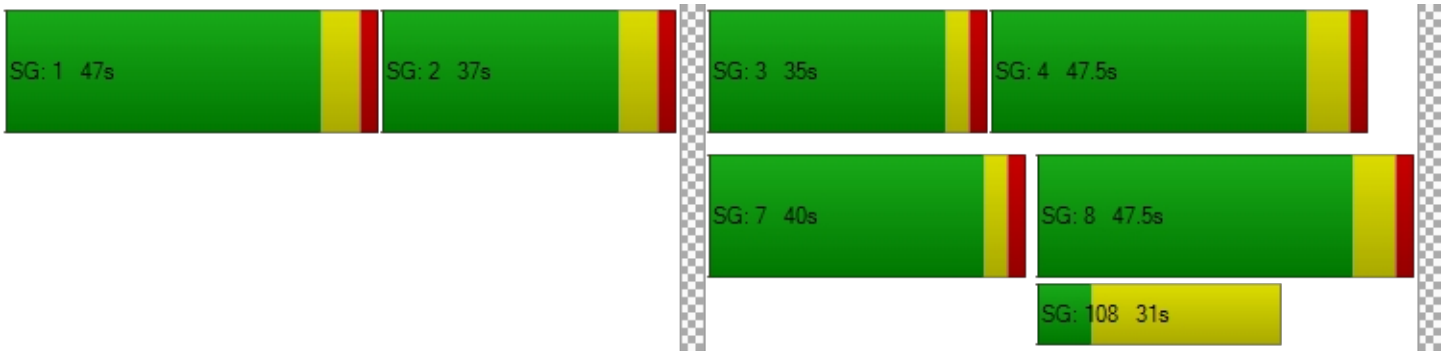
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 340.78 | 84.70 | 51.81 | 0.00 | 0.00 | 11.80 | 80.76 | 58.63 | 8.08 | 172.79 | 0.51 |
| Stops [stops/h] | 216.84 | 45.02 | 27.23 | 0.00 | 0.00 | 21.69 | 111.94 | 91.29 | 11.18 | 190.65 | 0.52 |
| Fuel consumption [US gal/h] | 16.33 | 3.96 | 2.42 | 0.00 | 0.00 | 0.87 | 5.07 | 3.88 | 0.51 | 9.83 | 0.03 |
| CO [g/h] | 1141.41 | 276.84 | 169.11 | 0.00 | 0.00 | 60.60 | 354.10 | 271.36 | 35.91 | 686.95 | 1.94 |
| NOx [g/h] | 222.08 | 53.86 | 32.90 | 0.00 | 0.00 | 11.79 | 68.89 | 52.80 | 6.99 | 133.66 | 0.38 |
| VOC [g/h] | 264.53 | 64.16 | 39.19 | 0.00 | 0.00 | 14.04 | 82.07 | 62.89 | 8.32 | 159.21 | 0.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 14.54 | 18.22 | 17.79 | 17.79 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.392 | 1.952 | 2.821 | 2.596 |
| Crosswalk LOS | B | A | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1647 | 1235 | 1647 | 1647 |
| d_b, Bicycle Delay [s] | 0.76 | 3.55 | 0.76 | 0.76 |
| l_b,int, Bicycle LOS Score for Intersection | 2.350 | 1.560 | 1.898 | 1.856 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.534 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 609 | 0 | 11 | 304 | 67 | 143 | 138 | 136 | 1 | 222 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 609 | 0 | 11 | 304 | 67 | 143 | 138 | 136 | 1 | 222 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 165 | 0 | 3 | 83 | 18 | 39 | 38 | 37 | 0 | 60 | 2 |
| Total Analysis Volume [veh/h] | 0 | 662 | 0 | 12 | 330 | 73 | 155 | 150 | 148 | 1 | 241 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 15 | 15 | 1 | 16 | 16 | 8 | 18 | 18 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.00 | 0.30 | 0.30 | 0.03 | 0.32 | 0.32 | 0.16 | 0.35 | 0.35 | 0.00 | 0.20 | 0.20 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.18 | 0.00 | 0.01 | 0.09 | 0.05 | 0.09 | 0.08 | 0.09 | 0.00 | 0.13 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 1879 | 1604 | 1810 | 1867 | 1615 |
| c, Capacity [veh/h] | 0 | 1072 | 476 | 51 | 1167 | 525 | 286 | 664 | 567 | 5 | 367 | 318 |
| d1, Uniform Delay [s] | 0.00 | 15.19 | 0.00 | 23.86 | 12.59 | 11.98 | 19.40 | 11.40 | 11.55 | 24.98 | 18.60 | 16.28 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.78 | 0.00 | 0.87 | 0.18 | 0.16 | 0.60 | 0.21 | 0.30 | 7.87 | 2.49 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.62 | 0.00 | 0.23 | 0.28 | 0.14 | 0.54 | 0.23 | 0.26 | 0.21 | 0.66 | 0.03 |
| d, Delay for Lane Group [s/veh] | 0.00 | 15.97 | 0.00 | 24.72 | 12.77 | 12.14 | 20.00 | 11.61 | 11.86 | 32.84 | 21.08 | 16.32 |
| Lane Group LOS | A | B | A | C | B | B | C | B | B | C | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 2.54 | 0.00 | 0.13 | 1.05 | 0.45 | 1.54 | 1.03 | 1.04 | 0.02 | 2.36 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 63.52 | 0.00 | 3.24 | 26.13 | 11.28 | 38.48 | 25.86 | 26.07 | 0.52 | 58.95 | 1.62 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 4.57 | 0.00 | 0.23 | 1.88 | 0.81 | 2.77 | 1.86 | 1.88 | 0.04 | 4.24 | 0.12 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 114.34 | 0.00 | 5.83 | 47.03 | 20.30 | 69.27 | 46.54 | 46.92 | 0.93 | 106.12 | 2.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.97 | 0.00 | 24.72 | 12.77 | 12.14 | 20.00 | 11.61 | 11.86 | 32.84 | 21.08 | 16.32 |
| Movement LOS | A | B | A | C | B | B | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | | 15.97 | | | 13.00 | | | 14.56 | | | 20.98 | |
| Approach LOS | | B | | | B | | | B | | | C | |
| d_I, Intersection Delay [s/veh] | 15.62 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.534 | | | | | | | | | | | |

**Emissions**

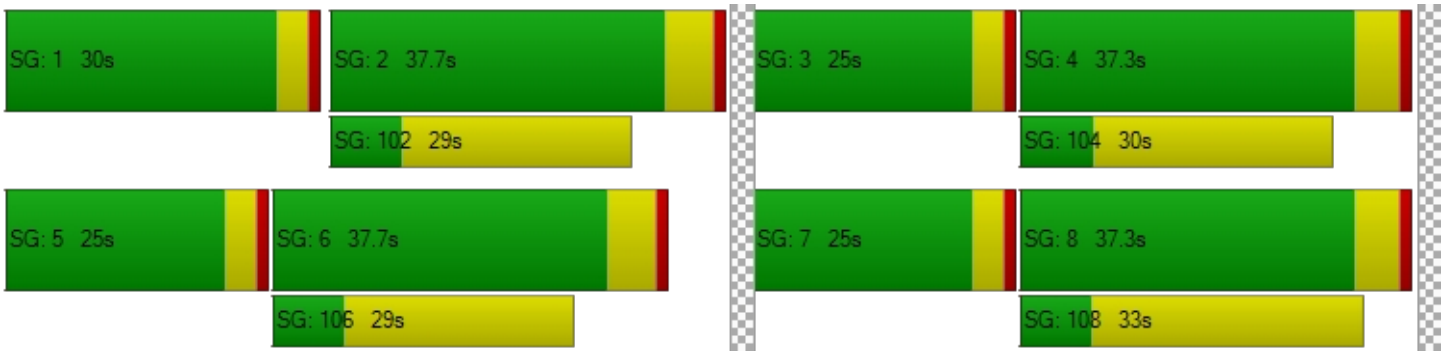
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 303.03 | 0.00 | 11.96 | 328.82 | 72.74 | 155.25 | 150.24 | 148.24 | 0.50 | 120.89 | 4.01 |
| Stops [stops/h] | 0.00 | 365.73 | 0.00 | 9.33 | 150.42 | 32.46 | 110.79 | 74.43 | 75.05 | 1.49 | 169.71 | 4.65 |
| Fuel consumption [US gal/h] | 0.00 | 17.91 | 0.00 | 0.60 | 14.18 | 3.11 | 7.63 | 6.95 | 6.87 | 0.04 | 7.29 | 0.22 |
| CO [g/h] | 0.00 | 1252.18 | 0.00 | 42.22 | 991.06 | 217.71 | 533.63 | 485.85 | 480.51 | 2.96 | 509.42 | 15.51 |
| NOx [g/h] | 0.00 | 243.63 | 0.00 | 8.21 | 192.82 | 42.36 | 103.82 | 94.53 | 93.49 | 0.58 | 99.12 | 3.02 |
| VOC [g/h] | 0.00 | 290.20 | 0.00 | 9.78 | 229.69 | 50.46 | 123.67 | 112.60 | 111.36 | 0.69 | 118.06 | 3.60 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.22 | 15.22 | 15.22 | 15.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.728 | 2.755 | 2.416 | 2.520 |
| Crosswalk LOS | B | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1279 | 1279 | 1279 | 1279 |
| d_b, Bicycle Delay [s] | 3.25 | 3.25 | 3.25 | 3.25 |
| l_b,int, Bicycle LOS Score for Intersection | 2.106 | 1.902 | 2.307 | 1.972 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 9.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 118 | 526 | 381 | 68 | 301 | 6 | 25 | 138 | 219 | 358 | 113 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 118 | 526 | 381 | 68 | 301 | 6 | 25 | 138 | 219 | 358 | 113 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 32 | 141 | 102 | 18 | 81 | 2 | 7 | 37 | 59 | 96 | 30 | 23 |
| Total Analysis Volume [veh/h] | 127 | 566 | 410 | 73 | 324 | 6 | 27 | 148 | 235 | 385 | 122 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 256 | | | 656 | | | 806 | | | 725 | | |
| Exiting Flow Rate [veh/h] | 970 | | | 691 | | | 260 | | | 649 | | |
| Demand Flow Rate [veh/h] | 118 | 526 | 381 | 68 | 301 | 6 | 25 | 138 | 219 | 358 | 113 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 127 | 566 | 410 | 73 | 324 | 6 | 27 | 148 | 235 | 385 | 122 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.99 | 0.98 | 0.98 | 0.97 | 0.98 | 0.96 | 0.96 |
| Entry Flow Rate [veh/h] | 522 | 594 | 194 | 217 | 181 | 240 | 332 | 293 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1125 | 1125 | 739 | 814 | 643 | 716 | 694 | 768 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1118 | 1108 | 725 | 801 | 624 | 702 | 665 | 739 |
| X, volume / capacity | 0.46 | 0.53 | 0.26 | 0.27 | 0.28 | 0.34 | 0.48 | 0.38 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh] | 2.51 | 3.20 | 1.05 | 1.08 | 1.15 | 1.47 | 2.59 | 1.79 |
| 95th-Percentile Queue Length [ft] | 62.79 | 79.89 | 26.14 | 26.89 | 28.69 | 36.86 | 64.77 | 44.77 |
| Approach Delay [s/veh] | 8.91 | | 7.72 | | 9.39 | | 11.29 | |
| Approach LOS | A | | A | | A | | B | |
| Intersection Delay [s/veh] | 9.37 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.360 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 923 | 686 | 0 | 624 | 219 | 0 | 0 | 0 | 30 | 0 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 923 | 686 | 0 | 624 | 219 | 0 | 0 | 0 | 30 | 0 | 21 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 251 | 186 | 0 | 170 | 60 | 0 | 0 | 0 | 8 | 0 | 6 |
| Total Analysis Volume [veh/h] | 0 | 1003 | 746 | 0 | 678 | 238 | 0 | 0 | 0 | 33 | 0 | 23 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 35 | 35 | 35 | | 35 | 35 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 18 | 18 | 18 | | 3 | 3 |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.53 | | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.19 | 0.15 | | 0.02 | 0.01 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 1921 | 1915 | 858 | | 177 | 161 |
| d1, Uniform Delay [s] | 5.21 | 4.64 | 4.41 | | 14.33 | 14.27 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.41 | 0.21 | 0.32 | | 1.07 | 0.86 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.52 | 0.35 | 0.28 | | 0.19 | 0.14 |
| d, Delay for Lane Group [s/veh] | 5.63 | 4.84 | 4.74 | | 15.41 | 15.13 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.74 | 0.43 | 0.33 | | 0.21 | 0.15 |
| 50th-Percentile Queue Length [ft/ln] | 18.49 | 10.84 | 8.26 | | 5.21 | 3.66 |
| 95th-Percentile Queue Length [veh/ln] | 1.33 | 0.78 | 0.59 | | 0.38 | 0.26 |
| 95th-Percentile Queue Length [ft/ln] | 33.28 | 19.52 | 14.87 | | 9.38 | 6.60 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.63 | 0.00 | 0.00 | 4.84 | 4.74 | 0.00 | 0.00 | 0.00 | 15.41 | 0.00 | 15.13 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.34 | | | 4.82 | | | 0.00 | | | 15.29 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.36 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.360 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 114.74 | 66.89 | 23.48 | | 2.33 | 1.63 |
| Stops [stops/h] | 154.20 | 90.43 | 34.44 | | 21.73 | 15.28 |
| Fuel consumption [US gal/h] | 7.00 | 4.09 | 1.46 | | 0.59 | 0.41 |
| CO [g/h] | 489.20 | 285.58 | 102.23 | | 40.91 | 28.59 |
| NOx [g/h] | 95.18 | 55.56 | 19.89 | | 7.96 | 5.56 |
| VOC [g/h] | 113.38 | 66.19 | 23.69 | | 9.48 | 6.63 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 14.31 | 14.31 | 8.02 | 8.02 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.765 | 2.832 | 1.772 | 1.914 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2027 | 2027 | 0 | 1158 |
| d_b, Bicycle Delay [s] | 0.00 | 0.00 | 17.27 | 3.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.387 | 2.315 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 124.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.154 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1296 | 117 | 25 | 644 | 0 | 286 | 0 | 923 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1296 | 117 | 25 | 644 | 0 | 286 | 0 | 923 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 352 | 32 | 7 | 175 | 0 | 78 | 0 | 251 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1409 | 127 | 27 | 700 | 0 | 311 | 0 | 1003 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 45 | 45 | 3 | 54 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.51 | 0.38 | 0.38 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.41 | 0.42 | 0.01 | 0.19 | 0.17 | 0.62 | |
| s, saturation flow rate [veh/h] | 1892 | 1839 | 1810 | 3595 | 1801 | 1607 | |
| c, Capacity [veh/h] | 799 | 776 | 58 | 1824 | 676 | 603 | |
| d1, Uniform Delay [s] | 29.96 | 30.57 | 50.71 | 16.05 | 25.15 | 33.30 | |
| k, delay calibration | 0.42 | 0.44 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 21.20 | 27.72 | 2.17 | 0.24 | 1.05 | 305.69 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.96 | 0.99 | 0.47 | 0.38 | 0.46 | 1.66 | |
| d, Delay for Lane Group [s/veh] | 51.16 | 58.29 | 52.88 | 16.29 | 26.20 | 338.99 | |
| Lane Group LOS | D | E | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 22.20 | 23.83 | 0.72 | 4.85 | 5.63 | 65.18 | |
| 50th-Percentile Queue Length [ft/ln] | 554.90 | 595.65 | 18.07 | 121.23 | 140.86 | 1629.40 | |
| 95th-Percentile Queue Length [veh/ln] | 29.92 | 31.83 | 1.30 | 8.46 | 9.53 | 101.82 | |
| 95th-Percentile Queue Length [ft/ln] | 748.06 | 795.78 | 32.53 | 211.51 | 238.19 | 2545.62 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 54.40 | 58.29 | 52.88 | 16.29 | 0.00 | 26.20 | 0.00 | 338.99 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | D | E | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 54.72 | | | 17.65 | | | 264.96 | | | 0.00 | | |
| Approach LOS | D | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 124.42 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.154 | | | | | | | | | | | |

**Emissions**

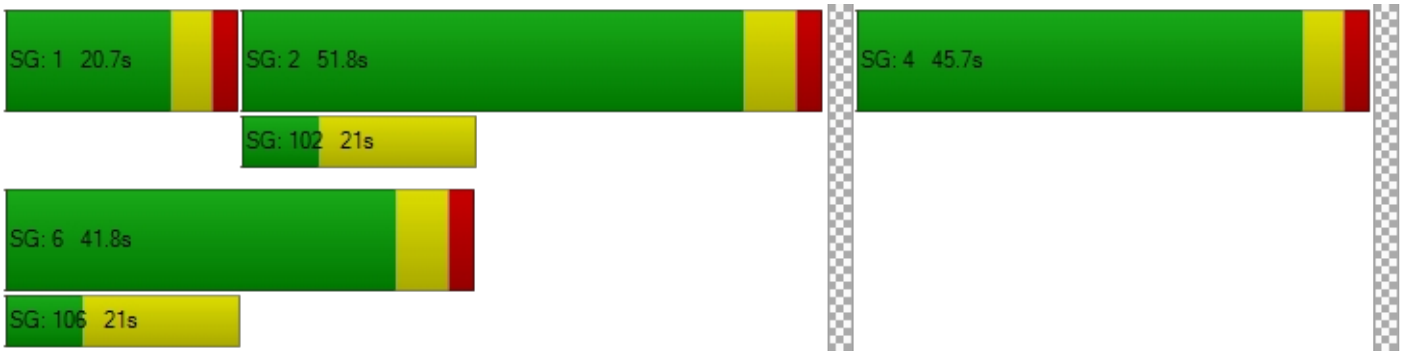
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 62.21 | 62.21 | 3.09 | 80.07 | 24.32 | 78.43 | |
| Stops [stops/h] | 749.90 | 804.97 | 24.42 | 327.65 | 190.37 | 2202.01 | |
| Fuel consumption [US gal/h] | 19.45 | 21.25 | 0.70 | 9.14 | 6.01 | 112.70 | |
| CO [g/h] | 1359.59 | 1485.41 | 48.93 | 638.84 | 419.92 | 7877.92 | |
| NOx [g/h] | 264.53 | 289.01 | 9.52 | 124.29 | 81.70 | 1532.76 | |
| VOC [g/h] | 315.10 | 344.26 | 11.34 | 148.06 | 97.32 | 1825.78 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 50.03 | 50.03 | 42.84 | 42.84 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.330 | 3.064 | 2.897 | 1.798 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 845 | 657 | 751 | 0 |
| d_b, Bicycle Delay [s] | 17.78 | 24.03 | 20.79 | 53.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.827 | 2.159 | 1.560 | 4.132 |
| Bicycle LOS | C | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.139 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 32 | 0 | 11 | 0 | 0 | 0 | 0 | 253 | 28 | 10 | 277 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 32 | 0 | 11 | 0 | 0 | 0 | 0 | 253 | 28 | 10 | 277 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 69 | 8 | 3 | 75 | 0 |
| Total Analysis Volume [veh/h] | 35 | 0 | 12 | 0 | 0 | 0 | 0 | 275 | 30 | 11 | 301 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 6 | 0 | 3 | 0 | 11 | 11 | 1 | 12 | 12 |
| g / C, Green / Cycle | 0.21 | 0.19 | 0.00 | 0.09 | 0.00 | 0.31 | 0.31 | 0.03 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.08 | 0.02 | 0.01 | 0.08 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1440 | 1900 | 1810 | 3603 | 1610 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 587 | 304 | 209 | 180 | 1 | 1130 | 505 | 61 | 1255 | 560 |
| d1, Uniform Delay [s] | 9.79 | 11.46 | 0.00 | 0.00 | 0.00 | 8.81 | 8.29 | 16.22 | 8.03 | 0.00 |
| k, delay calibration | 0.15 | 0.12 | 0.04 | 0.04 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.06 | 0.06 | 0.00 | 0.00 | 0.00 | 0.17 | 0.07 | 0.51 | 0.15 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 | 0.24 | 0.06 | 0.18 | 0.24 | 0.00 |
| d, Delay for Lane Group [s/veh] | 9.85 | 11.52 | 0.00 | 0.00 | 0.00 | 8.98 | 8.36 | 16.73 | 8.18 | 0.00 |
| Lane Group LOS | A | B | A | A | A | A | A | B | A | A |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.14 | 0.06 | 0.00 | 0.00 | 0.00 | 0.44 | 0.09 | 0.07 | 0.43 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 3.49 | 1.39 | 0.00 | 0.00 | 0.00 | 10.93 | 2.37 | 1.72 | 10.69 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.10 | 0.00 | 0.00 | 0.00 | 0.79 | 0.17 | 0.12 | 0.77 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.28 | 2.50 | 0.00 | 0.00 | 0.00 | 19.67 | 4.26 | 3.10 | 19.24 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.85 | 9.85 | 11.52 | 0.00 | 0.00 | 0.00 | 0.00 | 8.98 | 8.36 | 16.73 | 8.18 | 0.00 |
| Movement LOS | A | A | B | A | A | A | A | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 10.28 | | | 0.00 | | | 8.92 | | | 8.49 | | |
| Approach LOS | B | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.81 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.139 | | | | | | | | | | | |

**Emissions**

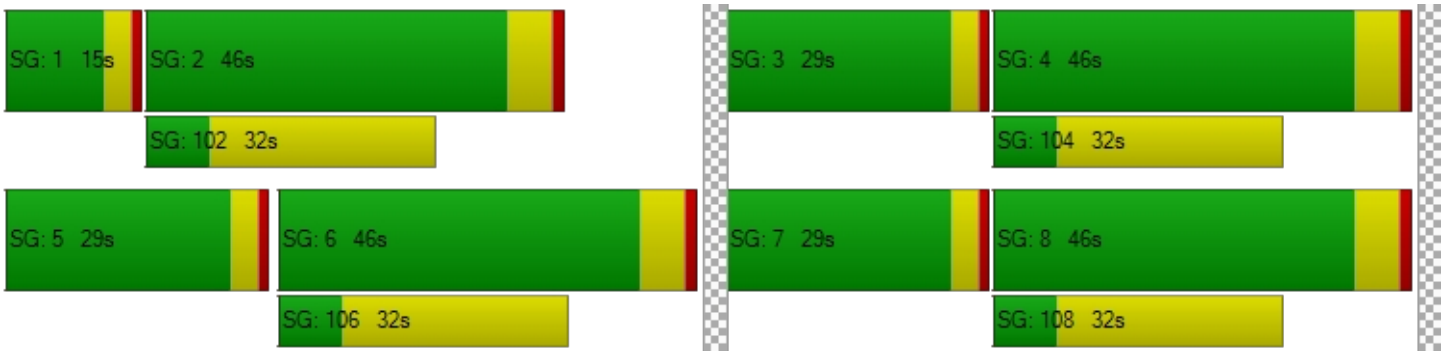
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.82 | 0.62 | 0.00 | 0.00 | 0.00 | 138.94 | 15.16 | 5.50 | 150.60 | 0.00 |
| Stops [stops/h] | 14.62 | 5.82 | 0.00 | 0.00 | 0.00 | 91.56 | 9.92 | 7.22 | 89.55 | 0.00 |
| Fuel consumption [US gal/h] | 0.31 | 0.12 | 0.00 | 0.00 | 0.00 | 6.56 | 0.71 | 0.33 | 6.92 | 0.00 |
| CO [g/h] | 21.97 | 8.52 | 0.00 | 0.00 | 0.00 | 458.58 | 49.70 | 23.25 | 483.65 | 0.00 |
| NOx [g/h] | 4.28 | 1.66 | 0.00 | 0.00 | 0.00 | 89.22 | 9.67 | 4.52 | 94.10 | 0.00 |
| VOC [g/h] | 5.09 | 1.97 | 0.00 | 0.00 | 0.00 | 106.28 | 11.52 | 5.39 | 112.09 | 0.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.95 | 7.95 | 7.95 | 7.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.924 | 1.881 | 2.604 | 2.556 |
| Crosswalk LOS | A | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 4015 | 2327 | 2327 | 2327 |
| d_b, Bicycle Delay [s] | 17.44 | 0.46 | 0.46 | 0.46 |
| l_b,int, Bicycle LOS Score for Intersection | 1.637 | 1.560 | 1.811 | 1.817 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.255 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 143 | 1 | 7 | 67 | 74 | 139 | 38 | 0 | 2 | 10 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 143 | 1 | 7 | 67 | 74 | 139 | 38 | 0 | 2 | 10 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 2 | 18 | 20 | 38 | 10 | 0 | 1 | 3 | 2 |
| Total Analysis Volume [veh/h] | 0 | 155 | 1 | 8 | 73 | 80 | 151 | 41 | 0 | 2 | 11 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 9 | 1 | 10 | 10 | 9 | 12 | 12 | 0 | 4 | 4 |
| g / C, Green / Cycle | 0.00 | 0.23 | 0.02 | 0.26 | 0.26 | 0.23 | 0.32 | 0.32 | 0.01 | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.08 | 0.00 | 0.04 | 0.05 | 0.08 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 1898 | 1810 | 1900 | 1615 | 1804 | 3618 | 1615 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 1 | 443 | 44 | 489 | 416 | 417 | 1161 | 518 | 12 | 349 | 156 |
| d1, Uniform Delay [s] | 0.00 | 12.35 | 18.44 | 11.06 | 11.19 | 12.45 | 9.00 | 0.00 | 19.06 | 15.80 | 15.83 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.52 | 0.72 | 0.20 | 0.32 | 0.20 | 0.02 | 0.00 | 2.47 | 0.06 | 0.22 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.35 | 0.18 | 0.15 | 0.19 | 0.36 | 0.04 | 0.00 | 0.17 | 0.03 | 0.05 |
| d, Delay for Lane Group [s/veh] | 0.00 | 12.87 | 19.17 | 11.26 | 11.51 | 12.64 | 9.02 | 0.00 | 21.53 | 15.86 | 16.05 |
| Lane Group LOS | A | B | B | B | B | B | A | A | C | B | B |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 0.85 | 0.06 | 0.36 | 0.40 | 0.90 | 0.09 | 0.00 | 0.02 | 0.04 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 21.24 | 1.60 | 8.97 | 10.11 | 22.53 | 2.34 | 0.00 | 0.56 | 0.91 | 1.46 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.53 | 0.12 | 0.65 | 0.73 | 1.62 | 0.17 | 0.00 | 0.04 | 0.07 | 0.11 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 38.23 | 2.88 | 16.14 | 18.20 | 40.55 | 4.22 | 0.00 | 1.00 | 1.64 | 2.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 12.87 | 12.87 | 19.17 | 11.26 | 11.51 | 12.64 | 9.02 | 0.00 | 21.53 | 15.86 | 16.05 |
| Movement LOS | A | B | B | B | B | B | B | A | A | C | B | B |
| d_A, Approach Delay [s/veh] | 12.87 | | | 11.78 | | | 11.87 | | | 16.47 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 12.32 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.255 | | | | | | | | | | | |

**Emissions**

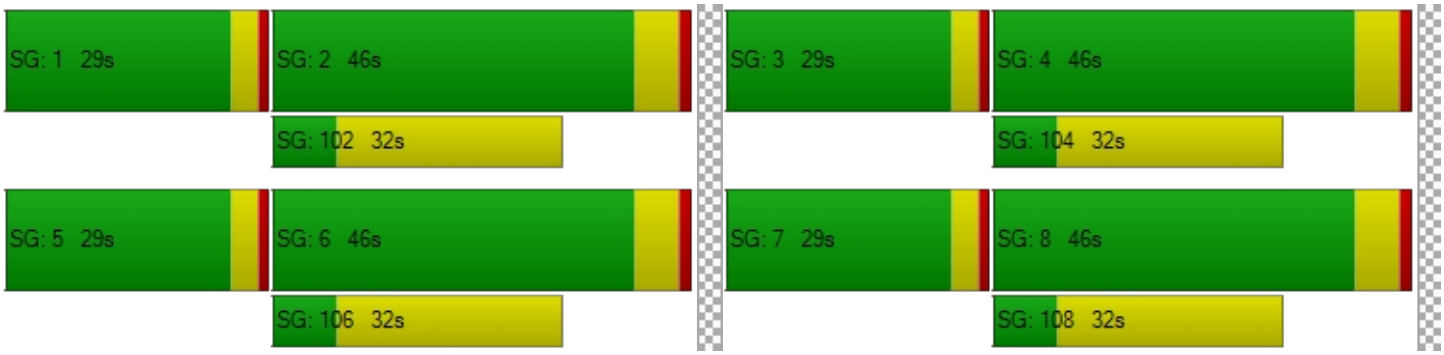
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 43.77 | 0.34 | 3.13 | 3.43 | 75.74 | 20.57 | 0.00 | 0.11 | 0.63 | 0.46 |
| Stops [stops/h] | 0.00 | 79.57 | 5.99 | 33.59 | 37.88 | 84.39 | 17.55 | 0.00 | 2.08 | 6.83 | 5.49 |
| Fuel consumption [US gal/h] | 0.00 | 2.90 | 0.12 | 0.69 | 0.78 | 3.97 | 1.02 | 0.00 | 0.04 | 0.14 | 0.11 |
| CO [g/h] | 0.00 | 202.59 | 8.21 | 48.39 | 54.24 | 277.70 | 71.21 | 0.00 | 2.69 | 9.93 | 7.69 |
| NOx [g/h] | 0.00 | 39.42 | 1.60 | 9.42 | 10.55 | 54.03 | 13.86 | 0.00 | 0.52 | 1.93 | 1.50 |
| VOC [g/h] | 0.00 | 46.95 | 1.90 | 11.22 | 12.57 | 64.36 | 16.50 | 0.00 | 0.62 | 2.30 | 1.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.79 | 9.79 | 9.79 | 9.79 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.164 | 2.254 | 2.448 | 2.419 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2081 | 2081 | 2081 | 2081 |
| d_b, Bicycle Delay [s] | 0.03 | 0.03 | 0.03 | 0.03 |
| l_b,int, Bicycle LOS Score for Intersection | 1.817 | 1.692 | 1.718 | 1.577 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.212 |

**Intersection Setup**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 66 | 142 | 34 | 57 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 66 | 142 | 34 | 57 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 18 | 39 | 9 | 15 | 0 |
| Total Analysis Volume [veh/h] | 0 | 72 | 154 | 37 | 62 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 3 | 0 | 1 | 6 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 25 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 11 | 0 | 11 | 8 | 8 | 0 |
| Vehicle Extension [s] | 4.0 | 0.0 | 4.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | Yes | Yes | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 5 | 8 | 17 | 5 | 5 |
| g / C, Green / Cycle | 0.17 | 0.17 | 0.26 | 0.57 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.05 | 0.09 | 0.01 | 0.02 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 1589 | 1781 | 3560 | 3560 | 1589 |
| c, Capacity [veh/h] | 298 | 266 | 473 | 2033 | 622 | 278 |
| d1, Uniform Delay [s] | 0.00 | 11.10 | 9.03 | 2.84 | 10.60 | 0.00 |
| k, delay calibration | 0.15 | 0.15 | 0.15 | 0.04 | 0.04 | 0.04 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.77 | 0.57 | 0.00 | 0.03 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.27 | 0.33 | 0.02 | 0.10 | 0.00 |
| d, Delay for Lane Group [s/veh] | 0.00 | 11.87 | 9.59 | 2.85 | 10.62 | 0.00 |
| Lane Group LOS | A | B | A | A | B | A |
| Critical Lane Group | No | Yes | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 0.37 | 0.64 | 0.01 | 0.13 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 9.28 | 15.90 | 0.36 | 3.29 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.67 | 1.14 | 0.03 | 0.24 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 16.70 | 28.62 | 0.65 | 5.92 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 11.87 | 9.59 | 2.85 | 10.62 | 0.00 |
| Movement LOS | A | B | A | A | B | A |
| d_A, Approach Delay [s/veh] | 11.87 | | 8.29 | | 10.62 | |
| Approach LOS | B | | A | | B | |
| d_I, Intersection Delay [s/veh] | 9.53 | | | | | |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.212 | | | | | |

**Emissions**

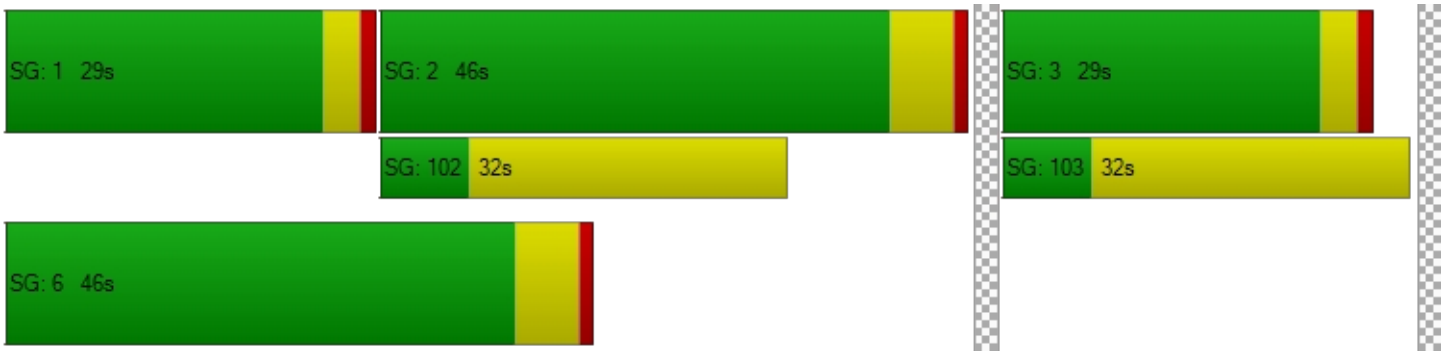
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 20.20 | 16.10 | 3.87 | 1.47 | 0.00 |
| Stops [stops/h] | 0.00 | 43.87 | 75.21 | 3.39 | 31.11 | 0.00 |
| Fuel consumption [US gal/h] | 0.00 | 1.25 | 1.38 | 0.20 | 0.37 | 0.00 |
| CO [g/h] | 0.00 | 87.23 | 96.39 | 13.94 | 25.62 | 0.00 |
| NOx [g/h] | 0.00 | 16.97 | 18.75 | 2.71 | 4.98 | 0.00 |
| VOC [g/h] | 0.00 | 20.22 | 22.34 | 3.23 | 5.94 | 0.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.21 | 6.21 | 6.21 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.944 | 2.294 | 2.250 |
| Crosswalk LOS | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1642 | 2627 | 2627 |
| d_b, Bicycle Delay [s] | 0.49 | 1.50 | 1.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.717 | 1.611 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.191 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 97 | 4 | 0 | 157 | 71 | 3 | 228 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 97 | 4 | 0 | 157 | 71 | 3 | 228 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 1 | 0 | 43 | 19 | 1 | 62 |
| Total Analysis Volume [veh/h] | 105 | 4 | 0 | 171 | 77 | 3 | 248 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 6 | 0 | 9 | 9 | 0 | 9 |
| g / C, Green / Cycle | 0.22 | 0.22 | 0.00 | 0.33 | 0.33 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.07 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 3580 |
| c, Capacity [veh/h] | 397 | 355 | 1 | 1190 | 526 | 15 | 1204 |
| d1, Uniform Delay [s] | 8.75 | 8.26 | 0.00 | 6.40 | 6.40 | 13.34 | 6.40 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.13 | 0.00 | 0.00 | 0.08 | 0.17 | 2.48 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.26 | 0.01 | 0.00 | 0.14 | 0.15 | 0.20 | 0.21 |
| d, Delay for Lane Group [s/veh] | 8.88 | 8.27 | 0.00 | 6.47 | 6.58 | 15.82 | 6.52 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.34 | 0.01 | 0.00 | 0.12 | 0.12 | 0.02 | 0.30 |
| 50th-Percentile Queue Length [ft/ln] | 8.60 | 0.31 | 0.00 | 3.06 | 3.11 | 0.59 | 7.41 |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 0.02 | 0.00 | 0.22 | 0.22 | 0.04 | 0.53 |
| 95th-Percentile Queue Length [ft/ln] | 15.49 | 0.55 | 0.00 | 5.50 | 5.60 | 1.07 | 13.33 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 8.88 | 8.27 | 0.00 | 6.47 | 6.58 | 15.82 | 6.52 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 8.86 | | 6.50 | | | 6.63 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 6.98 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.191 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 78.58 | 2.99 | 0.00 | 85.56 | 38.52 | 3.71 | 306.37 |
| Stops [stops/h] | 46.07 | 1.65 | 0.00 | 32.74 | 16.67 | 3.18 | 79.34 |
| Fuel consumption [US gal/h] | 3.68 | 0.14 | 0.00 | 3.59 | 1.65 | 0.18 | 13.38 |
| CO [g/h] | 257.18 | 9.72 | 0.00 | 251.14 | 115.27 | 12.57 | 935.24 |
| NOx [g/h] | 50.04 | 1.89 | 0.00 | 48.86 | 22.43 | 2.45 | 181.96 |
| VOC [g/h] | 59.60 | 2.25 | 0.00 | 58.20 | 26.71 | 2.91 | 216.75 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.70 | 10.00 | 10.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.096 | 2.565 | 2.333 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1636 | 2380 | 2380 |
| d_b, Bicycle Delay [s] | 0.44 | 0.49 | 0.49 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.764 | 1.767 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 4.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 206 | 62 | 61 | 43 | 41 | 402 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 206 | 62 | 61 | 43 | 41 | 402 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 16 | 16 | 11 | 11 | 107 |
| Total Analysis Volume [veh/h] | 219 | 66 | 65 | 46 | 44 | 428 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 45 | | 219 | | 65 | |
| Exiting Flow Rate [veh/h] | 494 | | 111 | | 268 | |
| Demand Flow Rate [veh/h] | 206 | 62 | 61 | 43 | 41 | 402 |
| Adjusted Demand Flow Rate [veh/h] | 219 | 66 | 65 | 46 | 44 | 428 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 1.00 | 1.00 | 0.97 | 0.94 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 219 | 66 | 67 | 50 | 46 | 430 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1295 | 1367 | 1164 | 1164 | 1339 | 1339 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1295 | 1367 | 1134 | 1091 | 1301 | 1333 |
| X, volume / capacity | 0.17 | 0.05 | 0.06 | 0.04 | 0.03 | 0.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.61 | 0.15 | 0.18 | 0.13 | 0.10 | 1.40 |
| 95th-Percentile Queue Length [ft] | 15.20 | 3.80 | 4.56 | 3.30 | 2.62 | 35.05 |
| Approach Delay [s/veh] | 3.92 | | 3.66 | | 5.34 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 4.66 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.432 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 68 | 46 | 3 | 5 | 37 | 179 | 374 | 573 | 102 | 4 | 324 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 68 | 46 | 3 | 5 | 37 | 179 | 374 | 573 | 102 | 4 | 324 | 3 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 12 | 1 | 1 | 10 | 48 | 99 | 152 | 27 | 1 | 86 | 1 |
| Total Analysis Volume [veh/h] | 72 | 49 | 3 | 5 | 39 | 190 | 398 | 610 | 109 | 4 | 345 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 8 | 25 | 25 | 1 | 18 | 18 | 12 | 25 | 25 | 1 | 14 | 14 |
| g / C, Green / Cycle | 0.10 | 0.30 | 0.30 | 0.01 | 0.22 | 0.22 | 0.14 | 0.30 | 0.30 | 0.01 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.01 | 0.00 | 0.00 | 0.02 | 0.12 | 0.11 | 0.17 | 0.07 | 0.00 | 0.10 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 179 | 1045 | 492 | 25 | 400 | 351 | 500 | 1090 | 481 | 20 | 620 | 281 |
| d1, Uniform Delay [s] | 34.58 | 20.09 | 19.84 | 39.92 | 25.51 | 28.32 | 33.94 | 23.81 | 21.21 | 40.10 | 30.90 | 27.95 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.31 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.45 | 0.05 | 0.01 | 3.95 | 0.31 | 3.73 | 2.93 | 2.87 | 1.51 | 4.73 | 4.92 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.40 | 0.05 | 0.01 | 0.20 | 0.10 | 0.54 | 0.80 | 0.56 | 0.23 | 0.20 | 0.56 | 0.01 |
| d, Delay for Lane Group [s/veh] | 36.03 | 20.13 | 19.85 | 43.87 | 25.82 | 32.05 | 36.87 | 26.67 | 22.72 | 44.84 | 35.82 | 28.05 |
| Lane Group LOS | D | C | B | D | C | C | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.39 | 0.33 | 0.04 | 0.12 | 0.63 | 3.56 | 3.93 | 5.18 | 1.71 | 0.10 | 3.45 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 34.72 | 8.18 | 1.01 | 3.12 | 15.63 | 89.02 | 98.14 | 129.38 | 42.79 | 2.62 | 86.35 | 1.38 |
| 95th-Percentile Queue Length [veh/ln] | 2.50 | 0.59 | 0.07 | 0.22 | 1.13 | 6.41 | 7.07 | 8.91 | 3.08 | 0.19 | 6.22 | 0.10 |
| 95th-Percentile Queue Length [ft/ln] | 62.50 | 14.73 | 1.82 | 5.62 | 28.13 | 160.23 | 176.65 | 222.66 | 77.03 | 4.72 | 155.42 | 2.48 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.03 | 20.13 | 19.85 | 43.87 | 25.82 | 32.05 | 36.87 | 26.67 | 22.72 | 44.84 | 35.82 | 28.05 |
| Movement LOS | D | C | B | D | C | C | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 29.36 | | | 31.26 | | | 29.92 | | | 35.85 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 31.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.432 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.65 | 3.85 | 0.24 | 0.34 | 2.67 | 13.02 | 55.00 | 84.30 | 15.06 | 4.99 | 430.29 | 3.74 |
| Stops [stops/h] | 61.21 | 28.85 | 1.78 | 5.50 | 27.55 | 156.93 | 346.01 | 456.17 | 75.44 | 4.62 | 304.43 | 2.43 |
| Fuel consumption [US gal/h] | 1.10 | 0.52 | 0.03 | 0.09 | 0.47 | 2.64 | 7.16 | 9.30 | 1.54 | 0.27 | 21.91 | 0.18 |
| CO [g/h] | 76.80 | 36.25 | 2.21 | 6.23 | 32.65 | 184.68 | 500.65 | 650.19 | 107.71 | 18.69 | 1531.50 | 12.90 |
| NOx [g/h] | 14.94 | 7.05 | 0.43 | 1.21 | 6.35 | 35.93 | 97.41 | 126.50 | 20.96 | 3.64 | 297.97 | 2.51 |
| VOC [g/h] | 17.80 | 8.40 | 0.51 | 1.44 | 7.57 | 42.80 | 116.03 | 150.69 | 24.96 | 4.33 | 354.94 | 2.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 30.58 | 30.58 | 30.58 | 30.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.492 | 2.558 | 2.829 | 2.949 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 490 | 490 | 979 | 979 |
| d_b, Bicycle Delay [s] | 23.29 | 23.29 | 10.64 | 10.64 |
| l_b,int, Bicycle LOS Score for Intersection | 1.662 | 1.946 | 2.481 | 1.850 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.287 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 171 | 2 | 44 | 47 | 58 | 142 | 404 | 31 | 0 | 227 | 44 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 171 | 2 | 44 | 47 | 58 | 142 | 404 | 31 | 0 | 227 | 44 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 46 | 1 | 12 | 13 | 16 | 39 | 110 | 8 | 0 | 62 | 12 |
| Total Analysis Volume [veh/h] | 18 | 186 | 2 | 48 | 51 | 63 | 154 | 439 | 34 | 0 | 247 | 48 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 18 | 6 | 21 | 21 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.24 | 0.09 | 0.28 | 0.28 | 0.13 | 0.26 | 0.26 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.10 | 0.01 | 0.03 | 0.04 | 0.04 | 0.12 | 0.02 | 0.00 | 0.07 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1820 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 438 | 307 | 539 | 458 | 461 | 944 | 426 | 3 | 487 | 395 |
| d1, Uniform Delay [s] | 33.91 | 23.65 | 31.03 | 19.38 | 19.63 | 29.01 | 22.70 | 20.35 | 0.00 | 29.35 | 27.76 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 2.28 | 0.09 | 0.43 | 0.78 | 0.16 | 0.76 | 0.17 | 0.00 | 1.75 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.22 | 0.43 | 0.16 | 0.09 | 0.14 | 0.33 | 0.47 | 0.08 | 0.00 | 0.51 | 0.12 |
| d, Delay for Lane Group [s/veh] | 34.43 | 25.93 | 31.11 | 19.81 | 20.40 | 29.16 | 23.47 | 20.52 | 0.00 | 31.10 | 28.05 |
| Lane Group LOS | C | C | C | B | C | C | C | C | A | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | No | Yes | No | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.31 | 2.91 | 0.36 | 0.63 | 0.80 | 1.20 | 3.13 | 0.44 | 0.00 | 1.85 | 0.34 |
| 50th-Percentile Queue Length [ft/ln] | 7.83 | 72.79 | 9.09 | 15.73 | 20.12 | 30.04 | 78.18 | 11.01 | 0.00 | 46.37 | 8.38 |
| 95th-Percentile Queue Length [veh/ln] | 0.56 | 5.24 | 0.65 | 1.13 | 1.45 | 2.16 | 5.63 | 0.79 | 0.00 | 3.34 | 0.60 |
| 95th-Percentile Queue Length [ft/ln] | 14.09 | 131.02 | 16.37 | 28.32 | 36.22 | 54.06 | 140.72 | 19.81 | 0.00 | 83.46 | 15.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.43 | 25.93 | 25.93 | 31.11 | 19.81 | 20.40 | 29.16 | 23.47 | 20.52 | 0.00 | 31.10 | 28.05 |
| Movement LOS | C | C | C | C | B | C | C | C | C | A | C | C |
| d_A, Approach Delay [s/veh] | 26.67 | | | 23.39 | | | 24.71 | | | 30.60 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.287 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.01 | 10.54 | 2.99 | 3.18 | 3.92 | 192.07 | 547.53 | 42.41 | 0.00 | 42.72 | 8.30 |
| Stops [stops/h] | 15.39 | 143.09 | 35.75 | 30.93 | 39.56 | 118.09 | 307.37 | 21.64 | 0.00 | 182.30 | 32.94 |
| Fuel consumption [US gal/h] | 0.25 | 2.22 | 0.95 | 0.79 | 1.00 | 9.47 | 26.33 | 2.01 | 0.00 | 7.82 | 1.42 |
| CO [g/h] | 17.66 | 154.94 | 66.60 | 55.00 | 69.92 | 662.18 | 1840.79 | 140.30 | 0.00 | 546.30 | 99.57 |
| NOx [g/h] | 3.44 | 30.15 | 12.96 | 10.70 | 13.60 | 128.84 | 358.15 | 27.30 | 0.00 | 106.29 | 19.37 |
| VOC [g/h] | 4.09 | 35.91 | 15.44 | 12.75 | 16.20 | 153.47 | 426.62 | 32.52 | 0.00 | 126.61 | 23.08 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.45 | 26.45 | 26.45 | 26.45 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.191 | 2.590 | 2.941 | 2.819 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 546 | 546 | 819 | 819 |
| d_b, Bicycle Delay [s] | 19.35 | 19.35 | 12.77 | 12.77 |
| l_b,int, Bicycle LOS Score for Intersection | 1.900 | 1.827 | 2.077 | 1.803 |
| Bicycle LOS | A | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shepherd Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.008 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 390 | 760 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 390 | 760 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 106 | 207 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 424 | 826 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 11.12 | 9.50 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.12 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.007 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 6 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.54 | 8.34 | 0.00 | 0.00 | 7.22 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.52 | 0.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.54 | | 0.00 | | 3.61 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 8.54 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 4101: Owens Mountain Parkway & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.256 |

**Intersection Setup**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 68 | 420 | 0 | 0 | 42 | 179 | 0 | 0 | 0 | 4 | 0 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 68 | 420 | 0 | 0 | 42 | 179 | 0 | 0 | 0 | 4 | 0 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 114 | 0 | 0 | 11 | 49 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total Analysis Volume [veh/h] | 74 | 457 | 0 | 0 | 46 | 195 | 0 | 0 | 0 | 4 | 0 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 25 | 0 | 25 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 25 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 14 | 0 | 14 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lag | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 11 | 0 | 11 |
| Vehicle Extension [s] | 4.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 26 | 26 | 26 | 26 | | 26 | 26 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 17 | 9 | 9 | | 1 | 1 |
| g / C, Green / Cycle | 0.18 | 0.67 | 0.33 | 0.33 | | 0.02 | 0.02 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.13 | 0.02 | 0.12 | | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1589 | | 1781 | 1589 |
| c, Capacity [veh/h] | 320 | 2382 | 626 | 532 | | 39 | 35 |
| d1, Uniform Delay [s] | 9.09 | 1.63 | 5.87 | 6.53 | | 12.42 | 12.41 |
| k, delay calibration | 0.15 | 0.04 | 0.04 | 0.04 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 0.01 | 0.02 | 0.16 | | 1.60 | 1.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.19 | 0.07 | 0.37 | | 0.10 | 0.09 |
| d, Delay for Lane Group [s/veh] | 9.61 | 1.64 | 5.89 | 6.69 | | 14.02 | 13.89 |
| Lane Group LOS | A | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.28 | 0.00 | 0.09 | 0.44 | | 0.03 | 0.03 |
| 50th-Percentile Queue Length [ft/ln] | 6.95 | 0.12 | 2.30 | 11.03 | | 0.85 | 0.67 |
| 95th-Percentile Queue Length [veh/ln] | 0.50 | 0.01 | 0.17 | 0.79 | | 0.06 | 0.05 |
| 95th-Percentile Queue Length [ft/ln] | 12.50 | 0.21 | 4.14 | 19.86 | | 1.53 | 1.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.61 | 1.64 | 0.00 | 0.00 | 5.89 | 6.69 | 0.00 | 0.00 | 0.00 | 14.02 | 0.00 | 13.89 |
| Movement LOS | A | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 2.75 | | | 6.54 | | | 0.00 | | | 13.96 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.02 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.256 | | | | | | | | | | | |

**Emissions**

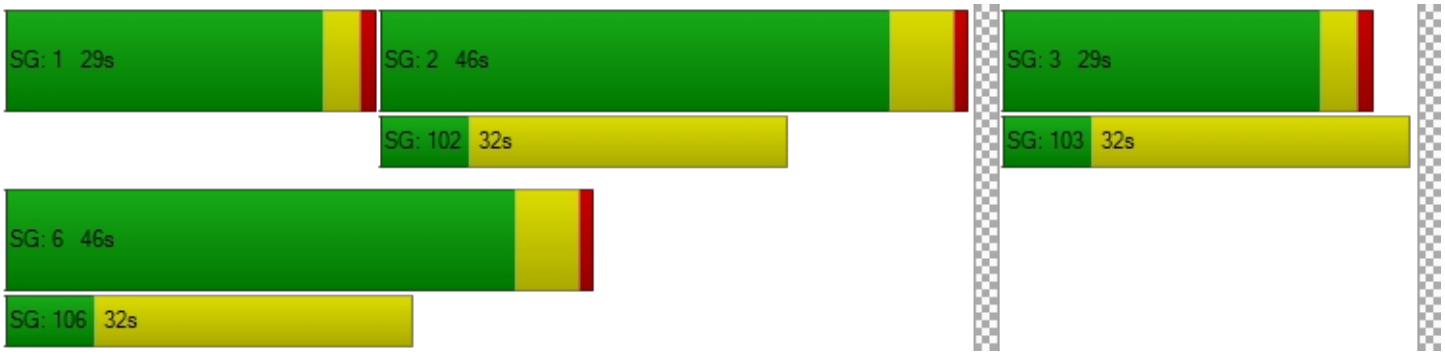
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.07 | 31.31 | 9.46 | 40.11 | | 0.41 | 0.31 |
| Stops [stops/h] | 38.79 | 1.33 | 12.83 | 61.61 | | 4.74 | 3.74 |
| Fuel consumption [US gal/h] | 0.57 | 1.45 | 0.52 | 2.26 | | 0.05 | 0.04 |
| CO [g/h] | 39.69 | 101.26 | 36.04 | 157.78 | | 3.80 | 2.92 |
| NOx [g/h] | 7.72 | 19.70 | 7.01 | 30.70 | | 0.74 | 0.57 |
| VOC [g/h] | 9.20 | 23.47 | 8.35 | 36.57 | | 0.88 | 0.68 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.24 | 4.24 | 4.24 | 4.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.463 | 2.217 | 1.601 | 1.858 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3102 | 3102 | 0 | 1939 |
| d_b, Bicycle Delay [s] | 3.92 | 3.92 | 12.89 | 0.01 |
| l_b,int, Bicycle LOS Score for Intersection | 1.998 | 1.758 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4102: Owens Mountain Parkway & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.175 |

**Intersection Setup**

| Name | Tollhouse | | | Tollhouse | | | SR 168 Ramps | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Tollhouse | | | SR 168 Ramps | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 114 | 3 | 5 | 41 | 0 | 374 | 0 | 102 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 114 | 3 | 5 | 41 | 0 | 374 | 0 | 102 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 31 | 1 | 1 | 11 | 0 | 102 | 0 | 28 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 124 | 3 | 5 | 45 | 0 | 407 | 0 | 111 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | R | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 23 | 23 | 23 | 23 | 23 | |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 4.00 | 6.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.00 | 4.00 | 2.00 | 4.00 | 2.00 | |
| g_i, Effective Green Time [s] | 5 | 5 | 0 | 9 | 4 | |
| g / C, Green / Cycle | 0.20 | 0.20 | 0.02 | 0.39 | 0.18 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.03 | 0.00 | 0.01 | 0.07 | |
| s, saturation flow rate [veh/h] | 1870 | 1855 | 1781 | 3560 | 1589 | |
| c, Capacity [veh/h] | 371 | 368 | 29 | 1378 | 289 | |
| d1, Uniform Delay [s] | 7.71 | 7.72 | 11.25 | 4.41 | 8.35 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.31 | 0.31 | 1.04 | 0.01 | 1.19 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.17 | 0.17 | 0.17 | 0.03 | 0.38 | |
| d, Delay for Lane Group [s/veh] | 8.02 | 8.03 | 12.30 | 4.43 | 9.54 | |
| Lane Group LOS | A | A | B | A | A | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 0.18 | 0.18 | 0.03 | 0.03 | 0.38 | |
| 50th-Percentile Queue Length [ft/ln] | 4.51 | 4.51 | 0.64 | 0.66 | 9.45 | |
| 95th-Percentile Queue Length [veh/ln] | 0.32 | 0.33 | 0.05 | 0.05 | 0.68 | |
| 95th-Percentile Queue Length [ft/ln] | 8.11 | 8.13 | 1.15 | 1.19 | 17.00 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 8.03 | 8.03 | 12.30 | 4.43 | 0.00 | 0.00 | 0.00 | 9.54 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | | | A | | | |
| d_A, Approach Delay [s/veh] | 8.03 | | | 5.21 | | | 9.54 | | | 0.00 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.12 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.175 | | | | | | | | | | | |

**Emissions**

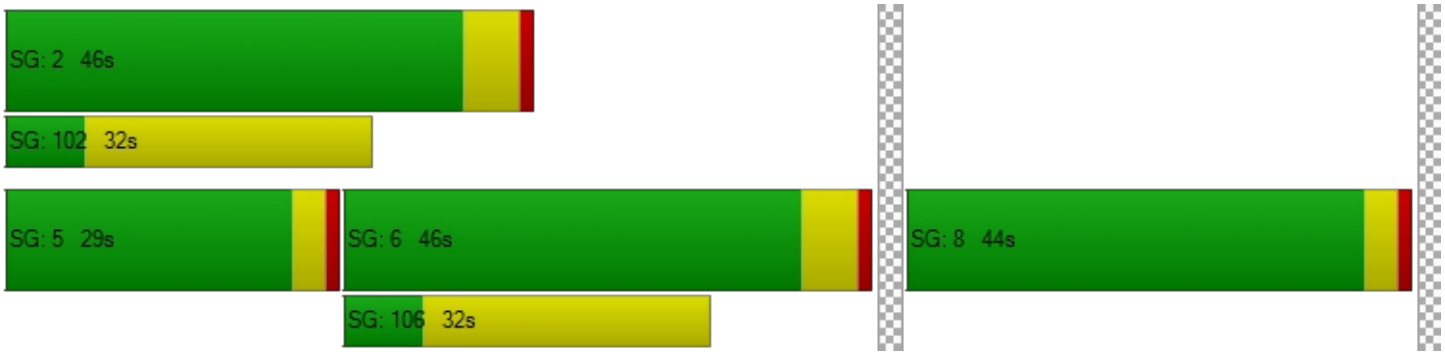
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.51 | 3.51 | 0.39 | 3.53 | 8.86 | |
| Stops [stops/h] | 28.15 | 28.21 | 3.99 | 8.26 | 59.02 | |
| Fuel consumption [US gal/h] | 0.40 | 0.40 | 0.05 | 0.23 | 0.91 | |
| CO [g/h] | 28.21 | 28.24 | 3.54 | 16.19 | 63.35 | |
| NOx [g/h] | 5.49 | 5.50 | 0.69 | 3.15 | 12.33 | |
| VOC [g/h] | 6.54 | 6.55 | 0.82 | 3.75 | 14.68 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.52 | 11.52 | 3.15 | 3.15 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.155 | 2.573 | 1.880 | 1.335 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3471 | 3471 | 0 | 0 |
| d_b, Bicycle Delay [s] | 6.23 | 6.23 | 11.52 | 11.52 |
| l_b,int, Bicycle LOS Score for Intersection | 1.664 | 1.601 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4201: Shepherd Avenue & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 5.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.189 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off-Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off-Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 313 | 0 | 0 | 91 | 58 | 0 | 0 | 0 | 0 | 0 | 44 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 313 | 0 | 0 | 91 | 58 | 0 | 0 | 0 | 0 | 0 | 44 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 85 | 0 | 0 | 25 | 16 | 0 | 0 | 0 | 0 | 0 | 12 |
| Total Analysis Volume [veh/h] | 18 | 340 | 0 | 0 | 99 | 63 | 0 | 0 | 0 | 0 | 0 | 48 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 0 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 25 | 25 | 25 | 25 | 25 | | 25 | 25 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 13 | 13 | 7 | 7 | | 4 | 4 |
| g / C, Green / Cycle | 0.05 | 0.51 | 0.51 | 0.30 | 0.30 | | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.09 | 0.09 | 0.04 | 0.05 | | 0.00 | 0.03 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1870 | 1870 | 1644 | | 1781 | 1589 |
| c, Capacity [veh/h] | 96 | 955 | 955 | 558 | 491 | | 308 | 275 |
| d1, Uniform Delay [s] | 11.44 | 3.33 | 3.33 | 6.51 | 6.55 | | 0.00 | 8.92 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | 0.15 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.34 | 0.13 | 0.13 | 0.17 | 0.22 | | 0.00 | 0.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.18 | 0.18 | 0.15 | 0.16 | | 0.00 | 0.17 |
| d, Delay for Lane Group [s/veh] | 11.78 | 3.46 | 3.46 | 6.68 | 6.77 | | 0.00 | 9.34 |
| Lane Group LOS | B | A | A | A | A | | A | A |
| Critical Lane Group | No | Yes | No | No | No | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.08 | 0.13 | 0.13 | 0.12 | 0.13 | | 0.00 | 0.18 |
| 50th-Percentile Queue Length [ft/ln] | 1.93 | 3.37 | 3.37 | 3.02 | 3.14 | | 0.00 | 4.40 |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 0.24 | 0.24 | 0.22 | 0.23 | | 0.00 | 0.32 |
| 95th-Percentile Queue Length [ft/ln] | 3.47 | 6.07 | 6.07 | 5.43 | 5.65 | | 0.00 | 7.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 11.78 | 3.46 | 3.46 | 0.00 | 6.69 | 6.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.34 |
| Movement LOS | B | A | A | | A | A | | | | A | | A |
| d_A, Approach Delay [s/veh] | 3.88 | | | 6.72 | | | 0.00 | | | 9.34 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 5.15 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.189 | | | | | | | | | | | |

**Emissions**

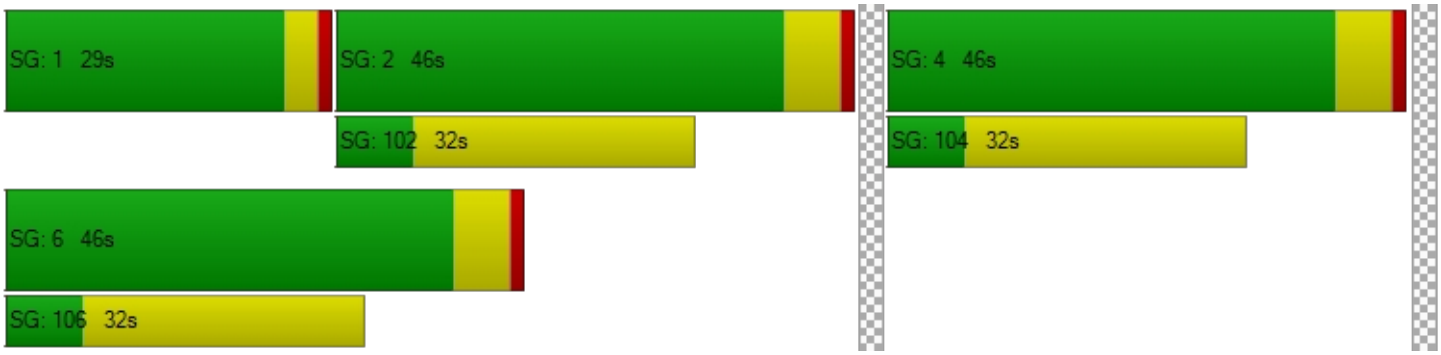
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.12 | 10.59 | 10.59 | 100.07 | 100.07 | | 0.00 | 3.38 |
| Stops [stops/h] | 11.04 | 19.28 | 19.28 | 17.26 | 17.96 | | 0.00 | 25.20 |
| Fuel consumption [US gal/h] | 0.15 | 0.66 | 0.66 | 3.73 | 3.74 | | 0.00 | 0.37 |
| CO [g/h] | 10.51 | 46.29 | 46.29 | 260.44 | 261.30 | | 0.00 | 25.84 |
| NOx [g/h] | 2.04 | 9.01 | 9.01 | 50.67 | 50.84 | | 0.00 | 5.03 |
| VOC [g/h] | 2.43 | 10.73 | 10.73 | 60.36 | 60.56 | | 0.00 | 5.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 3.99 | 3.99 | 3.99 | 3.99 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.570 | 2.267 | 1.415 | 1.869 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3178 | 3178 | 0 | 3178 |
| d_b, Bicycle Delay [s] | 4.37 | 4.37 | 12.59 | 4.37 |
| l_b,int, Bicycle LOS Score for Intersection | 1.855 | 1.693 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4202: Shepherd Avenue & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.231 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 188 | 2 | 44 | 47 | 0 | 142 | 0 | 31 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 188 | 2 | 44 | 47 | 0 | 142 | 0 | 31 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 51 | 1 | 12 | 13 | 0 | 39 | 0 | 8 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 204 | 2 | 48 | 51 | 0 | 154 | 0 | 34 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Split | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 34 | 34 | 34 | 34 | 34 | 34 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 9 | 9 | 4 | 17 | 9 | 9 | |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.12 | 0.50 | 0.26 | 0.26 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.06 | 0.03 | 0.01 | 0.09 | 0.02 | |
| s, saturation flow rate [veh/h] | 1870 | 1864 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 494 | 493 | 215 | 1795 | 460 | 410 | |
| d1, Uniform Delay [s] | 9.64 | 9.64 | 13.37 | 4.20 | 10.14 | 9.46 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.29 | 0.30 | 0.19 | 0.01 | 0.61 | 0.12 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.21 | 0.22 | 0.03 | 0.33 | 0.08 | |
| d, Delay for Lane Group [s/veh] | 9.93 | 9.94 | 13.56 | 4.21 | 10.74 | 9.58 | |
| Lane Group LOS | A | A | B | A | B | A | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.47 | 0.47 | 0.27 | 0.05 | 0.76 | 0.15 | |
| 50th-Percentile Queue Length [ft/ln] | 11.83 | 11.84 | 6.84 | 1.18 | 18.91 | 3.85 | |
| 95th-Percentile Queue Length [veh/ln] | 0.85 | 0.85 | 0.49 | 0.09 | 1.36 | 0.28 | |
| 95th-Percentile Queue Length [ft/ln] | 21.30 | 21.31 | 12.32 | 2.13 | 34.05 | 6.93 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.93 | 9.94 | 13.56 | 4.21 | 0.00 | 10.74 | 0.00 | 9.58 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | B | | A | | | |
| d_A, Approach Delay [s/veh] | 9.93 | | | 8.74 | | | 10.53 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 9.92 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.231 | | | | | | | | | | | |

**Emissions**

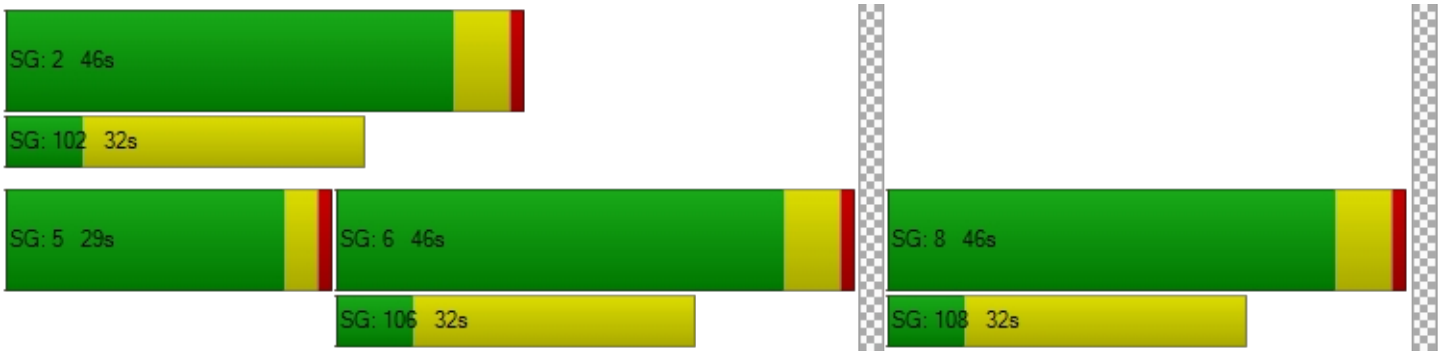
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.85 | 1.85 | 2.69 | 2.86 | 15.94 | 3.52 | |
| Stops [stops/h] | 50.79 | 50.82 | 29.38 | 10.16 | 81.20 | 16.52 | |
| Fuel consumption [US gal/h] | 0.57 | 0.57 | 0.41 | 0.22 | 1.44 | 0.30 | |
| CO [g/h] | 39.50 | 39.52 | 28.35 | 15.21 | 100.77 | 21.14 | |
| NOx [g/h] | 7.69 | 7.69 | 5.52 | 2.96 | 19.61 | 4.11 | |
| VOC [g/h] | 9.15 | 9.16 | 6.57 | 3.52 | 23.35 | 4.90 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.58 | 7.58 | 7.58 | 7.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.141 | 2.327 | 1.940 | 1.411 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2385 | 2385 | 2385 | 0 |
| d_b, Bicycle Delay [s] | 0.62 | 0.62 | 0.62 | 16.77 |
| l_b,int, Bicycle LOS Score for Intersection | 1.730 | 1.641 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4214: New Intersection**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name | International | International |
|---|---|---|
| Approach | Eastbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 |
| Speed [mph] | 30.00 | 30.00 |
| Grade [%] | 0.00 | 0.00 |
| Curb Present | No | No |
| Crosswalk | Yes | Yes |

**Volumes**

| Name | International | International |
|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | |
| Growth Factor | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 |
| Presence of On-Street Parking | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_di, Inbound Pedestrian Volume crossing m | 0 | 0 |
| v_co, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | 0 |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | 0 |
| Bicycle Volume [bicycles/h] | 0 | 0 |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive |
|---|---|---|
| Signal Group | 0 | 0 |
| Auxiliary Signal Groups | | |
| Maximum Green [s] | 0 | 0 |
| Amber [s] | 0.0 | 0.0 |
| All red [s] | 0.0 | 0.0 |
| Walk [s] | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 |
| Rest In Walk | | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | |
|---|---|---|
| Split [s] | 0 | 0 |
| Lead / Lag | - | - |
| Minimum Green [s] | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 |
| Minimum Recall | | |
| Maximum Recall | | |
| Pedestrian Recall | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

**Lane Group Results**

**Movement, Approach, & Intersection Results**

| | | |
|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | | |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | 0.00 | |
| Intersection LOS | A | |
| Intersection V/C | 0.000 | |

**Emissions**

**Other Modes**

| | | |
|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.00 | 45.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.950 | 1.725 |
| Crosswalk LOS | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 |
| d_b, Bicycle Delay [s] | 45.00 | 45.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.560 |
| Bicycle LOS | A | A |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Cumulative Plus Proj AM.pdf

Scenario 5 Cumulative AM Plus Proj
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.557 | 26.1 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.544 | 28.5 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.557 | 29.7 | C |
| 4 | Minnewawa Ave & International Ave | Roundabout | HCM 7th Edition | SB Thru | | 4.3 | A |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.571 | 21.7 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.809 | 40.4 | D |
| 7 | Clovis Ave & International Ave | Signalized | HCM 7th Edition | NB Left | 0.395 | 9.8 | A |
| 8 | Clovis Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.631 | 15.1 | B |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.490 | 28.6 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.624 | 25.9 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.659 | 27.7 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.811 | 42.2 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.529 | 19.9 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Right | 0.934 | 28.4 | C |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.488 | 21.7 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | NB Left | 0.746 | 35.8 | D |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 0.846 | 45.5 | D |
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Left | 0.632 | 33.4 | C |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.844 | 86.3 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 1.362 | 278.6 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.772 | 34.6 | C |
| 23 | Fowler Ave & Teague Ave | Signalized | HCM 7th Edition | NB Left | 0.391 | 10.0 | A |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.587 | 17.4 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.867 | 45.4 | D |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.838 | 31.9 | C |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.713 | 26.1 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.031 | 14.6 | B |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.053 | 27.6 | D |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.178 | 24.2 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Thru | 0.773 | 45.7 | D |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.578 | 19.4 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | SB Left | | 20.7 | C |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.613 | 7.3 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.961 | 66.6 | E |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 2.146 | 32.1 | C |
| 37 | Locan Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.315 | 13.6 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Signalized | HCM 7th Edition | WB Thru | 0.517 | 12.4 | B |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.293 | 7.8 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | SB Left | | 6.9 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Left | 0.560 | 38.6 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.287 | 26.4 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.256 | 12.5 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.075 | 8.9 | A |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.606 | 12.2 | B |
| 4102 | Owens Mountain Parkway and SR 168 EB Ramp Ramps | Signalized | HCM 7th Edition | SB Left | 0.217 | 7.1 | A |
| 4201 | Shepherd Avenue & SR 168 WB Ramps | Signalized | HCM 7th Edition | NB Left | 0.332 | 8.8 | A |
| 4202 | Shepherd Avenue & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.167 | 7.5 | A |
| 4216 | New Intersection | Signalized | HCM 7th Edition | | 0.000 | 0.0 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.557 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 250.00 | 100.00 | 250.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.61 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 428 | 456 | 28 | 58 | 768 | 92 | 18 | 80 | 220 | 41 | 217 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 428 | 456 | 28 | 58 | 768 | 92 | 18 | 80 | 220 | 41 | 217 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 124 | 8 | 16 | 209 | 25 | 5 | 22 | 60 | 11 | 59 | 1 |
| Total Analysis Volume [veh/h] | 465 | 496 | 30 | 63 | 835 | 100 | 20 | 87 | 239 | 45 | 236 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 13 | 32 | 32 | 6 | 24 | 24 | 3 | 15 | 15 | 5 | 17 | 17 |
| g / C, Green / Cycle | 0.16 | 0.40 | 0.40 | 0.08 | 0.30 | 0.30 | 0.04 | 0.20 | 0.20 | 0.06 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.10 | 0.02 | 0.02 | 0.16 | 0.06 | 0.01 | 0.02 | 0.15 | 0.02 | 0.07 | 0.00 |
| s, saturation flow rate [veh/h] | 3475 | 5094 | 1615 | 3417 | 5065 | 1573 | 3514 | 3575 | 1602 | 1810 | 3606 | 1564 |
| c, Capacity [veh/h] | 562 | 2050 | 650 | 260 | 1541 | 479 | 127 | 698 | 313 | 115 | 777 | 337 |
| d1, Uniform Delay [s] | 32.17 | 15.68 | 14.43 | 34.48 | 22.98 | 20.50 | 37.04 | 26.31 | 30.16 | 35.64 | 26.12 | 24.46 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.22 | 0.20 | 0.09 | 0.18 | 0.97 | 0.70 | 0.21 | 0.19 | 8.75 | 0.80 | 0.37 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.24 | 0.05 | 0.24 | 0.54 | 0.21 | 0.16 | 0.12 | 0.76 | 0.39 | 0.30 | 0.01 |
| d, Delay for Lane Group [s/veh] | 33.39 | 15.88 | 14.52 | 34.66 | 23.95 | 21.19 | 37.25 | 26.50 | 38.91 | 36.43 | 26.49 | 24.47 |
| Lane Group LOS | C | B | B | C | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.03 | 1.75 | 0.30 | 0.54 | 3.97 | 1.32 | 0.18 | 0.65 | 4.73 | 0.84 | 1.85 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 100.64 | 43.75 | 7.57 | 13.42 | 99.30 | 33.03 | 4.53 | 16.20 | 118.22 | 21.06 | 46.37 | 1.12 |
| 95th-Percentile Queue Length [veh/ln] | 7.25 | 3.15 | 0.55 | 0.97 | 7.15 | 2.38 | 0.33 | 1.17 | 8.30 | 1.52 | 3.34 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 181.16 | 78.74 | 13.63 | 24.15 | 178.74 | 59.45 | 8.15 | 29.17 | 207.38 | 37.91 | 83.47 | 2.02 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.39 | 15.88 | 14.52 | 34.66 | 23.95 | 21.19 | 37.25 | 26.50 | 38.91 | 36.43 | 26.49 | 24.47 |
| Movement LOS | C | B | B | C | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 24.06 | | | 24.35 | | | 35.69 | | | 28.05 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.14 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.557 | | | | | | | | | | | |

**Emissions**

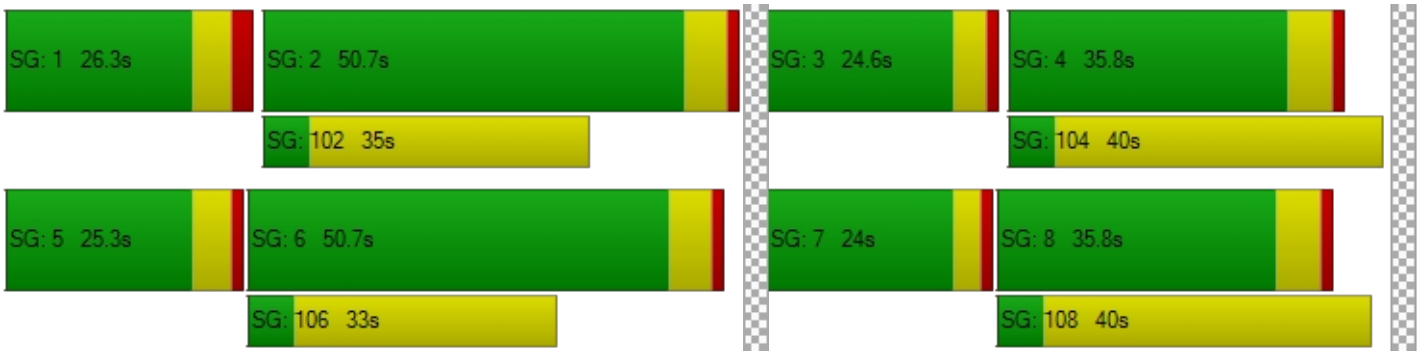
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 234.73 | 250.38 | 15.14 | 6.21 | 82.25 | 9.85 | 2.06 | 8.96 | 24.61 | 38.74 | 203.19 | 2.58 |
| Stops [stops/h] | 366.21 | 238.76 | 13.77 | 48.82 | 541.98 | 60.09 | 16.47 | 58.96 | 215.08 | 38.31 | 168.74 | 2.04 |
| Fuel consumption [US gal/h] | 16.64 | 13.65 | 0.81 | 1.40 | 15.14 | 1.68 | 0.43 | 1.51 | 5.41 | 2.14 | 10.57 | 0.13 |
| CO [g/h] | 1163.25 | 954.35 | 56.42 | 97.97 | 1058.51 | 117.68 | 29.84 | 105.50 | 378.17 | 149.60 | 738.79 | 9.26 |
| NOx [g/h] | 226.33 | 185.68 | 10.98 | 19.06 | 205.95 | 22.90 | 5.81 | 20.53 | 73.58 | 29.11 | 143.74 | 1.80 |
| VOC [g/h] | 269.60 | 221.18 | 13.08 | 22.70 | 245.32 | 27.27 | 6.92 | 24.45 | 87.64 | 34.67 | 171.22 | 2.15 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.09 | 31.09 | 31.09 | 31.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.304 | 3.118 | 2.829 | 2.654 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1137 | 1137 | 758 | 758 |
| d_b, Bicycle Delay [s] | 7.37 | 7.37 | 15.26 | 15.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.105 | 2.109 | 1.845 | 1.794 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.544 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 121 | 627 | 61 | 88 | 888 | 90 | 77 | 139 | 244 | 223 | 303 | 238 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 121 | 627 | 61 | 88 | 888 | 90 | 77 | 139 | 244 | 223 | 303 | 238 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 170 | 17 | 24 | 241 | 24 | 21 | 38 | 66 | 61 | 82 | 65 |
| Total Analysis Volume [veh/h] | 132 | 682 | 66 | 96 | 965 | 98 | 84 | 151 | 265 | 242 | 329 | 259 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 | 4.50 |
| g_i, Effective Green Time [s] | 8 | 29 | 29 | 7 | 29 | 29 | 7 | 19 | 19 | 8 | 19 | 19 |
| g / C, Green / Cycle | 0.09 | 0.34 | 0.34 | 0.08 | 0.33 | 0.33 | 0.08 | 0.22 | 0.22 | 0.10 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.13 | 0.04 | 0.03 | 0.19 | 0.06 | 0.02 | 0.04 | 0.17 | 0.07 | 0.09 | 0.16 |
| s, saturation flow rate [veh/h] | 3392 | 5127 | 1567 | 3323 | 5090 | 1615 | 3442 | 3595 | 1577 | 3414 | 3580 | 1597 |
| c, Capacity [veh/h] | 305 | 1742 | 532 | 281 | 1703 | 540 | 280 | 795 | 349 | 329 | 778 | 347 |
| d1, Uniform Delay [s] | 36.87 | 21.50 | 19.46 | 36.92 | 23.37 | 20.17 | 37.00 | 27.08 | 31.19 | 37.60 | 28.85 | 31.27 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.36 | 0.47 | 0.34 | 0.27 | 0.97 | 0.52 | 0.22 | 0.14 | 4.11 | 1.22 | 0.82 | 6.98 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.39 | 0.12 | 0.34 | 0.57 | 0.18 | 0.30 | 0.19 | 0.76 | 0.74 | 0.42 | 0.75 |
| d, Delay for Lane Group [s/veh] | 37.23 | 21.97 | 19.80 | 37.19 | 24.34 | 20.68 | 37.22 | 27.22 | 35.30 | 38.82 | 29.67 | 38.25 |
| Lane Group LOS | D | C | B | D | C | C | D | C | D | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.24 | 3.18 | 0.87 | 0.90 | 4.91 | 1.33 | 0.80 | 1.21 | 5.22 | 2.47 | 2.93 | 5.52 |
| 50th-Percentile Queue Length [ft/ln] | 30.91 | 79.62 | 21.67 | 22.39 | 122.77 | 33.21 | 20.06 | 30.19 | 130.43 | 61.78 | 73.23 | 138.00 |
| 95th-Percentile Queue Length [veh/ln] | 2.23 | 5.73 | 1.56 | 1.61 | 8.55 | 2.39 | 1.44 | 2.17 | 8.96 | 4.45 | 5.27 | 9.37 |
| 95th-Percentile Queue Length [ft/ln] | 55.65 | 143.32 | 39.01 | 40.31 | 213.63 | 59.78 | 36.11 | 54.34 | 224.07 | 111.20 | 131.81 | 234.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.23 | 21.97 | 19.80 | 37.19 | 24.34 | 20.68 | 37.22 | 27.22 | 35.30 | 38.82 | 29.67 | 38.25 |
| Movement LOS | D | C | B | D | C | C | D | C | D | D | C | D |
| d_A, Approach Delay [s/veh] | 24.09 | | | 25.10 | | | 33.18 | | | 35.02 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 28.48 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.544 | | | | | | | | | | | |

**Emissions**

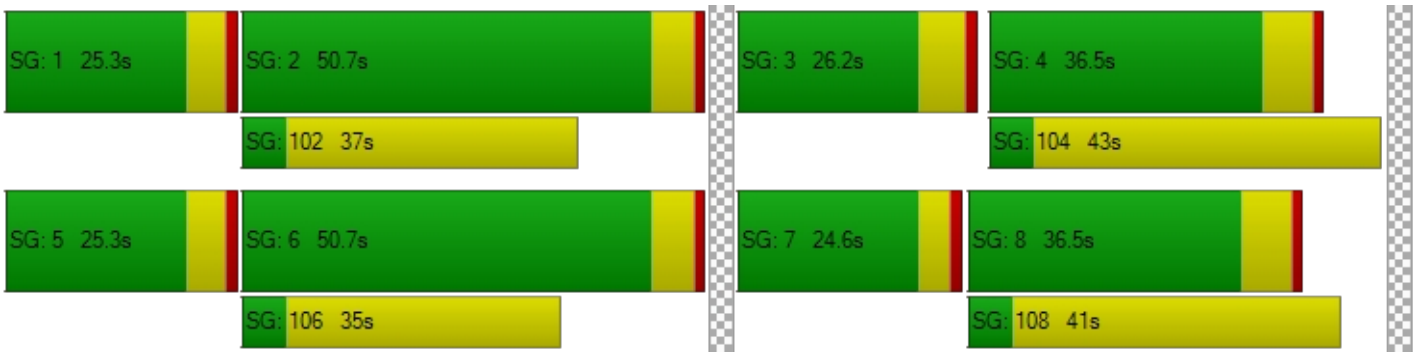
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 133.73 | 690.91 | 66.86 | 48.46 | 487.14 | 49.47 | 9.14 | 16.43 | 28.83 | 251.06 | 341.32 | 268.70 |
| Stops [stops/h] | 104.33 | 403.05 | 36.57 | 75.58 | 621.47 | 56.04 | 67.71 | 101.88 | 220.08 | 208.48 | 247.12 | 232.85 |
| Fuel consumption [US gal/h] | 7.08 | 32.37 | 3.07 | 3.51 | 30.63 | 2.93 | 1.63 | 2.43 | 5.10 | 13.40 | 17.40 | 14.36 |
| CO [g/h] | 494.88 | 2262.87 | 214.33 | 245.31 | 2141.27 | 204.77 | 113.85 | 169.57 | 356.36 | 936.56 | 1216.45 | 1004.02 |
| NOx [g/h] | 96.28 | 440.27 | 41.70 | 47.73 | 416.61 | 39.84 | 22.15 | 32.99 | 69.33 | 182.22 | 236.68 | 195.35 |
| VOC [g/h] | 114.69 | 524.44 | 49.67 | 56.85 | 496.26 | 47.46 | 26.38 | 39.30 | 82.59 | 217.06 | 281.92 | 232.69 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.14 | 34.14 | 34.14 | 34.14 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.273 | 3.320 | 2.789 | 2.752 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1055 | 1055 | 703 | 703 |
| d_b, Bicycle Delay [s] | 9.53 | 9.53 | 17.94 | 17.94 |
| l_b,int, Bicycle LOS Score for Intersection | 2.044 | 2.197 | 1.972 | 2.244 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.557 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 204 | 563 | 5 | 172 | 1181 | 182 | 97 | 325 | 77 | 165 | 441 | 178 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 204 | 563 | 5 | 172 | 1181 | 182 | 97 | 325 | 77 | 165 | 441 | 178 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 153 | 1 | 47 | 321 | 49 | 26 | 88 | 21 | 45 | 120 | 48 |
| Total Analysis Volume [veh/h] | 222 | 612 | 5 | 187 | 1284 | 198 | 105 | 353 | 84 | 179 | 479 | 193 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 33 | 33 | 8 | 33 | 33 | 7 | 14 | 14 | 8 | 16 | 16 |
| g / C, Green / Cycle | 0.09 | 0.38 | 0.38 | 0.09 | 0.38 | 0.38 | 0.08 | 0.16 | 0.16 | 0.09 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.12 | 0.00 | 0.05 | 0.25 | 0.13 | 0.03 | 0.10 | 0.05 | 0.05 | 0.13 | 0.12 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1543 | 3467 | 3526 | 1561 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 314 | 1928 | 607 | 308 | 1912 | 579 | 292 | 568 | 251 | 316 | 643 | 287 |
| d1, Uniform Delay [s] | 39.03 | 19.53 | 17.25 | 38.70 | 23.05 | 19.74 | 38.20 | 34.56 | 32.83 | 38.56 | 34.30 | 33.79 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.10 | 0.30 | 0.02 | 0.72 | 1.34 | 1.13 | 0.28 | 2.62 | 1.82 | 0.60 | 2.38 | 3.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.71 | 0.32 | 0.01 | 0.61 | 0.67 | 0.34 | 0.36 | 0.62 | 0.33 | 0.57 | 0.74 | 0.67 |
| d, Delay for Lane Group [s/veh] | 40.13 | 19.83 | 17.27 | 39.42 | 24.39 | 20.87 | 38.48 | 37.18 | 34.66 | 39.16 | 36.68 | 37.54 |
| Lane Group LOS | D | B | B | D | C | C | D | D | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.24 | 2.72 | 0.06 | 1.86 | 6.82 | 2.79 | 1.02 | 3.50 | 1.61 | 1.77 | 4.72 | 3.88 |
| 50th-Percentile Queue Length [ft/ln] | 56.01 | 67.88 | 1.51 | 46.51 | 170.48 | 69.74 | 25.51 | 87.41 | 40.37 | 44.28 | 118.06 | 96.97 |
| 95th-Percentile Queue Length [veh/ln] | 4.03 | 4.89 | 0.11 | 3.35 | 11.10 | 5.02 | 1.84 | 6.29 | 2.91 | 3.19 | 8.29 | 6.98 |
| 95th-Percentile Queue Length [ft/ln] | 100.82 | 122.19 | 2.72 | 83.73 | 277.55 | 125.52 | 45.92 | 157.34 | 72.67 | 79.70 | 207.16 | 174.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.13 | 19.83 | 17.27 | 39.42 | 24.39 | 20.87 | 38.48 | 37.18 | 34.66 | 39.16 | 36.68 | 37.54 |
| Movement LOS | D | B | B | D | C | C | D | D | C | D | D | D |
| d_A, Approach Delay [s/veh] | 25.19 | | | 25.66 | | | 37.04 | | | 37.40 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.70 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.557 | | | | | | | | | | | |

**Emissions**

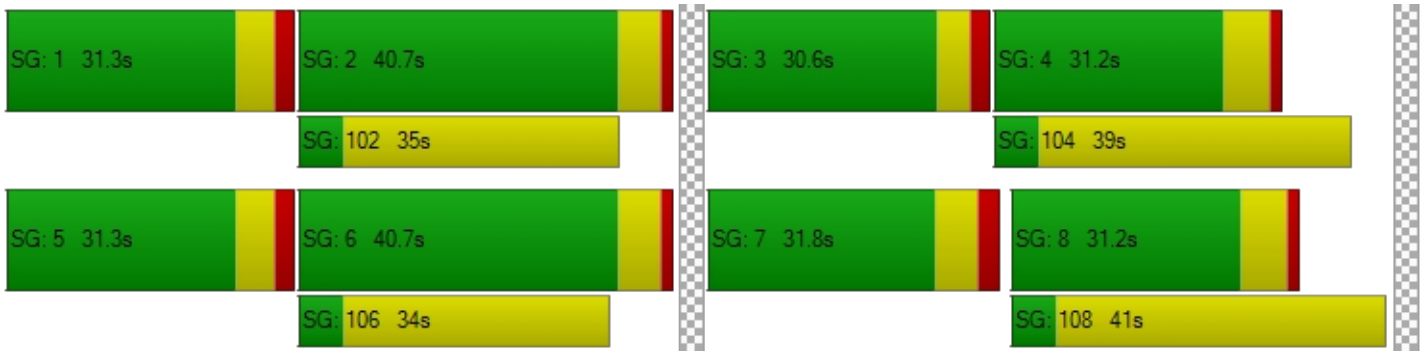
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.22 | 99.86 | 0.82 | 189.44 | 1300.78 | 200.59 | 13.72 | 46.13 | 10.98 | 185.46 | 496.28 | 199.96 |
| Stops [stops/h] | 182.92 | 332.54 | 2.47 | 151.91 | 835.17 | 113.88 | 83.32 | 285.48 | 65.93 | 144.60 | 385.57 | 158.35 |
| Fuel consumption [US gal/h] | 5.83 | 10.92 | 0.08 | 10.18 | 62.75 | 9.31 | 2.56 | 8.60 | 1.97 | 9.86 | 26.11 | 10.60 |
| CO [g/h] | 407.78 | 763.23 | 5.79 | 711.31 | 4386.51 | 650.51 | 178.99 | 600.96 | 137.84 | 688.97 | 1825.34 | 741.03 |
| NOx [g/h] | 79.34 | 148.50 | 1.13 | 138.40 | 853.46 | 126.56 | 34.82 | 116.93 | 26.82 | 134.05 | 355.15 | 144.18 |
| VOC [g/h] | 94.51 | 176.89 | 1.34 | 164.85 | 1016.62 | 150.76 | 41.48 | 139.28 | 31.95 | 159.68 | 423.04 | 171.74 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 8666.18 | 0.00 | 416.02 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.55 | 35.55 | 35.55 | 35.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.281 | 3.386 | 2.929 | 3.010 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 794 | 794 | 567 | 567 |
| d_b, Bicycle Delay [s] | 16.04 | 16.04 | 22.67 | 22.64 |
| l_b,int, Bicycle LOS Score for Intersection | 2.021 | 2.478 | 2.007 | 2.262 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 4.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 8 | 0 | 10 | 108 | 36 | 9 | 45 | 116 | 0 | 27 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 151 | 8 | 0 | 10 | 108 | 36 | 9 | 45 | 116 | 0 | 27 | 11 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 2 | 0 | 3 | 29 | 10 | 2 | 12 | 32 | 0 | 7 | 3 |
| Total Analysis Volume [veh/h] | 164 | 9 | 0 | 11 | 117 | 39 | 10 | 49 | 126 | 0 | 29 | 12 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 70 | | | 195 | | | 132 | | | 186 | | |
| Exiting Flow Rate [veh/h] | 252 | | | 32 | | | 239 | | | 60 | | |
| Demand Flow Rate [veh/h] | 151 | 8 | 0 | 10 | 108 | 36 | 9 | 45 | 116 | 0 | 27 | 11 |
| Adjusted Demand Flow Rate [veh/h] | 164 | 9 | 0 | 11 | 117 | 39 | 10 | 49 | 126 | 0 | 29 | 12 |

**Lanes**

| | | | | |
|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1380.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00102 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.95 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 176 | 176 | 190 | 41 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1285 | 1131 | 1207 | 1142 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1264 | 1078 | 1175 | 1142 |
| X, volume / capacity | 0.14 | 0.15 | 0.16 | 0.04 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| Lane LOS | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.47 | 0.55 | 0.56 | 0.11 |
| 95th-Percentile Queue Length [ft] | 11.85 | 13.69 | 13.95 | 2.79 |
| Approach Delay [s/veh] | 3.98 | 4.73 | 4.42 | 3.45 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 4.31 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.571 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 39 | 19 | 148 | 141 | 89 | 22 | 178 | 87 | 18 | 459 | 248 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 39 | 19 | 148 | 141 | 89 | 22 | 178 | 87 | 18 | 459 | 248 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 10 | 5 | 39 | 38 | 24 | 6 | 47 | 23 | 5 | 122 | 66 |
| Total Analysis Volume [veh/h] | 95 | 41 | 20 | 157 | 150 | 95 | 23 | 189 | 93 | 19 | 488 | 264 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 13 | 10 | 14 | 4 | 25 | 25 | 3 | 24 | 24 |
| g / C, Green / Cycle | 0.14 | 0.19 | 0.16 | 0.21 | 0.06 | 0.37 | 0.37 | 0.05 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.04 | 0.09 | 0.14 | 0.01 | 0.10 | 0.06 | 0.01 | 0.26 | 0.17 |
| s, saturation flow rate [veh/h] | 1777 | 1721 | 1744 | 1721 | 1810 | 1856 | 1615 | 1810 | 1874 | 1600 |
| c, Capacity [veh/h] | 242 | 327 | 270 | 359 | 104 | 683 | 595 | 89 | 675 | 576 |
| d1, Uniform Delay [s] | 26.55 | 22.91 | 26.43 | 24.59 | 30.30 | 14.97 | 14.27 | 30.76 | 18.66 | 16.53 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 0.30 | 0.74 | 3.24 | 0.39 | 0.33 | 0.19 | 0.44 | 2.44 | 0.94 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.39 | 0.19 | 0.58 | 0.68 | 0.22 | 0.28 | 0.16 | 0.21 | 0.72 | 0.46 |
| d, Delay for Lane Group [s/veh] | 26.93 | 23.20 | 27.17 | 27.82 | 30.69 | 15.30 | 14.45 | 31.20 | 21.10 | 17.47 |
| Lane Group LOS | C | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.35 | 0.80 | 2.28 | 3.72 | 0.35 | 1.94 | 0.91 | 0.30 | 6.44 | 3.02 |
| 50th-Percentile Queue Length [ft/ln] | 33.87 | 20.03 | 56.98 | 93.01 | 8.85 | 48.48 | 22.76 | 7.41 | 161.04 | 75.46 |
| 95th-Percentile Queue Length [veh/ln] | 2.44 | 1.44 | 4.10 | 6.70 | 0.64 | 3.49 | 1.64 | 0.53 | 10.60 | 5.43 |
| 95th-Percentile Queue Length [ft/ln] | 60.97 | 36.06 | 102.57 | 167.41 | 15.93 | 87.27 | 40.97 | 13.33 | 265.11 | 135.83 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.93 | 23.20 | 23.20 | 27.17 | 27.82 | 27.82 | 30.69 | 15.30 | 14.45 | 31.20 | 21.10 | 17.47 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 25.48 | | | 27.57 | | | 16.20 | | | 20.11 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.73 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.571 | | | | | | | | | | | |

**Emissions**

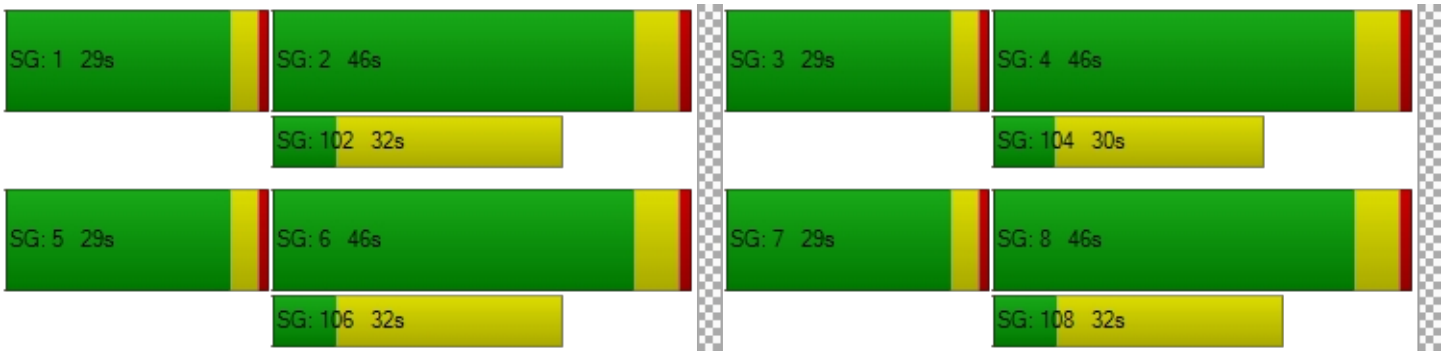
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 95.45 | 61.29 | 79.03 | 123.33 | 23.86 | 196.08 | 96.48 | 11.66 | 299.55 | 162.05 |
| Stops [stops/h] | 72.57 | 42.92 | 122.08 | 199.27 | 18.96 | 103.87 | 48.77 | 15.87 | 345.04 | 161.68 |
| Fuel consumption [US gal/h] | 4.85 | 3.05 | 4.80 | 7.57 | 1.23 | 9.23 | 4.51 | 0.69 | 16.33 | 8.50 |
| CO [g/h] | 339.08 | 213.06 | 335.24 | 528.81 | 86.02 | 645.47 | 315.58 | 48.12 | 1141.69 | 594.36 |
| NOx [g/h] | 65.97 | 41.45 | 65.23 | 102.89 | 16.74 | 125.59 | 61.40 | 9.36 | 222.13 | 115.64 |
| VOC [g/h] | 78.58 | 49.38 | 77.70 | 122.56 | 19.94 | 149.59 | 73.14 | 11.15 | 264.60 | 137.75 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.51 | 23.51 | 23.51 | 23.51 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.217 | 2.161 | 2.597 | 2.392 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1190 | 1190 | 1190 | 1190 |
| d_b, Bicycle Delay [s] | 5.51 | 5.51 | 5.51 | 5.51 |
| l_b,int, Bicycle LOS Score for Intersection | 1.817 | 2.223 | 2.063 | 2.832 |
| Bicycle LOS | A | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 40.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.809 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 204 | 44 | 93 | 31 | 408 | 121 | 40 | 459 | 195 | 213 | 518 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 204 | 44 | 93 | 31 | 408 | 121 | 40 | 459 | 195 | 213 | 518 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 12 | 25 | 8 | 111 | 33 | 11 | 125 | 53 | 58 | 141 | 2 |
| Total Analysis Volume [veh/h] | 222 | 48 | 101 | 34 | 443 | 132 | 43 | 499 | 212 | 232 | 563 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 15 | 44 | 44 | 7 | 36 | 8 | 20 | 20 | 15 | 28 | 28 |
| g / C, Green / Cycle | 0.15 | 0.43 | 0.43 | 0.07 | 0.35 | 0.08 | 0.20 | 0.20 | 0.15 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.01 | 0.07 | 0.02 | 0.32 | 0.03 | 0.14 | 0.13 | 0.13 | 0.16 | 0.01 |
| s, saturation flow rate [veh/h] | 1774 | 3532 | 1517 | 1794 | 1803 | 1711 | 3512 | 1597 | 1810 | 3578 | 1568 |
| c, Capacity [veh/h] | 258 | 1528 | 656 | 120 | 638 | 130 | 690 | 314 | 269 | 963 | 422 |
| d1, Uniform Delay [s] | 42.92 | 16.77 | 17.73 | 45.66 | 31.51 | 45.05 | 38.69 | 38.25 | 42.76 | 32.59 | 27.60 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.33 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.24 | 0.01 | 0.11 | 1.29 | 13.06 | 1.48 | 1.45 | 2.54 | 8.07 | 0.57 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.86 | 0.03 | 0.15 | 0.28 | 0.90 | 0.33 | 0.72 | 0.68 | 0.86 | 0.58 | 0.02 |
| d, Delay for Lane Group [s/veh] | 51.16 | 16.78 | 17.83 | 46.94 | 44.57 | 46.52 | 40.15 | 40.79 | 50.83 | 33.16 | 27.62 |
| Lane Group LOS | D | B | B | D | D | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.87 | 0.31 | 1.39 | 0.84 | 14.86 | 1.05 | 5.70 | 4.89 | 6.06 | 5.77 | 0.14 |
| 50th-Percentile Queue Length [ft/ln] | 146.78 | 7.72 | 34.63 | 21.04 | 371.61 | 26.22 | 142.54 | 122.33 | 151.41 | 144.33 | 3.48 |
| 95th-Percentile Queue Length [veh/ln] | 9.85 | 0.56 | 2.49 | 1.52 | 21.19 | 1.89 | 9.62 | 8.52 | 10.09 | 9.71 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 246.13 | 13.90 | 62.33 | 37.88 | 529.68 | 47.19 | 240.44 | 213.02 | 252.31 | 242.84 | 6.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.16 | 16.78 | 17.83 | 46.94 | 44.57 | 44.57 | 46.52 | 40.15 | 40.79 | 50.83 | 33.16 | 27.62 |
| Movement LOS | D | B | B | D | D | D | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 37.64 | | | 44.70 | | | 40.69 | | | 38.21 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 40.42 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.809 | | | | | | | | | | | |

**Emissions**

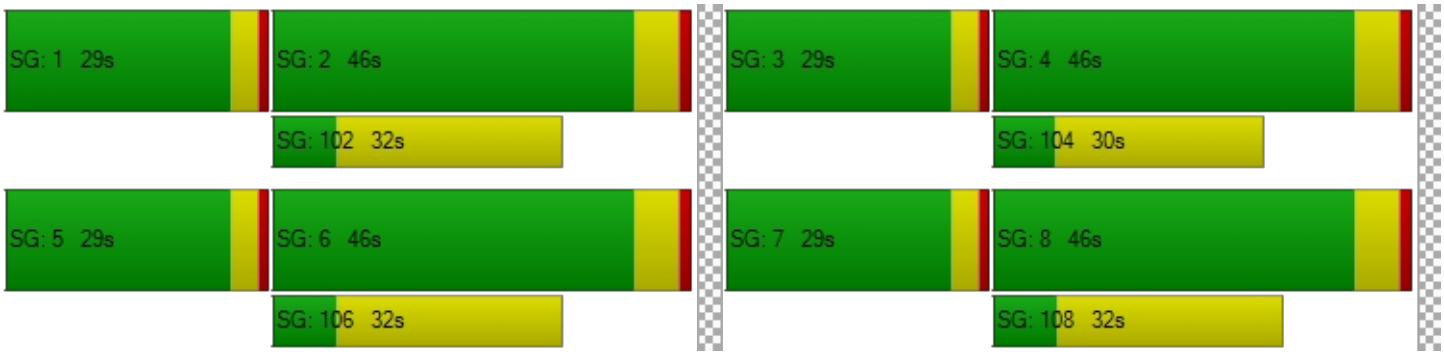
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 26.58 | 5.75 | 12.09 | 34.16 | 577.71 | 44.55 | 517.00 | 219.65 | 116.18 | 281.94 | 4.01 |
| Stops [stops/h] | 205.85 | 21.65 | 48.56 | 29.51 | 521.14 | 36.77 | 399.80 | 171.55 | 212.34 | 404.82 | 4.88 |
| Fuel consumption [US gal/h] | 5.78 | 0.63 | 1.38 | 1.86 | 31.50 | 2.46 | 27.53 | 11.75 | 9.55 | 19.45 | 0.25 |
| CO [g/h] | 404.13 | 44.05 | 96.80 | 130.20 | 2201.64 | 172.19 | 1924.14 | 821.22 | 667.52 | 1359.85 | 17.76 |
| NOx [g/h] | 78.63 | 8.57 | 18.83 | 25.33 | 428.36 | 33.50 | 374.37 | 159.78 | 129.88 | 264.58 | 3.46 |
| VOC [g/h] | 93.66 | 10.21 | 22.43 | 30.18 | 510.25 | 39.91 | 445.94 | 190.33 | 154.71 | 315.16 | 4.12 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 2808.82 | 0.00 | 7912.57 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.93 | 40.93 | 40.93 | 40.93 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.674 | 2.396 | 2.912 | 2.848 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 779 | 779 | 779 | 779 |
| d_b, Bicycle Delay [s] | 19.13 | 19.13 | 19.13 | 19.13 |
| l_b,int, Bicycle LOS Score for Intersection | 1.866 | 2.564 | 2.182 | 2.222 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.395 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 286 | 0 | 48 | 792 | 0 | 0 | 5 | 35 | 0 | 9 | 18 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 286 | 0 | 48 | 792 | 0 | 0 | 5 | 35 | 0 | 9 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 78 | 0 | 13 | 215 | 0 | 0 | 1 | 10 | 0 | 2 | 5 |
| Total Analysis Volume [veh/h] | 18 | 311 | 0 | 52 | 861 | 0 | 0 | 5 | 38 | 0 | 10 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 13 | 13 | 5 | 17 | 17 | 0 | 5 | 5 | 0 | 5 | 5 |
| g / C, Green / Cycle | 0.02 | 0.34 | 0.34 | 0.12 | 0.44 | 0.44 | 0.00 | 0.14 | 0.14 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.09 | 0.00 | 0.03 | 0.24 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 42 | 1201 | 536 | 219 | 1556 | 695 | 0 | 257 | 219 | 0 | 257 | 219 |
| d1, Uniform Delay [s] | 19.18 | 9.58 | 0.00 | 15.77 | 8.32 | 0.00 | 0.00 | 14.84 | 15.17 | 0.00 | 14.88 | 14.99 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.63 | 0.12 | 0.00 | 0.20 | 0.44 | 0.00 | 0.00 | 0.05 | 0.57 | 0.00 | 0.10 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.26 | 0.00 | 0.24 | 0.55 | 0.00 | 0.00 | 0.02 | 0.17 | 0.00 | 0.04 | 0.09 |
| d, Delay for Lane Group [s/veh] | 21.81 | 9.70 | 0.00 | 15.97 | 8.76 | 0.00 | 0.00 | 14.89 | 15.74 | 0.00 | 14.98 | 15.29 |
| Lane Group LOS | C | A | A | B | A | A | A | B | B | A | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.17 | 0.77 | 0.00 | 0.38 | 1.98 | 0.00 | 0.00 | 0.04 | 0.29 | 0.00 | 0.07 | 0.15 |
| 50th-Percentile Queue Length [ft/ln] | 4.34 | 19.34 | 0.00 | 9.40 | 49.61 | 0.00 | 0.00 | 0.91 | 7.32 | 0.00 | 1.85 | 3.80 |
| 95th-Percentile Queue Length [veh/ln] | 0.31 | 1.39 | 0.00 | 0.68 | 3.57 | 0.00 | 0.00 | 0.07 | 0.53 | 0.00 | 0.13 | 0.27 |
| 95th-Percentile Queue Length [ft/ln] | 7.82 | 34.82 | 0.00 | 16.93 | 89.29 | 0.00 | 0.00 | 1.64 | 13.17 | 0.00 | 3.32 | 6.85 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.81 | 9.70 | 0.00 | 15.97 | 8.76 | 0.00 | 0.00 | 14.89 | 15.74 | 0.00 | 14.98 | 15.29 |
| Movement LOS | C | A | A | B | A | A | A | B | B | A | B | B |
| d_A, Approach Delay [s/veh] | 10.37 | | | 9.17 | | | 15.64 | | | 15.19 | | |
| Approach LOS | B | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.82 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.395 | | | | | | | | | | | |

**Emissions**

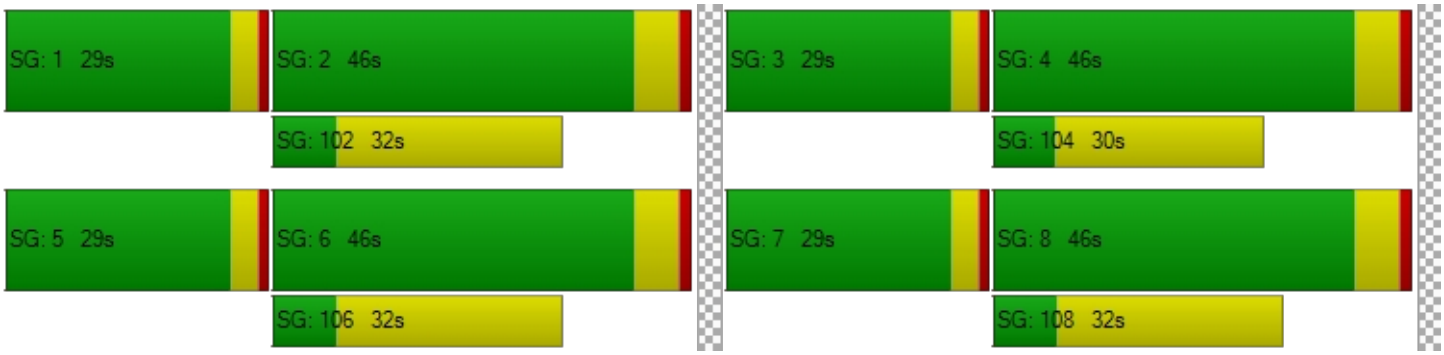
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.41 | 162.54 | 0.00 | 1.23 | 20.34 | 0.00 | 0.00 | 3.77 | 28.66 | 0.00 | 0.24 | 0.47 |
| Stops [stops/h] | 15.76 | 140.40 | 0.00 | 34.13 | 360.03 | 0.00 | 0.00 | 3.31 | 26.55 | 0.00 | 6.70 | 13.80 |
| Fuel consumption [US gal/h] | 0.55 | 8.08 | 0.00 | 0.41 | 4.36 | 0.00 | 0.00 | 0.19 | 1.45 | 0.00 | 0.08 | 0.16 |
| CO [g/h] | 38.74 | 564.87 | 0.00 | 28.53 | 304.91 | 0.00 | 0.00 | 13.19 | 101.24 | 0.00 | 5.40 | 11.05 |
| NOx [g/h] | 7.54 | 109.90 | 0.00 | 5.55 | 59.32 | 0.00 | 0.00 | 2.57 | 19.70 | 0.00 | 1.05 | 2.15 |
| VOC [g/h] | 8.98 | 130.91 | 0.00 | 6.61 | 70.67 | 0.00 | 0.00 | 3.06 | 23.46 | 0.00 | 1.25 | 2.56 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.37 | 10.37 | 10.37 | 10.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.716 | 2.606 | 2.099 | 2.103 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2016 | 2016 | 2016 | 2016 |
| d_b, Bicycle Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.831 | 2.313 | 1.631 | 1.609 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.631 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 80 | 341 | 0 | 16 | 1126 | 4 | 0 | 11 | 37 | 2 | 205 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 80 | 341 | 0 | 16 | 1126 | 4 | 0 | 11 | 37 | 2 | 205 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 93 | 0 | 4 | 306 | 1 | 0 | 3 | 10 | 1 | 56 | 1 |
| Total Analysis Volume [veh/h] | 87 | 371 | 0 | 17 | 1224 | 4 | 0 | 12 | 40 | 2 | 223 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 33 | 33 | 3 | 31 | 31 | 0 | 12 | 12 | 0 | 12 | 12 |
| g / C, Green / Cycle | 0.06 | 0.51 | 0.51 | 0.05 | 0.49 | 0.49 | 0.00 | 0.18 | 0.18 | 0.01 | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.10 | 0.00 | 0.01 | 0.34 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.12 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 115 | 1826 | 815 | 81 | 1758 | 785 | 0 | 346 | 294 | 11 | 357 | 304 |
| d1, Uniform Delay [s] | 29.35 | 8.45 | 0.00 | 29.34 | 12.46 | 8.20 | 0.00 | 21.33 | 21.74 | 31.54 | 23.70 | 20.92 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.82 | 0.06 | 0.00 | 0.47 | 0.72 | 0.00 | 0.00 | 0.06 | 0.32 | 2.94 | 2.94 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.20 | 0.00 | 0.21 | 0.70 | 0.01 | 0.00 | 0.03 | 0.14 | 0.18 | 0.62 | 0.01 |
| d, Delay for Lane Group [s/veh] | 33.17 | 8.51 | 0.00 | 29.82 | 13.18 | 8.20 | 0.00 | 21.39 | 22.06 | 34.48 | 26.64 | 20.94 |
| Lane Group LOS | C | A | A | C | B | A | A | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.37 | 1.20 | 0.00 | 0.25 | 5.83 | 0.03 | 0.00 | 0.14 | 0.47 | 0.04 | 3.18 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 34.27 | 30.04 | 0.00 | 6.27 | 145.78 | 0.63 | 0.00 | 3.42 | 11.78 | 0.96 | 79.57 | 0.90 |
| 95th-Percentile Queue Length [veh/ln] | 2.47 | 2.16 | 0.00 | 0.45 | 9.79 | 0.05 | 0.00 | 0.25 | 0.85 | 0.07 | 5.73 | 0.06 |
| 95th-Percentile Queue Length [ft/ln] | 61.68 | 54.08 | 0.00 | 11.29 | 244.79 | 1.13 | 0.00 | 6.16 | 21.20 | 1.72 | 143.22 | 1.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.17 | 8.51 | 0.00 | 29.82 | 13.18 | 8.20 | 0.00 | 21.39 | 22.06 | 34.48 | 26.64 | 20.94 |
| Movement LOS | C | A | A | C | B | A | A | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 13.20 | | | 13.39 | | | 21.90 | | | 26.63 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 15.09 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.631 | | | | | | | | | | | |

**Emissions**

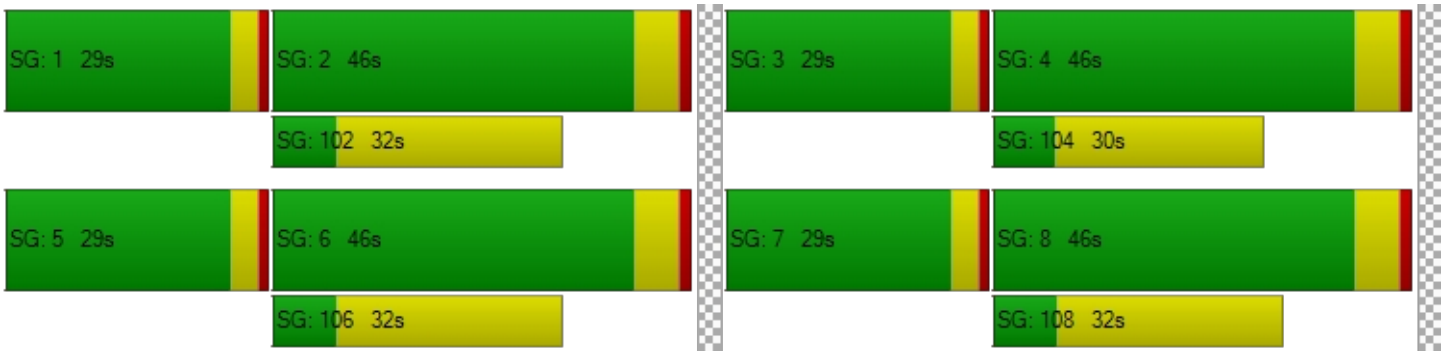
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 89.93 | 383.49 | 0.00 | 8.88 | 639.72 | 2.09 | 0.00 | 7.37 | 24.55 | 0.78 | 87.15 | 1.17 |
| Stops [stops/h] | 77.56 | 135.98 | 0.00 | 14.19 | 659.87 | 1.42 | 0.00 | 7.75 | 26.65 | 2.17 | 180.07 | 2.04 |
| Fuel consumption [US gal/h] | 4.72 | 17.18 | 0.00 | 0.55 | 33.26 | 0.10 | 0.00 | 0.40 | 1.35 | 0.06 | 5.79 | 0.07 |
| CO [g/h] | 329.77 | 1200.95 | 0.00 | 38.26 | 2325.07 | 7.03 | 0.00 | 28.03 | 94.54 | 4.07 | 404.82 | 5.06 |
| NOx [g/h] | 64.16 | 233.66 | 0.00 | 7.44 | 452.37 | 1.37 | 0.00 | 5.45 | 18.39 | 0.79 | 78.76 | 0.98 |
| VOC [g/h] | 76.43 | 278.33 | 0.00 | 8.87 | 538.86 | 1.63 | 0.00 | 6.50 | 21.91 | 0.94 | 93.82 | 1.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.76 | 21.76 | 21.76 | 21.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.714 | 2.697 | 2.246 | 2.175 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1257 | 1257 | 1257 | 1257 |
| d_b, Bicycle Delay [s] | 4.39 | 4.39 | 4.39 | 4.39 |
| l_b,int, Bicycle LOS Score for Intersection | 1.937 | 2.587 | 1.645 | 1.936 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.490 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 66 | 198 | 87 | 221 | 575 | 217 | 39 | 475 | 209 | 59 | 524 | 325 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 66 | 198 | 87 | 221 | 575 | 217 | 39 | 475 | 209 | 59 | 524 | 325 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 54 | 24 | 60 | 156 | 59 | 11 | 129 | 57 | 16 | 142 | 88 |
| Total Analysis Volume [veh/h] | 72 | 215 | 95 | 240 | 625 | 236 | 42 | 516 | 227 | 64 | 570 | 353 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 27 | 27 | 12 | 29 | 29 | 8 | 26 | 26 | 10 | 27 | 27 |
| g / C, Green / Cycle | 0.11 | 0.30 | 0.30 | 0.13 | 0.32 | 0.32 | 0.09 | 0.29 | 0.29 | 0.11 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.07 | 0.06 | 0.07 | 0.17 | 0.15 | 0.01 | 0.14 | 0.14 | 0.02 | 0.16 | 0.22 |
| s, saturation flow rate [veh/h] | 3472 | 3246 | 1615 | 3514 | 3618 | 1584 | 3428 | 3618 | 1587 | 3514 | 3509 | 1612 |
| c, Capacity [veh/h] | 385 | 975 | 485 | 452 | 1150 | 504 | 310 | 1037 | 455 | 375 | 1063 | 488 |
| d1, Uniform Delay [s] | 36.36 | 23.62 | 23.43 | 36.70 | 25.33 | 24.61 | 37.72 | 26.73 | 26.74 | 36.59 | 26.12 | 27.99 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.09 | 0.25 | 0.44 | 0.36 | 2.04 | 3.44 | 0.07 | 0.55 | 1.25 | 0.08 | 0.62 | 2.99 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.22 | 0.20 | 0.53 | 0.54 | 0.47 | 0.14 | 0.50 | 0.50 | 0.17 | 0.54 | 0.72 |
| d, Delay for Lane Group [s/veh] | 36.44 | 23.87 | 23.87 | 37.07 | 27.37 | 28.05 | 37.79 | 27.27 | 27.99 | 36.67 | 26.74 | 30.98 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.69 | 1.64 | 1.46 | 2.45 | 5.67 | 4.40 | 0.41 | 4.30 | 3.87 | 0.64 | 5.03 | 6.97 |
| 50th-Percentile Queue Length [ft/ln] | 17.24 | 40.91 | 36.59 | 61.33 | 141.76 | 110.07 | 10.14 | 107.50 | 96.84 | 15.93 | 125.86 | 174.19 |
| 95th-Percentile Queue Length [veh/ln] | 1.24 | 2.95 | 2.63 | 4.42 | 9.58 | 7.84 | 0.73 | 7.70 | 6.97 | 1.15 | 8.71 | 11.30 |
| 95th-Percentile Queue Length [ft/ln] | 31.04 | 73.63 | 65.86 | 110.39 | 239.40 | 196.10 | 18.24 | 192.52 | 174.31 | 28.67 | 217.86 | 282.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.44 | 23.87 | 23.87 | 37.07 | 27.37 | 28.05 | 37.79 | 27.27 | 27.99 | 36.67 | 26.74 | 30.98 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 26.24 | | | 29.63 | | | 28.04 | | | 28.90 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.63 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.490 | | | | | | | | | | | |

**Emissions**

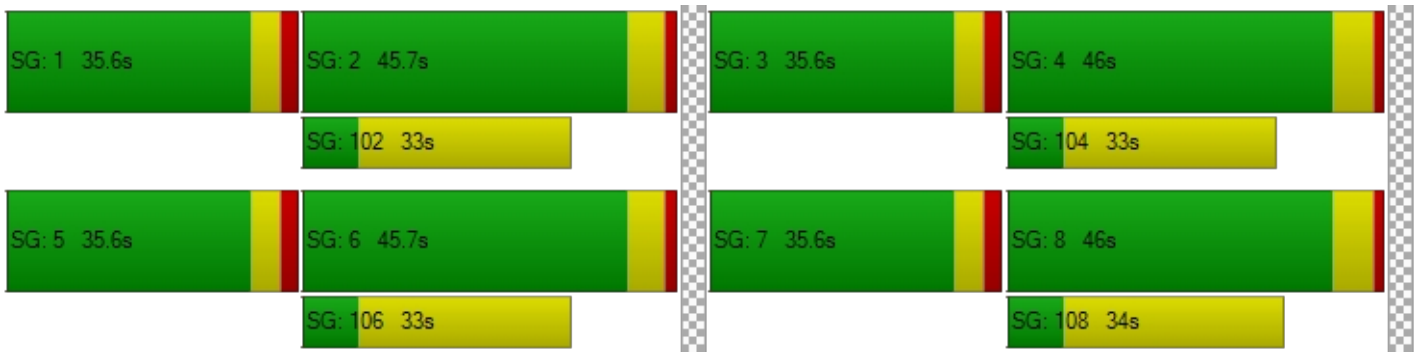
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 73.31 | 218.90 | 96.72 | 248.08 | 646.04 | 243.95 | 21.03 | 258.40 | 113.68 | 32.08 | 285.75 | 176.96 |
| Stops [stops/h] | 55.24 | 131.05 | 58.61 | 196.48 | 454.16 | 176.31 | 32.47 | 344.39 | 155.12 | 51.02 | 403.23 | 279.02 |
| Fuel consumption [US gal/h] | 3.73 | 10.18 | 4.51 | 13.11 | 32.59 | 12.36 | 1.53 | 16.80 | 7.48 | 2.08 | 17.09 | 11.05 |
| CO [g/h] | 260.98 | 711.38 | 314.94 | 916.27 | 2277.70 | 864.21 | 106.65 | 1174.57 | 522.91 | 145.41 | 1194.76 | 772.54 |
| NOx [g/h] | 50.78 | 138.41 | 61.28 | 178.27 | 443.16 | 168.14 | 20.75 | 228.53 | 101.74 | 28.29 | 232.46 | 150.31 |
| VOC [g/h] | 60.48 | 164.87 | 72.99 | 212.35 | 527.88 | 200.29 | 24.72 | 272.22 | 121.19 | 33.70 | 276.90 | 179.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 3630.67 | 2835.20 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.62 | 34.62 | 34.62 | 34.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.962 | 2.933 | 3.063 | 2.949 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 890 | 890 | 890 | 890 |
| d_b, Bicycle Delay [s] | 13.85 | 13.85 | 13.85 | 13.85 |
| l_b,int, Bicycle LOS Score for Intersection | 1.875 | 2.468 | 2.207 | 2.374 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.624 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 424 | 21 | 200 | 932 | 81 | 35 | 452 | 124 | 21 | 684 | 148 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 424 | 21 | 200 | 932 | 81 | 35 | 452 | 124 | 21 | 684 | 148 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 115 | 6 | 54 | 253 | 22 | 10 | 123 | 34 | 6 | 186 | 40 |
| Total Analysis Volume [veh/h] | 40 | 461 | 23 | 217 | 1013 | 88 | 38 | 491 | 135 | 23 | 743 | 161 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 25 | 25 | 12 | 31 | 31 | 6 | 26 | 26 | 4 | 24 | 24 |
| g / C, Green / Cycle | 0.07 | 0.30 | 0.30 | 0.15 | 0.37 | 0.37 | 0.07 | 0.31 | 0.31 | 0.05 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.13 | 0.02 | 0.13 | 0.28 | 0.06 | 0.02 | 0.14 | 0.08 | 0.01 | 0.21 | 0.10 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1478 | 1724 | 3569 | 1587 | 1810 | 3538 | 1592 | 1810 | 3592 | 1597 |
| c, Capacity [veh/h] | 129 | 1031 | 437 | 257 | 1328 | 590 | 128 | 1111 | 500 | 90 | 1054 | 469 |
| d1, Uniform Delay [s] | 36.81 | 23.92 | 21.08 | 34.68 | 23.05 | 17.48 | 36.94 | 22.87 | 21.52 | 38.27 | 26.35 | 23.24 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.50 | 0.47 | 0.08 | 2.94 | 1.42 | 0.18 | 0.48 | 0.42 | 0.44 | 0.54 | 1.29 | 0.64 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.45 | 0.05 | 0.84 | 0.76 | 0.15 | 0.30 | 0.44 | 0.27 | 0.25 | 0.71 | 0.34 |
| d, Delay for Lane Group [s/veh] | 37.31 | 24.38 | 21.16 | 37.62 | 24.47 | 17.65 | 37.41 | 23.30 | 21.96 | 38.82 | 27.64 | 23.88 |
| Lane Group LOS | D | C | C | D | C | B | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.75 | 3.46 | 0.31 | 4.23 | 8.05 | 1.05 | 0.72 | 3.59 | 1.88 | 0.44 | 6.20 | 2.38 |
| 50th-Percentile Queue Length [ft/ln] | 18.81 | 86.46 | 7.69 | 105.68 | 201.14 | 26.36 | 17.89 | 89.65 | 47.07 | 11.10 | 154.97 | 59.50 |
| 95th-Percentile Queue Length [veh/ln] | 1.35 | 6.22 | 0.55 | 7.60 | 12.70 | 1.90 | 1.29 | 6.46 | 3.39 | 0.80 | 10.28 | 4.28 |
| 95th-Percentile Queue Length [ft/ln] | 33.85 | 155.62 | 13.83 | 189.98 | 317.43 | 47.44 | 32.20 | 161.38 | 84.73 | 19.99 | 257.04 | 107.09 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.31 | 24.38 | 21.16 | 37.62 | 24.47 | 17.65 | 37.41 | 23.30 | 21.96 | 38.82 | 27.64 | 23.88 |
| Movement LOS | D | C | C | D | C | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.23 | | | 26.18 | | | 23.83 | | | 27.27 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.87 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.624 | | | | | | | | | | | |

**Emissions**

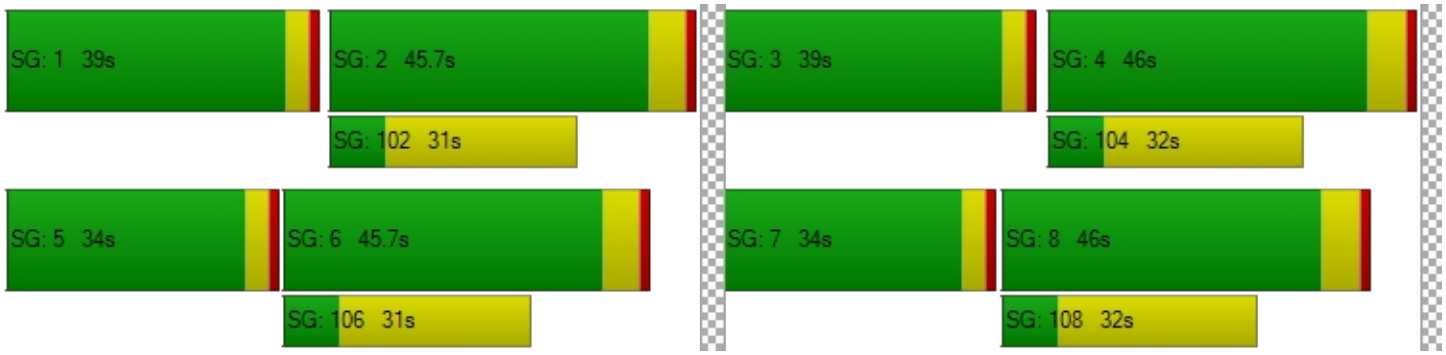
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 21.00 | 242.04 | 12.08 | 220.93 | 1031.37 | 89.60 | 3.29 | 42.47 | 11.68 | 13.84 | 447.15 | 96.89 |
| Stops [stops/h] | 32.43 | 298.16 | 13.25 | 182.22 | 693.64 | 45.45 | 30.84 | 309.18 | 81.16 | 19.14 | 534.42 | 102.59 |
| Fuel consumption [US gal/h] | 1.43 | 14.29 | 0.68 | 11.50 | 49.02 | 3.95 | 0.79 | 7.63 | 2.01 | 0.89 | 26.15 | 5.38 |
| CO [g/h] | 99.73 | 998.96 | 47.37 | 803.86 | 3426.62 | 276.27 | 54.90 | 533.17 | 140.69 | 62.50 | 1828.00 | 376.00 |
| NOx [g/h] | 19.40 | 194.36 | 9.22 | 156.40 | 666.70 | 53.75 | 10.68 | 103.73 | 27.37 | 12.16 | 355.66 | 73.16 |
| VOC [g/h] | 23.11 | 231.52 | 10.98 | 186.30 | 794.15 | 64.03 | 12.72 | 123.57 | 32.61 | 14.49 | 423.66 | 87.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.48 | 31.48 | 31.48 | 31.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.944 | 3.003 | 2.823 | 2.853 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 958 | 958 | 958 | 958 |
| d_b, Bicycle Delay [s] | 11.34 | 11.34 | 11.34 | 11.34 |
| l_b,int, Bicycle LOS Score for Intersection | 1.992 | 2.647 | 2.107 | 2.324 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.659 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 66 | 453 | 58 | 153 | 721 | 36 | 14 | 372 | 213 | 54 | 497 | 67 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 66 | 453 | 58 | 153 | 721 | 36 | 14 | 372 | 213 | 54 | 497 | 67 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 123 | 16 | 42 | 196 | 10 | 4 | 101 | 58 | 15 | 135 | 18 |
| Total Analysis Volume [veh/h] | 72 | 492 | 63 | 166 | 784 | 39 | 15 | 404 | 232 | 59 | 540 | 73 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 19 | 19 | 12 | 21 | 21 | 3 | 23 | 23 | 7 | 27 | 27 |
| g / C, Green / Cycle | 0.12 | 0.25 | 0.25 | 0.15 | 0.28 | 0.28 | 0.04 | 0.30 | 0.30 | 0.10 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.15 | 0.16 | 0.09 | 0.22 | 0.22 | 0.01 | 0.22 | 0.15 | 0.03 | 0.29 | 0.05 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1752 | 1791 | 1891 | 1859 | 1810 | 1835 | 1544 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 221 | 455 | 435 | 272 | 524 | 515 | 70 | 543 | 457 | 174 | 662 | 566 |
| d1, Uniform Delay [s] | 30.81 | 25.68 | 25.73 | 30.50 | 25.75 | 25.75 | 35.84 | 24.46 | 22.40 | 32.47 | 22.59 | 16.85 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.11 | 0.12 | 0.11 | 0.11 | 0.24 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.85 | 1.38 | 1.49 | 2.22 | 2.97 | 3.02 | 1.52 | 2.24 | 0.88 | 1.14 | 5.46 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.33 | 0.62 | 0.63 | 0.61 | 0.79 | 0.79 | 0.21 | 0.74 | 0.51 | 0.34 | 0.82 | 0.13 |
| d, Delay for Lane Group [s/veh] | 31.66 | 27.07 | 27.21 | 32.72 | 28.72 | 28.77 | 37.37 | 26.70 | 23.28 | 33.61 | 28.05 | 16.95 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.19 | 4.34 | 4.21 | 2.82 | 6.73 | 6.63 | 0.29 | 6.27 | 3.23 | 1.01 | 8.76 | 0.80 |
| 50th-Percentile Queue Length [ft/ln] | 29.68 | 108.42 | 105.14 | 70.59 | 168.31 | 165.72 | 7.14 | 156.79 | 80.81 | 25.32 | 218.99 | 19.95 |
| 95th-Percentile Queue Length [veh/ln] | 2.14 | 7.75 | 7.57 | 5.08 | 10.99 | 10.85 | 0.51 | 10.38 | 5.82 | 1.82 | 13.61 | 1.44 |
| 95th-Percentile Queue Length [ft/ln] | 53.42 | 193.81 | 189.22 | 127.05 | 274.69 | 271.28 | 12.85 | 259.46 | 145.46 | 45.58 | 340.33 | 35.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.66 | 27.13 | 27.21 | 32.72 | 28.74 | 28.77 | 37.37 | 26.70 | 23.28 | 33.61 | 28.05 | 16.95 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 27.66 | | | 29.41 | | | 25.73 | | | 27.33 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.74 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.659 | | | | | | | | | | | |

**Emissions**

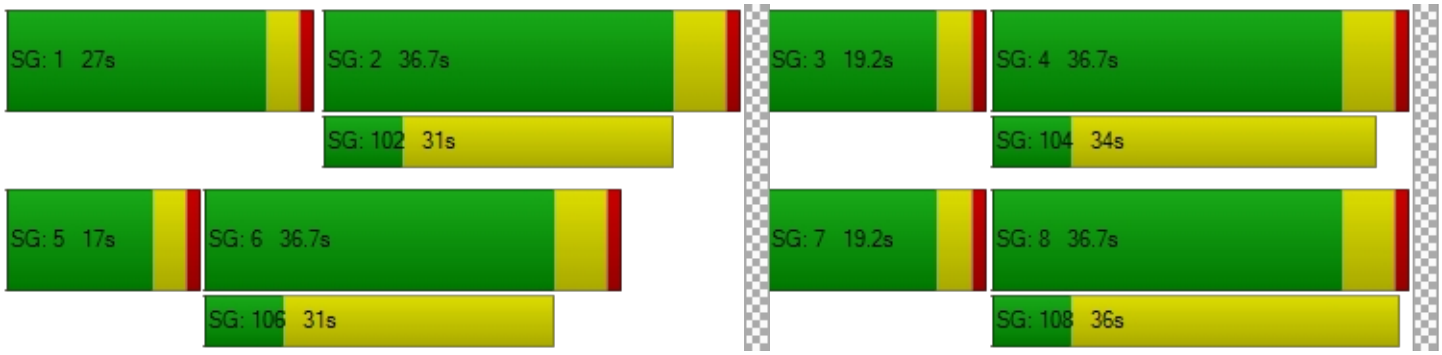
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.25 | 150.02 | 144.86 | 87.15 | 217.86 | 214.24 | 1.50 | 40.50 | 23.26 | 28.08 | 257.01 | 34.74 |
| Stops [stops/h] | 55.68 | 203.43 | 197.26 | 132.43 | 315.79 | 310.92 | 13.40 | 294.16 | 151.62 | 47.51 | 410.87 | 37.43 |
| Fuel consumption [US gal/h] | 2.47 | 9.23 | 8.93 | 5.74 | 13.82 | 13.60 | 0.33 | 7.24 | 3.78 | 1.96 | 17.00 | 1.91 |
| CO [g/h] | 172.48 | 644.95 | 624.05 | 401.19 | 965.93 | 950.56 | 23.22 | 506.13 | 264.33 | 136.78 | 1188.30 | 133.37 |
| NOx [g/h] | 33.56 | 125.48 | 121.42 | 78.06 | 187.93 | 184.94 | 4.52 | 98.48 | 51.43 | 26.61 | 231.20 | 25.95 |
| VOC [g/h] | 39.97 | 149.47 | 144.63 | 92.98 | 223.86 | 220.30 | 5.38 | 117.30 | 61.26 | 31.70 | 275.40 | 30.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.16 | 28.16 | 28.16 | 28.16 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.859 | 2.750 | 2.598 | 2.599 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 808 | 808 | 808 | 808 |
| d_b, Bicycle Delay [s] | 13.64 | 13.64 | 13.64 | 13.64 |
| l_b,int, Bicycle LOS Score for Intersection | 2.077 | 2.376 | 2.634 | 2.668 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 42.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.811 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 449.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 279 | 287 | 142 | 174 | 437 | 646 | 302 | 1144 | 279 | 216 | 1434 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 279 | 287 | 142 | 174 | 437 | 646 | 302 | 1144 | 279 | 216 | 1434 | 149 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 75 | 77 | 38 | 47 | 117 | 174 | 81 | 308 | 75 | 58 | 385 | 40 |
| Total Analysis Volume [veh/h] | 300 | 309 | 153 | 187 | 470 | 695 | 325 | 1230 | 300 | 232 | 1542 | 160 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 37 | 37 | 14 | 37 | 37 | 15 | 50 | 50 | 13 | 48 | 48 |
| g / C, Green / Cycle | 0.11 | 0.29 | 0.29 | 0.11 | 0.29 | 0.29 | 0.12 | 0.38 | 0.38 | 0.10 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.09 | 0.10 | 0.06 | 0.09 | 0.25 | 0.10 | 0.24 | 0.19 | 0.07 | 0.31 | 0.10 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1545 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 370 | 1004 | 441 | 369 | 1462 | 808 | 388 | 1927 | 605 | 344 | 1856 | 579 |
| d1, Uniform Delay [s] | 56.75 | 36.45 | 36.90 | 54.77 | 36.62 | 44.08 | 56.41 | 32.88 | 30.67 | 56.50 | 37.52 | 29.02 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.65 | 0.06 | 0.17 | 0.40 | 0.14 | 3.17 | 1.88 | 1.63 | 2.89 | 0.86 | 4.49 | 1.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.31 | 0.35 | 0.51 | 0.32 | 0.86 | 0.84 | 0.64 | 0.50 | 0.67 | 0.83 | 0.28 |
| d, Delay for Lane Group [s/veh] | 58.40 | 36.52 | 37.08 | 55.17 | 36.76 | 47.25 | 58.29 | 34.51 | 33.56 | 57.36 | 42.02 | 30.20 |
| Lane Group LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.84 | 3.81 | 3.84 | 2.86 | 3.86 | 10.60 | 5.22 | 10.46 | 7.43 | 3.64 | 15.04 | 3.62 |
| 50th-Percentile Queue Length [ft/ln] | 120.98 | 95.37 | 95.92 | 71.45 | 96.42 | 265.04 | 130.41 | 261.59 | 185.72 | 91.11 | 376.04 | 90.62 |
| 95th-Percentile Queue Length [veh/ln] | 8.45 | 6.87 | 6.91 | 5.14 | 6.94 | 15.94 | 8.96 | 15.77 | 11.90 | 6.56 | 21.40 | 6.52 |
| 95th-Percentile Queue Length [ft/ln] | 211.17 | 171.67 | 172.66 | 128.62 | 173.55 | 398.54 | 224.05 | 394.22 | 297.47 | 164.01 | 535.05 | 163.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.40 | 36.52 | 37.08 | 55.17 | 36.76 | 47.25 | 58.29 | 34.51 | 33.56 | 57.36 | 42.02 | 30.20 |
| Movement LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 45.24 | | | 44.70 | | | 38.52 | | | 42.88 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.23 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.811 | | | | | | | | | | | |

**Emissions**

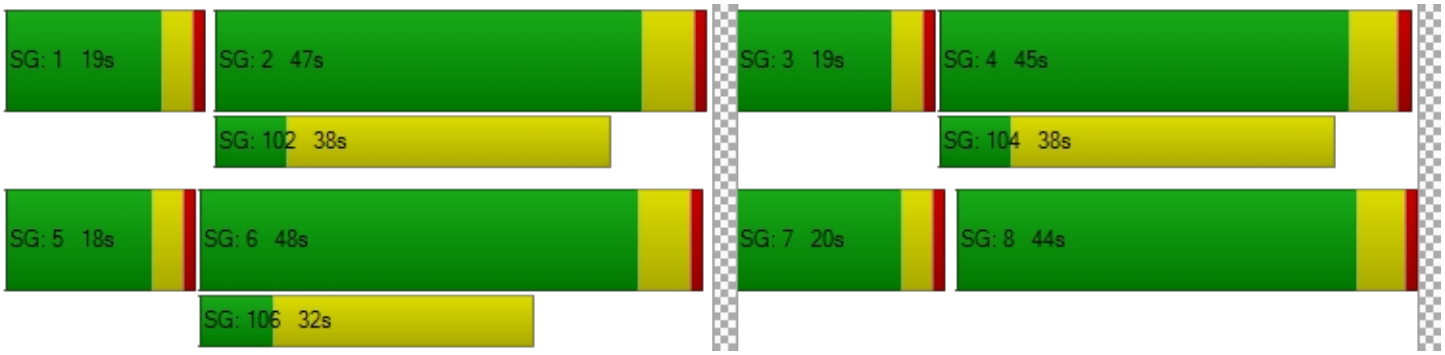
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 21.93 | 22.59 | 11.18 | 99.35 | 249.71 | 369.26 | 36.98 | 139.96 | 34.14 | 115.79 | 769.57 | 79.85 |
| Stops [stops/h] | 267.73 | 211.06 | 106.14 | 158.13 | 320.07 | 586.55 | 288.60 | 868.38 | 205.50 | 201.64 | 1248.31 | 100.28 |
| Fuel consumption [US gal/h] | 6.98 | 5.18 | 2.60 | 7.47 | 16.06 | 26.63 | 8.71 | 24.23 | 5.77 | 9.18 | 55.08 | 4.97 |
| CO [g/h] | 487.93 | 361.98 | 181.57 | 522.23 | 1122.25 | 1861.61 | 608.87 | 1693.85 | 403.61 | 641.96 | 3850.34 | 347.20 |
| NOx [g/h] | 94.93 | 70.43 | 35.33 | 101.61 | 218.35 | 362.20 | 118.46 | 329.56 | 78.53 | 124.90 | 749.14 | 67.55 |
| VOC [g/h] | 113.08 | 83.89 | 42.08 | 121.03 | 260.09 | 431.45 | 141.11 | 392.57 | 93.54 | 148.78 | 892.35 | 80.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.53 | 54.53 | 32.40 | 54.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.030 | 3.464 | 3.717 | 3.436 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 645 | 630 |
| d_b, Bicycle Delay [s] | 31.72 | 32.40 | 29.85 | 30.53 |
| l_b,int, Bicycle LOS Score for Intersection | 1.979 | 2.303 | 2.580 | 2.623 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.529 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 585 | 0 | 0 | 0 | 0 | 1132 | 249 | 0 | 2243 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 585 | 0 | 0 | 0 | 0 | 1132 | 249 | 0 | 2243 | 69 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 156 | 0 | 0 | 0 | 0 | 301 | 66 | 0 | 597 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 622 | 0 | 0 | 0 | 0 | 1204 | 265 | 0 | 2386 | 73 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 34 | 34 | | 82 | 82 | 82 |
| g / C, Green / Cycle | 0.26 | 0.26 | | 0.63 | 0.63 | 0.63 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.22 | | 0.24 | 0.28 | 0.05 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1342 | 720 | | 3199 | 5375 | 1009 |
| d1, Uniform Delay [s] | 39.32 | 45.90 | | 11.49 | 12.18 | 9.18 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.41 | 7.60 | | 0.34 | 0.27 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.86 | | 0.38 | 0.44 | 0.07 |
| d, Delay for Lane Group [s/veh] | 39.73 | 53.51 | | 11.83 | 12.44 | 9.32 |
| Lane Group LOS | D | D | | B | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.11 | 9.85 | | 5.21 | 6.52 | 0.78 |
| 50th-Percentile Queue Length [ft/ln] | 102.72 | 246.35 | | 130.25 | 162.90 | 19.53 |
| 95th-Percentile Queue Length [veh/ln] | 7.40 | 15.00 | | 8.95 | 10.70 | 1.41 |
| 95th-Percentile Queue Length [ft/ln] | 184.90 | 375.06 | | 223.83 | 267.56 | 35.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.73 | 0.00 | 53.51 | 0.00 | 0.00 | 0.00 | 0.00 | 11.83 | 0.00 | 0.00 | 12.44 | 9.32 |
| Movement LOS | D | | D | | | | | B | | | B | A |
| d_A, Approach Delay [s/veh] | 47.46 | | | 0.00 | | | 9.80 | | | 12.35 | | |
| Approach LOS | D | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.86 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.529 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 81.53 | | 189.46 | 271.49 | 8.31 |
| Stops [stops/h] | 341.71 | 546.35 | | 433.29 | 903.20 | 21.65 |
| Fuel consumption [US gal/h] | 12.41 | 19.65 | | 14.78 | 26.58 | 0.69 |
| CO [g/h] | 867.28 | 1373.36 | | 1033.17 | 1857.79 | 48.39 |
| NOx [g/h] | 168.74 | 267.21 | | 201.02 | 361.46 | 9.42 |
| VOC [g/h] | 201.00 | 318.29 | | 239.45 | 430.56 | 11.22 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.801 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.222 | 2.371 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.934 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 64 | 0 | 766 | 0 | 1332 | 910 | 0 | 2085 | 654 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 64 | 0 | 766 | 0 | 1332 | 910 | 0 | 2085 | 654 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 17 | 0 | 199 | 0 | 347 | 237 | 0 | 543 | 170 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 67 | 0 | 798 | 0 | 1388 | 948 | 0 | 2172 | 681 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 39 | 39 | 77 | 77 | 77 |
| g / C, Green / Cycle | | 0.30 | 0.30 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.28 | 0.21 | 0.61 | 0.32 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1047 | 859 | 3996 | 921 | 4018 |
| d1, Uniform Delay [s] | | 32.33 | 44.02 | 13.48 | 26.36 | 15.76 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.06 | 10.96 | 0.24 | 37.23 | 0.53 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.06 | 0.93 | 0.35 | 1.03 | 0.54 |
| d, Delay for Lane Group [s/veh] | | 32.39 | 54.98 | 13.72 | 63.59 | 16.29 |
| Lane Group LOS | | C | D | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.77 | 13.68 | 4.92 | 34.71 | 9.02 |
| 50th-Percentile Queue Length [ft/ln] | | 19.30 | 341.92 | 122.93 | 867.83 | 225.49 |
| 95th-Percentile Queue Length [veh/ln] | | 1.39 | 19.74 | 8.55 | 45.48 | 13.95 |
| 95th-Percentile Queue Length [ft/ln] | | 34.73 | 493.55 | 213.84 | 1137.00 | 348.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 32.39 | 0.00 | 54.98 | 0.00 | 13.72 | 63.59 | 0.00 | 16.29 | 0.00 |
| Movement LOS | | | | C | | D | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 53.23 | | | 33.96 | | | 12.52 | | |
| Approach LOS | A | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 28.39 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.934 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 10.32 | 122.97 | 134.40 | 91.80 | 341.78 |
| Stops [stops/h] | | 42.77 | 757.90 | 544.94 | 961.81 | 999.64 |
| Fuel consumption [US gal/h] | | 1.10 | 18.18 | 15.26 | 27.37 | 31.34 |
| CO [g/h] | | 77.09 | 1270.60 | 1066.58 | 1913.30 | 2190.91 |
| NOx [g/h] | | 15.00 | 247.21 | 207.52 | 372.26 | 426.27 |
| VOC [g/h] | | 17.87 | 294.47 | 247.19 | 443.42 | 507.76 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.195 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1173 | 1173 |
| d_b, Bicycle Delay [s] | 64.97 | 30.98 | 11.11 | 11.11 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.523 | 2.456 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.488 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 87 | 46 | 27 | 94 | 147 | 172 | 50 | 639 | 180 | 98 | 491 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 87 | 46 | 27 | 94 | 147 | 172 | 50 | 639 | 180 | 98 | 491 | 23 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 12 | 7 | 24 | 38 | 44 | 13 | 163 | 46 | 25 | 125 | 6 |
| Total Analysis Volume [veh/h] | 89 | 47 | 28 | 96 | 150 | 176 | 51 | 652 | 184 | 100 | 501 | 23 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 12 | 12 | 9 | 12 | 12 | 7 | 20 | 20 | 9 | 22 | 22 |
| g / C, Green / Cycle | 0.13 | 0.18 | 0.18 | 0.14 | 0.19 | 0.19 | 0.10 | 0.30 | 0.30 | 0.14 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.03 | 0.02 | 0.05 | 0.08 | 0.11 | 0.03 | 0.18 | 0.12 | 0.06 | 0.14 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 239 | 342 | 291 | 246 | 349 | 297 | 182 | 1060 | 473 | 250 | 1196 | 534 |
| d1, Uniform Delay [s] | 26.19 | 22.73 | 22.56 | 26.07 | 23.87 | 24.69 | 27.57 | 20.05 | 18.53 | 26.01 | 17.04 | 14.86 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.36 | 0.20 | 0.15 | 0.37 | 1.19 | 2.67 | 0.31 | 0.89 | 0.80 | 0.39 | 0.39 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.14 | 0.10 | 0.39 | 0.43 | 0.59 | 0.28 | 0.62 | 0.39 | 0.40 | 0.42 | 0.04 |
| d, Delay for Lane Group [s/veh] | 26.55 | 22.93 | 22.72 | 26.44 | 25.06 | 27.36 | 27.88 | 20.95 | 19.32 | 26.40 | 17.43 | 14.91 |
| Lane Group LOS | C | C | C | C | C | C | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.18 | 0.57 | 0.34 | 1.27 | 1.97 | 2.48 | 0.68 | 3.78 | 2.01 | 1.37 | 2.72 | 0.22 |
| 50th-Percentile Queue Length [ft/ln] | 29.56 | 14.30 | 8.49 | 31.83 | 49.37 | 61.94 | 17.11 | 94.45 | 50.15 | 34.34 | 68.01 | 5.52 |
| 95th-Percentile Queue Length [veh/ln] | 2.13 | 1.03 | 0.61 | 2.29 | 3.55 | 4.46 | 1.23 | 6.80 | 3.61 | 2.47 | 4.90 | 0.40 |
| 95th-Percentile Queue Length [ft/ln] | 53.20 | 25.73 | 15.28 | 57.30 | 88.87 | 111.49 | 30.80 | 170.01 | 90.28 | 61.82 | 122.42 | 9.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.55 | 22.93 | 22.72 | 26.44 | 25.06 | 27.36 | 27.88 | 20.95 | 19.32 | 26.40 | 17.43 | 14.91 |
| Movement LOS | C | C | C | C | C | C | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 24.86 | | | 26.33 | | | 21.01 | | | 18.77 | | |
| Approach LOS | C | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 21.72 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.488 | | | | | | | | | | | |

**Emissions**

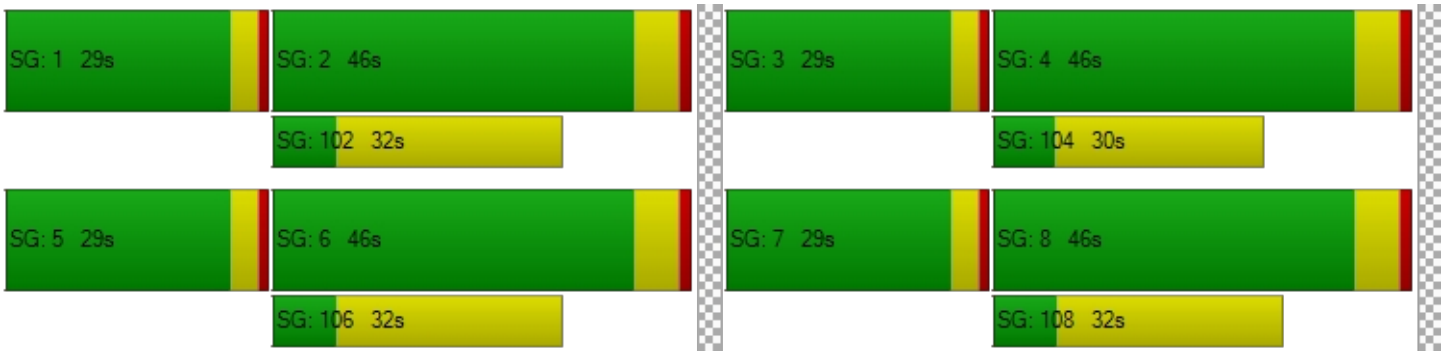
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 89.60 | 47.32 | 28.19 | 96.20 | 150.32 | 176.37 | 25.57 | 326.85 | 92.24 | 49.28 | 246.90 | 11.33 |
| Stops [stops/h] | 64.24 | 31.07 | 18.45 | 69.19 | 107.31 | 134.62 | 37.19 | 410.57 | 109.01 | 74.65 | 295.64 | 11.99 |
| Fuel consumption [US gal/h] | 4.35 | 2.23 | 1.33 | 4.67 | 7.25 | 8.70 | 1.72 | 20.03 | 5.49 | 2.98 | 13.41 | 0.59 |
| CO [g/h] | 304.14 | 155.71 | 92.63 | 326.75 | 506.90 | 608.10 | 119.98 | 1399.90 | 383.46 | 208.10 | 937.48 | 41.38 |
| NOx [g/h] | 59.17 | 30.30 | 18.02 | 63.57 | 98.62 | 118.31 | 23.34 | 272.37 | 74.61 | 40.49 | 182.40 | 8.05 |
| VOC [g/h] | 70.49 | 36.09 | 21.47 | 75.73 | 117.48 | 140.93 | 27.81 | 324.44 | 88.87 | 48.23 | 217.27 | 9.59 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.04 | 23.04 | 23.04 | 23.04 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.333 | 2.313 | 2.884 | 2.701 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1208 | 1208 | 1208 | 1208 |
| d_b, Bicycle Delay [s] | 5.20 | 5.20 | 5.20 | 5.20 |
| l_b,int, Bicycle LOS Score for Intersection | 1.830 | 2.256 | 2.291 | 2.074 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.746 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 197 | 137 | 17 | 56 | 430 | 62 | 12 | 351 | 283 | 58 | 557 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 197 | 137 | 17 | 56 | 430 | 62 | 12 | 351 | 283 | 58 | 557 | 21 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 52 | 36 | 4 | 15 | 113 | 16 | 3 | 92 | 74 | 15 | 147 | 6 |
| Total Analysis Volume [veh/h] | 207 | 144 | 18 | 59 | 453 | 65 | 13 | 369 | 298 | 61 | 586 | 22 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 16 | 40 | 40 | 9 | 32 | 3 | 26 | 26 | 9 | 31 | 31 |
| g / C, Green / Cycle | 0.16 | 0.40 | 0.40 | 0.09 | 0.32 | 0.03 | 0.26 | 0.26 | 0.09 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.08 | 0.01 | 0.04 | 0.28 | 0.01 | 0.19 | 0.20 | 0.04 | 0.16 | 0.16 |
| s, saturation flow rate [veh/h] | 1424 | 1828 | 1572 | 1631 | 1859 | 1708 | 1855 | 1582 | 1708 | 1870 | 1846 |
| c, Capacity [veh/h] | 234 | 730 | 628 | 145 | 602 | 57 | 483 | 412 | 154 | 593 | 585 |
| d1, Uniform Delay [s] | 40.61 | 19.47 | 18.14 | 42.79 | 31.49 | 46.79 | 33.70 | 33.83 | 42.66 | 27.72 | 27.73 |
| k, delay calibration | 0.07 | 0.12 | 0.12 | 0.04 | 0.26 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.46 | 0.14 | 0.02 | 0.68 | 8.55 | 0.74 | 3.42 | 4.22 | 0.61 | 1.15 | 1.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.88 | 0.20 | 0.03 | 0.41 | 0.86 | 0.23 | 0.74 | 0.75 | 0.40 | 0.52 | 0.52 |
| d, Delay for Lane Group [s/veh] | 48.07 | 19.61 | 18.16 | 43.47 | 40.04 | 47.53 | 37.12 | 38.05 | 43.27 | 28.87 | 28.90 |
| Lane Group LOS | D | B | B | D | D | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.20 | 2.06 | 0.24 | 1.35 | 12.26 | 0.31 | 7.91 | 6.96 | 1.39 | 5.77 | 5.71 |
| 50th-Percentile Queue Length [ft/ln] | 130.06 | 51.54 | 6.01 | 33.66 | 306.39 | 7.85 | 197.75 | 174.05 | 34.68 | 144.21 | 142.66 |
| 95th-Percentile Queue Length [veh/ln] | 8.94 | 3.71 | 0.43 | 2.42 | 18.00 | 0.57 | 12.52 | 11.29 | 2.50 | 9.71 | 9.62 |
| 95th-Percentile Queue Length [ft/ln] | 223.58 | 92.76 | 10.81 | 60.58 | 449.92 | 14.13 | 313.06 | 282.23 | 62.42 | 242.69 | 240.60 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.07 | 19.61 | 18.16 | 43.47 | 40.04 | 40.04 | 47.53 | 37.15 | 38.05 | 43.27 | 28.88 | 28.90 |
| Movement LOS | D | B | B | D | D | D | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 35.51 | | | 40.39 | | | 37.74 | | | 30.19 | | |
| Approach LOS | D | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.85 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.746 | | | | | | | | | | | |

**Emissions**

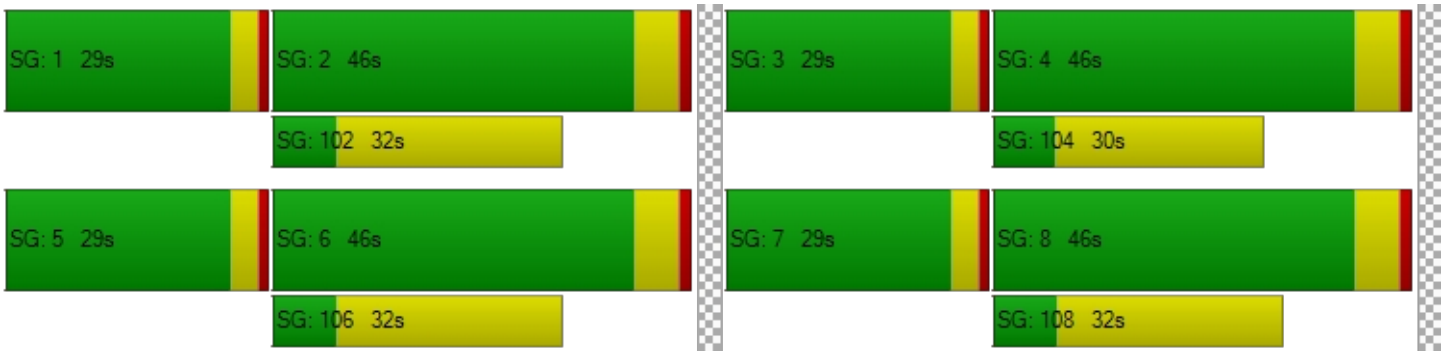
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.93 | 71.60 | 8.95 | 59.40 | 521.52 | 7.82 | 215.10 | 186.32 | 30.43 | 152.50 | 150.76 |
| Stops [stops/h] | 188.69 | 74.77 | 8.71 | 48.83 | 444.52 | 11.39 | 286.90 | 252.51 | 50.31 | 209.23 | 206.97 |
| Fuel consumption [US gal/h] | 7.90 | 3.96 | 0.48 | 3.17 | 27.62 | 0.54 | 13.64 | 11.92 | 2.21 | 9.63 | 9.52 |
| CO [g/h] | 552.15 | 276.71 | 33.67 | 221.24 | 1930.88 | 37.43 | 953.41 | 833.42 | 154.17 | 672.80 | 665.32 |
| NOx [g/h] | 107.43 | 53.84 | 6.55 | 43.04 | 375.68 | 7.28 | 185.50 | 162.15 | 30.00 | 130.90 | 129.45 |
| VOC [g/h] | 127.97 | 64.13 | 7.80 | 51.27 | 447.50 | 8.68 | 220.96 | 193.15 | 35.73 | 155.93 | 154.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.24 | 39.24 | 39.24 | 39.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.650 | 2.313 | 2.754 | 2.630 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 806 | 806 | 806 | 806 |
| d_b, Bicycle Delay [s] | 17.69 | 17.69 | 17.69 | 17.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.168 | 2.512 | 2.121 | 2.112 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.846 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 20 | 188 | 32 | 73 | 538 | 230 | 129 | 311 | 188 | 77 | 701 | 159 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 188 | 32 | 73 | 538 | 230 | 129 | 311 | 188 | 77 | 701 | 159 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 51 | 9 | 20 | 146 | 63 | 35 | 85 | 51 | 21 | 190 | 43 |
| Total Analysis Volume [veh/h] | 22 | 204 | 35 | 79 | 585 | 250 | 140 | 338 | 204 | 84 | 762 | 173 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 22 | 22 | 9 | 26 | 26 | 10 | 35 | 35 | 9 | 34 | 34 |
| g / C, Green / Cycle | 0.05 | 0.24 | 0.24 | 0.10 | 0.29 | 0.29 | 0.11 | 0.38 | 0.38 | 0.10 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.07 | 0.05 | 0.24 | 0.24 | 0.08 | 0.18 | 0.13 | 0.05 | 0.40 | 0.11 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1753 | 1737 | 1849 | 1654 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 85 | 449 | 423 | 171 | 535 | 479 | 196 | 726 | 583 | 178 | 706 | 591 |
| d1, Uniform Delay [s] | 41.28 | 27.79 | 27.86 | 38.45 | 29.88 | 29.94 | 38.79 | 20.89 | 19.82 | 38.38 | 28.29 | 19.88 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.21 | 0.21 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.61 | 0.32 | 0.36 | 1.95 | 6.04 | 7.00 | 4.74 | 0.47 | 0.36 | 1.95 | 57.33 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.26 | 0.27 | 0.28 | 0.46 | 0.82 | 0.83 | 0.71 | 0.47 | 0.35 | 0.47 | 1.08 | 0.29 |
| d, Delay for Lane Group [s/veh] | 42.89 | 28.11 | 28.22 | 40.41 | 35.92 | 36.94 | 43.54 | 21.36 | 20.18 | 40.33 | 85.62 | 20.15 |
| Lane Group LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.49 | 2.07 | 2.03 | 1.67 | 9.11 | 8.33 | 3.10 | 4.98 | 2.85 | 1.77 | 24.89 | 2.40 |
| 50th-Percentile Queue Length [ft/ln] | 12.35 | 51.70 | 50.66 | 41.67 | 227.63 | 208.29 | 77.58 | 124.38 | 71.33 | 44.24 | 622.33 | 59.88 |
| 95th-Percentile Queue Length [veh/ln] | 0.89 | 3.72 | 3.65 | 3.00 | 14.05 | 13.07 | 5.59 | 8.63 | 5.14 | 3.19 | 34.86 | 4.31 |
| 95th-Percentile Queue Length [ft/ln] | 22.23 | 93.05 | 91.20 | 75.01 | 351.35 | 326.64 | 139.65 | 215.84 | 128.39 | 79.63 | 871.51 | 107.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.89 | 28.16 | 28.22 | 40.41 | 36.17 | 36.94 | 43.54 | 21.36 | 20.18 | 40.33 | 85.62 | 20.15 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 29.41 | | | 36.75 | | | 25.56 | | | 70.77 | | |
| Approach LOS | C | | | D | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 45.48 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.846 | | | | | | | | | | | |

**Emissions**

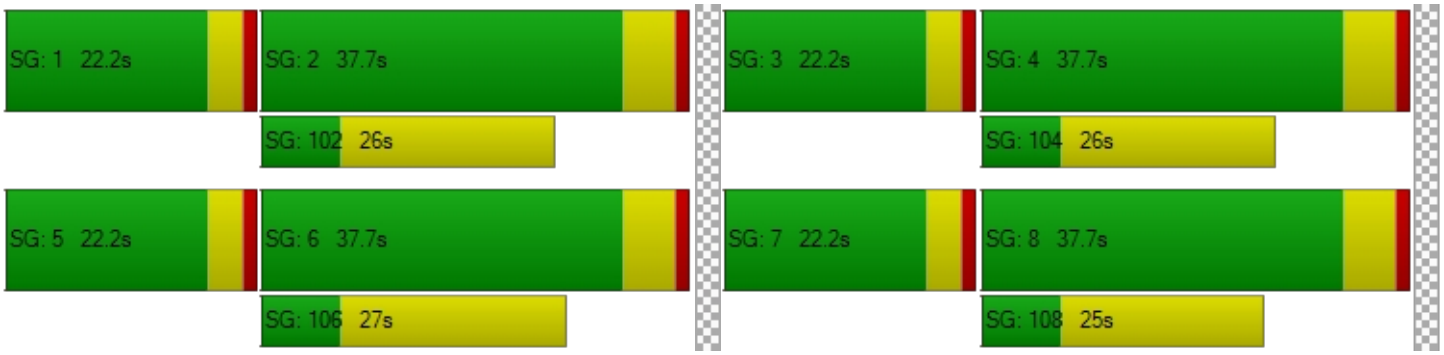
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 11.89 | 65.35 | 63.80 | 39.28 | 218.53 | 196.67 | 66.63 | 160.87 | 97.09 | 41.39 | 375.49 | 85.25 |
| Stops [stops/h] | 19.72 | 82.57 | 80.92 | 66.56 | 363.57 | 332.68 | 123.91 | 198.66 | 113.93 | 70.66 | 993.98 | 95.64 |
| Fuel consumption [US gal/h] | 0.81 | 3.84 | 3.76 | 2.82 | 15.22 | 13.85 | 5.06 | 9.45 | 5.58 | 2.99 | 38.50 | 4.82 |
| CO [g/h] | 56.73 | 268.68 | 262.70 | 197.37 | 1064.12 | 968.17 | 354.04 | 660.79 | 390.20 | 208.77 | 2691.47 | 336.96 |
| NOx [g/h] | 11.04 | 52.28 | 51.11 | 38.40 | 207.04 | 188.37 | 68.88 | 128.57 | 75.92 | 40.62 | 523.66 | 65.56 |
| VOC [g/h] | 13.15 | 62.27 | 60.88 | 45.74 | 246.62 | 224.38 | 82.05 | 153.14 | 90.43 | 48.38 | 623.77 | 78.09 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.75 | 34.75 | 34.75 | 34.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.594 | 2.718 | 2.758 | 2.669 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 710 | 710 | 710 | 710 |
| d_b, Bicycle Delay [s] | 18.77 | 18.76 | 18.76 | 18.76 |
| l_b,int, Bicycle LOS Score for Intersection | 1.775 | 2.314 | 2.685 | 3.241 |
| Bicycle LOS | A | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 171 | 138 | 78 | 198 | 384 | 241 | 71 | 825 | 442 | 159 | 1267 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 171 | 138 | 78 | 198 | 384 | 241 | 71 | 825 | 442 | 159 | 1267 | 26 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 37 | 21 | 53 | 103 | 65 | 19 | 222 | 119 | 43 | 341 | 7 |
| Total Analysis Volume [veh/h] | 184 | 148 | 84 | 213 | 413 | 259 | 76 | 887 | 475 | 171 | 1362 | 28 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 24 | 24 | 13 | 24 | 24 | 12 | 54 | 54 | 13 | 55 | 55 |
| g / C, Green / Cycle | 0.11 | 0.20 | 0.20 | 0.11 | 0.20 | 0.20 | 0.10 | 0.45 | 0.45 | 0.11 | 0.46 | 0.46 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.04 | 0.06 | 0.06 | 0.13 | 0.16 | 0.02 | 0.17 | 0.30 | 0.05 | 0.27 | 0.02 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1525 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 364 | 681 | 306 | 359 | 626 | 318 | 356 | 2287 | 708 | 375 | 2333 | 716 |
| d1, Uniform Delay [s] | 50.52 | 40.19 | 40.67 | 51.07 | 44.34 | 45.97 | 49.66 | 22.12 | 26.14 | 50.29 | 24.25 | 18.12 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.40 | 0.13 | 0.38 | 0.58 | 0.96 | 4.06 | 0.11 | 0.50 | 5.02 | 0.32 | 1.08 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.51 | 0.22 | 0.27 | 0.59 | 0.66 | 0.81 | 0.21 | 0.39 | 0.67 | 0.46 | 0.58 | 0.04 |
| d, Delay for Lane Group [s/veh] | 50.92 | 40.31 | 41.05 | 51.66 | 45.30 | 50.04 | 49.77 | 22.62 | 31.15 | 50.62 | 25.33 | 18.22 |
| Lane Group LOS | D | D | D | D | D | D | D | C | C | D | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.59 | 1.82 | 2.11 | 3.09 | 5.75 | 7.73 | 1.06 | 5.64 | 11.50 | 2.37 | 9.23 | 0.43 |
| 50th-Percentile Queue Length [ft/ln] | 64.81 | 45.51 | 52.74 | 77.20 | 143.81 | 193.30 | 26.48 | 141.07 | 287.43 | 59.33 | 230.74 | 10.87 |
| 95th-Percentile Queue Length [veh/ln] | 4.67 | 3.28 | 3.80 | 5.56 | 9.69 | 12.29 | 1.91 | 9.54 | 17.06 | 4.27 | 14.21 | 0.78 |
| 95th-Percentile Queue Length [ft/ln] | 116.66 | 81.91 | 94.93 | 138.97 | 242.15 | 307.31 | 47.66 | 238.47 | 426.46 | 106.80 | 355.30 | 19.57 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.92 | 40.31 | 41.05 | 51.66 | 45.30 | 50.04 | 49.77 | 22.62 | 31.15 | 50.62 | 25.33 | 18.22 |
| Movement LOS | D | D | D | D | D | D | D | C | C | D | C | B |
| d_A, Approach Delay [s/veh] | 45.15 | | | 48.21 | | | 26.87 | | | 27.97 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 33.43 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.632 | | | | | | | | | | | |

**Emissions**

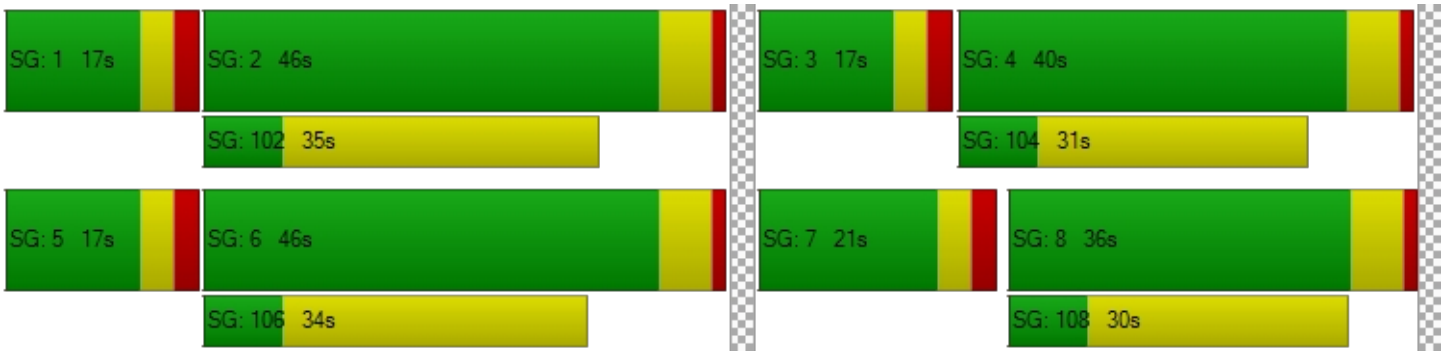
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 19.26 | 15.49 | 8.79 | 115.10 | 223.17 | 139.96 | 37.93 | 442.68 | 237.06 | 19.71 | 156.98 | 3.23 |
| Stops [stops/h] | 155.33 | 109.07 | 63.20 | 185.04 | 344.69 | 231.65 | 63.46 | 507.18 | 344.46 | 142.21 | 829.54 | 13.03 |
| Fuel consumption [US gal/h] | 4.12 | 2.84 | 1.64 | 8.00 | 14.90 | 9.68 | 2.68 | 25.11 | 14.67 | 4.20 | 22.71 | 0.38 |
| CO [g/h] | 288.14 | 198.54 | 114.46 | 559.16 | 1041.38 | 676.51 | 187.45 | 1755.09 | 1025.65 | 293.93 | 1587.76 | 26.31 |
| NOx [g/h] | 56.06 | 38.63 | 22.27 | 108.79 | 202.61 | 131.62 | 36.47 | 341.48 | 199.56 | 57.19 | 308.92 | 5.12 |
| VOC [g/h] | 66.78 | 46.01 | 26.53 | 129.59 | 241.35 | 156.79 | 43.44 | 406.76 | 237.71 | 68.12 | 367.98 | 6.10 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.58 | 49.58 | 49.58 | 49.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.882 | 2.766 | 3.214 | 3.309 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 504 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.68 | 33.60 | 26.54 | 26.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.903 | 2.290 | 2.351 | 2.418 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 86.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.844 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 729 | 139 | 2 | 15 | 41 | 30 | 13 | 10 | 298 | 3 | 46 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 729 | 139 | 2 | 15 | 41 | 30 | 13 | 10 | 298 | 3 | 46 | 2 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 198 | 38 | 1 | 4 | 11 | 8 | 4 | 3 | 81 | 1 | 13 | 1 |
| Total Analysis Volume [veh/h] | 792 | 151 | 2 | 16 | 45 | 33 | 14 | 11 | 324 | 3 | 50 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 30 | 3 | 8 | 3 | 19 | 1 | 17 |
| g / C, Green / Cycle | 0.36 | 0.44 | 0.04 | 0.12 | 0.04 | 0.28 | 0.01 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.44 | 0.08 | 0.01 | 0.05 | 0.01 | 0.21 | 0.00 | 0.03 |
| s, saturation flow rate [veh/h] | 1784 | 1812 | 1810 | 1721 | 1810 | 1623 | 1810 | 1887 |
| c, Capacity [veh/h] | 645 | 794 | 78 | 206 | 70 | 451 | 17 | 469 |
| d1, Uniform Delay [s] | 22.08 | 11.91 | 31.94 | 28.05 | 32.22 | 22.73 | 33.98 | 20.07 |
| k, delay calibration | 0.50 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 115.97 | 0.13 | 0.48 | 1.62 | 0.52 | 3.70 | 1.80 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.23 | 0.19 | 0.21 | 0.38 | 0.20 | 0.74 | 0.18 | 0.11 |
| d, Delay for Lane Group [s/veh] | 138.05 | 12.04 | 32.42 | 29.67 | 32.74 | 26.43 | 35.78 | 20.24 |
| Lane Group LOS | F | B | C | C | C | C | D | C |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 29.52 | 1.23 | 0.25 | 1.18 | 0.23 | 5.10 | 0.06 | 0.64 |
| 50th-Percentile Queue Length [ft/ln] | 737.91 | 30.70 | 6.22 | 29.51 | 5.74 | 127.39 | 1.42 | 15.96 |
| 95th-Percentile Queue Length [veh/ln] | 43.65 | 2.21 | 0.45 | 2.12 | 0.41 | 8.80 | 0.10 | 1.15 |
| 95th-Percentile Queue Length [ft/ln] | 1091.32 | 55.27 | 11.20 | 53.11 | 10.33 | 219.94 | 2.56 | 28.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 138.05 | 12.04 | 12.04 | 32.42 | 29.67 | 29.67 | 32.74 | 26.43 | 26.43 | 35.78 | 20.24 | 20.24 |
| Movement LOS | F | B | B | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 117.65 | | | 30.14 | | | 26.68 | | | 21.09 | | |
| Approach LOS | F | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 86.26 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 0.844 | | | | | | | | | | | |

**Emissions**

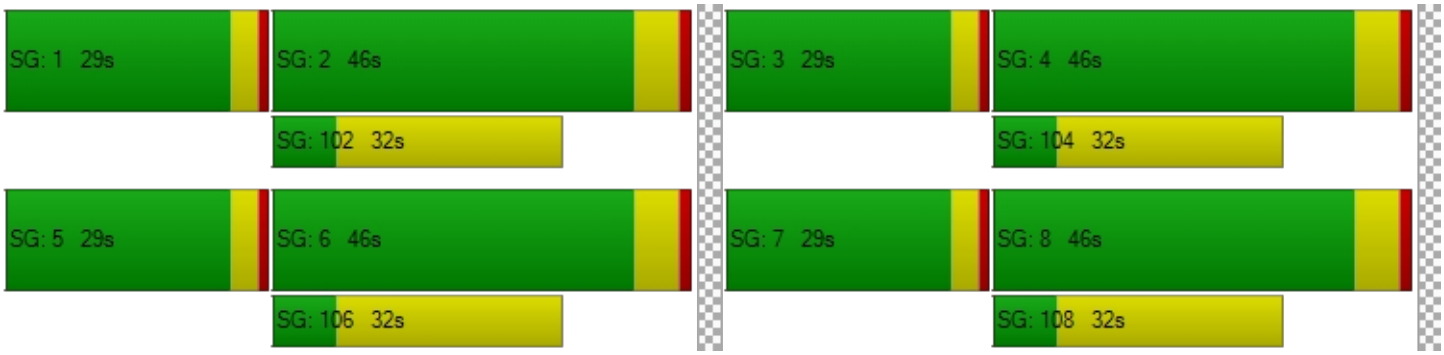
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 397.28 | 76.75 | 0.73 | 3.56 | 7.04 | 168.46 | 1.14 | 19.68 |
| Stops [stops/h] | 1540.08 | 64.08 | 12.99 | 61.59 | 11.97 | 265.87 | 2.97 | 33.32 |
| Fuel consumption [US gal/h] | 55.01 | 3.80 | 0.29 | 1.36 | 0.45 | 10.21 | 0.08 | 1.21 |
| CO [g/h] | 3845.38 | 265.79 | 20.42 | 94.99 | 31.40 | 713.36 | 5.94 | 84.48 |
| NOx [g/h] | 748.17 | 51.71 | 3.97 | 18.48 | 6.11 | 138.79 | 1.16 | 16.44 |
| VOC [g/h] | 891.20 | 61.60 | 4.73 | 22.01 | 7.28 | 165.33 | 1.38 | 19.58 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.37 | 24.37 | 24.37 | 24.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.568 | 2.053 | 2.323 | 1.953 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1159 | 1159 | 1159 | 1159 |
| d_b, Bicycle Delay [s] | 6.09 | 6.09 | 6.09 | 6.09 |
| l_b,int, Bicycle LOS Score for Intersection | 3.119 | 1.715 | 2.135 | 1.650 |
| Bicycle LOS | C | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 278.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.362 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 486 | 96 | 77 | 545 | 183 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 486 | 96 | 77 | 545 | 183 | 30 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 132 | 26 | 21 | 148 | 50 | 8 |
| Total Analysis Volume [veh/h] | 528 | 104 | 84 | 592 | 199 | 33 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.09 | 0.01 | 1.36 | 0.06 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.88 | 0.00 | 278.56 | 260.92 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.15 | 0.15 | 14.62 | 14.62 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 3.67 | 3.67 | 365.48 | 365.48 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.10 | | 276.05 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 42.07 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.772 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 132 | 180 | 27 | 181 | 530 | 111 | 67 | 660 | 101 | 144 | 380 | 367 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 180 | 27 | 181 | 530 | 111 | 67 | 660 | 101 | 144 | 380 | 367 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 34 | 47 | 7 | 47 | 138 | 29 | 17 | 172 | 26 | 38 | 99 | 96 |
| Total Analysis Volume [veh/h] | 138 | 188 | 28 | 189 | 552 | 116 | 70 | 688 | 105 | 150 | 396 | 382 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 29 | 29 | 12 | 32 | 32 | 7 | 28 | 28 | 10 | 31 | 31 |
| g / C, Green / Cycle | 0.10 | 0.31 | 0.31 | 0.13 | 0.34 | 0.34 | 0.07 | 0.29 | 0.29 | 0.10 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.10 | 0.02 | 0.11 | 0.30 | 0.07 | 0.04 | 0.22 | 0.22 | 0.08 | 0.21 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1864 | 1615 | 1810 | 1870 | 1785 | 1782 | 1900 | 1615 |
| c, Capacity [veh/h] | 173 | 575 | 477 | 226 | 629 | 545 | 129 | 550 | 525 | 184 | 620 | 527 |
| d1, Uniform Delay [s] | 41.92 | 25.31 | 23.19 | 40.37 | 29.50 | 22.37 | 42.47 | 30.11 | 30.11 | 41.54 | 27.13 | 28.13 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.24 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.22 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.19 | 0.33 | 0.05 | 3.09 | 8.47 | 0.19 | 1.32 | 3.59 | 3.76 | 3.28 | 2.04 | 3.85 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.33 | 0.06 | 0.83 | 0.88 | 0.21 | 0.54 | 0.74 | 0.74 | 0.81 | 0.64 | 0.72 |
| d, Delay for Lane Group [s/veh] | 45.11 | 25.64 | 23.24 | 43.45 | 37.97 | 22.57 | 43.79 | 33.70 | 33.88 | 44.82 | 29.17 | 31.98 |
| Lane Group LOS | D | C | C | D | D | C | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.17 | 3.11 | 0.42 | 4.28 | 12.32 | 1.76 | 1.58 | 8.41 | 8.06 | 3.40 | 7.30 | 7.51 |
| 50th-Percentile Queue Length [ft/ln] | 79.15 | 77.76 | 10.60 | 107.09 | 307.90 | 43.90 | 39.46 | 210.27 | 201.45 | 84.99 | 182.41 | 187.76 |
| 95th-Percentile Queue Length [veh/ln] | 5.70 | 5.60 | 0.76 | 7.68 | 18.07 | 3.16 | 2.84 | 13.17 | 12.71 | 6.12 | 11.73 | 12.01 |
| 95th-Percentile Queue Length [ft/ln] | 142.47 | 139.96 | 19.08 | 191.94 | 451.79 | 79.01 | 71.02 | 329.18 | 317.84 | 152.98 | 293.16 | 300.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 45.11 | 25.64 | 23.24 | 43.45 | 37.97 | 22.57 | 43.79 | 33.77 | 33.88 | 44.82 | 29.17 | 31.98 |
| Movement LOS | D | C | C | D | D | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 33.04 | | | 37.10 | | | 34.60 | | | 32.85 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.59 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.772 | | | | | | | | | | | |

**Emissions**

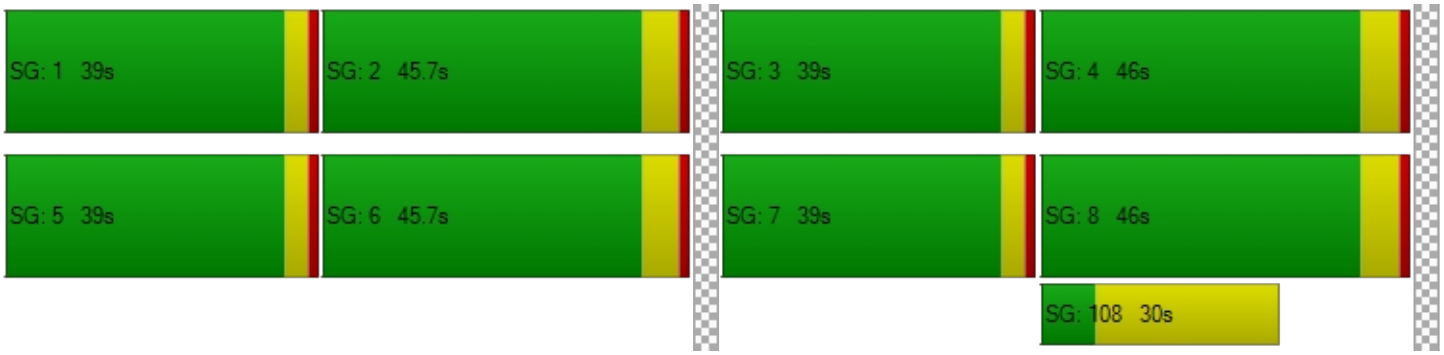
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 69.40 | 94.54 | 14.08 | 94.20 | 275.12 | 57.82 | 34.50 | 199.91 | 190.90 | 39.31 | 103.79 | 100.12 |
| Stops [stops/h] | 120.67 | 118.55 | 16.16 | 163.27 | 469.44 | 66.93 | 60.16 | 320.59 | 307.14 | 129.57 | 278.11 | 286.27 |
| Fuel consumption [US gal/h] | 5.15 | 5.70 | 0.82 | 6.93 | 19.53 | 3.35 | 2.45 | 13.09 | 12.53 | 4.67 | 10.10 | 10.23 |
| CO [g/h] | 359.70 | 398.11 | 57.04 | 484.41 | 1365.34 | 233.93 | 171.29 | 915.11 | 875.52 | 326.68 | 705.65 | 715.30 |
| NOx [g/h] | 69.98 | 77.46 | 11.10 | 94.25 | 265.65 | 45.51 | 33.33 | 178.05 | 170.35 | 63.56 | 137.29 | 139.17 |
| VOC [g/h] | 83.36 | 92.26 | 13.22 | 112.27 | 316.43 | 54.22 | 39.70 | 212.09 | 202.91 | 75.71 | 163.54 | 165.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.86 | 39.56 | 39.29 | 39.29 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.738 | 2.683 | 2.698 | 2.900 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 847 | 847 | 847 | 847 |
| d_b, Bicycle Delay [s] | 15.69 | 15.69 | 15.69 | 15.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.144 | 2.974 | 2.272 | 2.325 |
| Bicycle LOS | B | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.391 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 232 | 8 | 37 | 795 | 10 | 5 | 12 | 6 | 0 | 7 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 232 | 8 | 37 | 795 | 10 | 5 | 12 | 6 | 0 | 7 | 40 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 63 | 2 | 10 | 216 | 3 | 1 | 3 | 2 | 0 | 2 | 11 |
| Total Analysis Volume [veh/h] | 3 | 252 | 9 | 40 | 864 | 11 | 5 | 13 | 7 | 0 | 8 | 43 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 14 | 14 | 4 | 18 | 18 | 1 | 7 | 7 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.01 | 0.34 | 0.34 | 0.10 | 0.43 | 0.43 | 0.02 | 0.17 | 0.17 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.07 | 0.01 | 0.02 | 0.24 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| s, saturation flow rate [veh/h] | 1589 | 3506 | 1544 | 1810 | 3529 | 1602 | 1810 | 1862 | 1615 | 1810 | 1900 | 1554 |
| c, Capacity [veh/h] | 15 | 1204 | 530 | 181 | 1532 | 695 | 28 | 317 | 275 | 0 | 294 | 241 |
| d1, Uniform Delay [s] | 20.35 | 9.62 | 8.98 | 17.15 | 8.78 | 6.68 | 20.12 | 14.36 | 14.32 | 0.00 | 14.85 | 15.21 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.42 | 0.09 | 0.01 | 0.23 | 0.47 | 0.01 | 1.14 | 0.08 | 0.06 | 0.00 | 0.06 | 0.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.20 | 0.21 | 0.02 | 0.22 | 0.56 | 0.02 | 0.18 | 0.04 | 0.03 | 0.00 | 0.03 | 0.18 |
| d, Delay for Lane Group [s/veh] | 22.77 | 9.71 | 8.99 | 17.37 | 9.25 | 6.69 | 21.26 | 14.44 | 14.38 | 0.00 | 14.91 | 15.79 |
| Lane Group LOS | C | A | A | B | A | A | C | B | B | A | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.04 | 0.65 | 0.04 | 0.32 | 2.16 | 0.04 | 0.05 | 0.09 | 0.05 | 0.00 | 0.06 | 0.34 |
| 50th-Percentile Queue Length [ft/ln] | 0.89 | 16.14 | 1.10 | 7.89 | 54.08 | 1.06 | 1.27 | 2.35 | 1.27 | 0.00 | 1.49 | 8.49 |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 1.16 | 0.08 | 0.57 | 3.89 | 0.08 | 0.09 | 0.17 | 0.09 | 0.00 | 0.11 | 0.61 |
| 95th-Percentile Queue Length [ft/ln] | 1.60 | 29.04 | 1.98 | 14.20 | 97.34 | 1.91 | 2.29 | 4.23 | 2.29 | 0.00 | 2.69 | 15.29 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.77 | 9.71 | 8.99 | 17.37 | 9.25 | 6.69 | 21.26 | 14.44 | 14.38 | 0.00 | 14.91 | 15.79 |
| Movement LOS | C | A | A | B | A | A | C | B | B | A | B | B |
| d_A, Approach Delay [s/veh] | 9.83 | | | 9.57 | | | 15.79 | | | 15.65 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 10.00 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.391 | | | | | | | | | | | |

**Emissions**

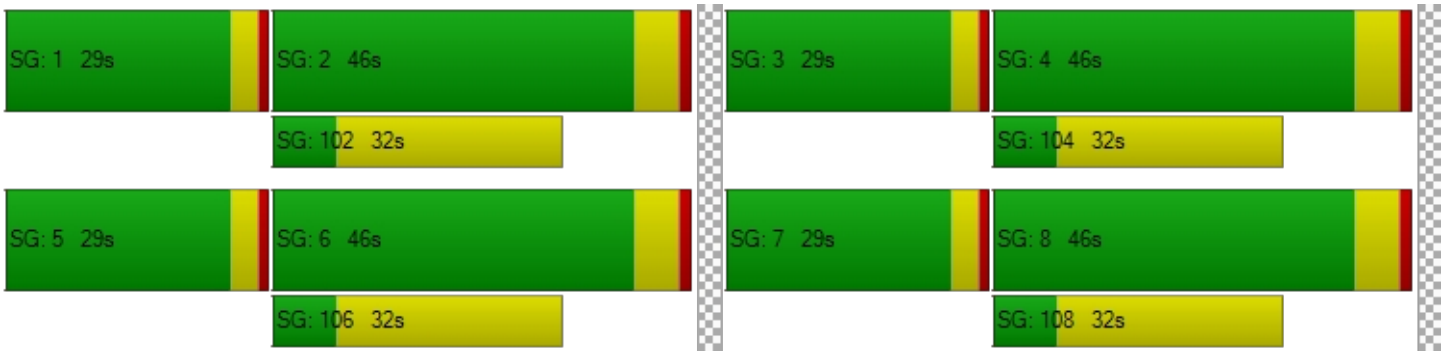
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.50 | 126.21 | 4.51 | 20.11 | 434.48 | 5.53 | 0.63 | 1.64 | 0.88 | 0.00 | 0.85 | 4.58 |
| Stops [stops/h] | 3.10 | 112.64 | 3.84 | 27.54 | 377.50 | 3.70 | 4.44 | 8.20 | 4.45 | 0.00 | 5.21 | 29.65 |
| Fuel consumption [US gal/h] | 0.09 | 6.32 | 0.22 | 1.12 | 21.60 | 0.26 | 0.07 | 0.15 | 0.08 | 0.00 | 0.09 | 0.49 |
| CO [g/h] | 6.49 | 441.48 | 15.61 | 78.40 | 1509.71 | 18.39 | 5.04 | 10.56 | 5.69 | 0.00 | 6.16 | 34.30 |
| NOx [g/h] | 1.26 | 85.90 | 3.04 | 15.25 | 293.74 | 3.58 | 0.98 | 2.05 | 1.11 | 0.00 | 1.20 | 6.67 |
| VOC [g/h] | 1.50 | 102.32 | 3.62 | 18.17 | 349.89 | 4.26 | 1.17 | 2.45 | 1.32 | 0.00 | 1.43 | 7.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.09 | 11.09 | 11.09 | 11.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.706 | 2.604 | 2.096 | 2.112 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1939 | 1939 | 1939 | 1939 |
| d_b, Bicycle Delay [s] | 0.02 | 0.02 | 0.02 | 0.02 |
| l_b,int, Bicycle LOS Score for Intersection | 1.777 | 2.314 | 1.601 | 1.644 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.587 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 194 | 189 | 39 | 23 | 467 | 69 | 27 | 314 | 93 | 134 | 375 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 194 | 189 | 39 | 23 | 467 | 69 | 27 | 314 | 93 | 134 | 375 | 30 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 53 | 51 | 11 | 6 | 127 | 19 | 7 | 85 | 25 | 36 | 102 | 8 |
| Total Analysis Volume [veh/h] | 211 | 205 | 42 | 25 | 508 | 75 | 29 | 341 | 101 | 146 | 408 | 33 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 18 | 18 | 1 | 12 | 12 | 1 | 7 | 7 | 5 | 11 | 11 |
| g / C, Green / Cycle | 0.15 | 0.38 | 0.38 | 0.02 | 0.25 | 0.25 | 0.03 | 0.15 | 0.15 | 0.11 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.06 | 0.03 | 0.01 | 0.14 | 0.05 | 0.02 | 0.10 | 0.06 | 0.08 | 0.11 | 0.02 |
| s, saturation flow rate [veh/h] | 1765 | 3540 | 1578 | 1772 | 3592 | 1581 | 1691 | 3558 | 1592 | 1794 | 3569 | 1579 |
| c, Capacity [veh/h] | 271 | 1351 | 602 | 43 | 904 | 398 | 46 | 533 | 239 | 193 | 823 | 364 |
| d1, Uniform Delay [s] | 19.33 | 9.65 | 9.34 | 22.96 | 15.49 | 13.97 | 22.88 | 18.99 | 18.33 | 20.59 | 15.89 | 14.37 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.82 | 0.07 | 0.07 | 4.67 | 0.78 | 0.32 | 5.18 | 0.95 | 0.88 | 2.25 | 0.34 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.15 | 0.07 | 0.59 | 0.56 | 0.19 | 0.63 | 0.64 | 0.42 | 0.75 | 0.50 | 0.09 |
| d, Delay for Lane Group [s/veh] | 21.15 | 9.72 | 9.41 | 27.62 | 16.28 | 14.29 | 28.05 | 19.95 | 19.22 | 22.84 | 16.23 | 14.45 |
| Lane Group LOS | C | A | A | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.95 | 0.51 | 0.21 | 0.31 | 2.16 | 0.58 | 0.34 | 1.51 | 0.88 | 1.42 | 1.55 | 0.23 |
| 50th-Percentile Queue Length [ft/ln] | 48.78 | 12.79 | 5.22 | 7.69 | 53.90 | 14.58 | 8.46 | 37.67 | 22.00 | 35.50 | 38.76 | 5.73 |
| 95th-Percentile Queue Length [veh/ln] | 3.51 | 0.92 | 0.38 | 0.55 | 3.88 | 1.05 | 0.61 | 2.71 | 1.58 | 2.56 | 2.79 | 0.41 |
| 95th-Percentile Queue Length [ft/ln] | 87.80 | 23.02 | 9.40 | 13.84 | 97.02 | 26.25 | 15.23 | 67.80 | 39.59 | 63.89 | 69.77 | 10.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.15 | 9.72 | 9.41 | 27.62 | 16.28 | 14.29 | 28.05 | 19.95 | 19.22 | 22.84 | 16.23 | 14.45 |
| Movement LOS | C | A | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 14.96 | | | 16.50 | | | 20.29 | | | 17.77 | | |
| Approach LOS | B | | | B | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.36 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.587 | | | | | | | | | | | |

**Emissions**

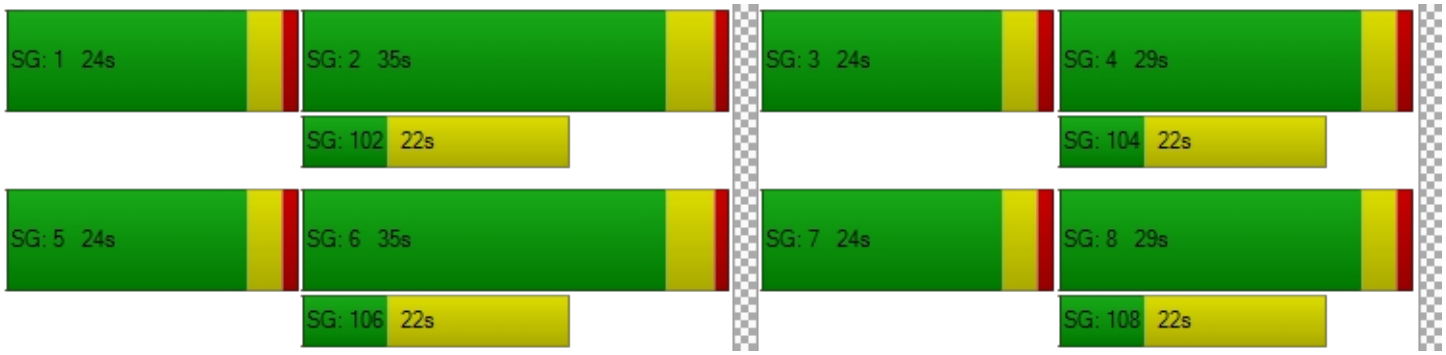
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 105.25 | 102.26 | 20.95 | 12.52 | 254.42 | 37.56 | 14.46 | 170.08 | 50.38 | 146.24 | 408.66 | 33.05 |
| Stops [stops/h] | 148.39 | 77.80 | 15.89 | 23.40 | 327.94 | 44.37 | 25.74 | 229.18 | 66.92 | 107.99 | 235.83 | 17.42 |
| Fuel consumption [US gal/h] | 6.36 | 4.88 | 1.00 | 0.79 | 13.97 | 2.01 | 0.98 | 10.06 | 2.95 | 7.03 | 18.29 | 1.45 |
| CO [g/h] | 444.62 | 340.97 | 69.63 | 54.89 | 976.38 | 140.47 | 68.60 | 703.46 | 206.47 | 491.68 | 1278.32 | 101.12 |
| NOx [g/h] | 86.51 | 66.34 | 13.55 | 10.68 | 189.97 | 27.33 | 13.35 | 136.87 | 40.17 | 95.66 | 248.71 | 19.67 |
| VOC [g/h] | 103.04 | 79.02 | 16.14 | 12.72 | 226.29 | 32.55 | 15.90 | 163.03 | 47.85 | 113.95 | 296.26 | 23.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 13.95 | 13.95 | 13.95 | 13.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.712 | 2.558 | 2.700 | 2.765 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1268 | 1268 | 1056 | 1056 |
| d_b, Bicycle Delay [s] | 3.17 | 3.17 | 5.27 | 5.27 |
| l_b,int, Bicycle LOS Score for Intersection | 1.937 | 2.061 | 1.948 | 2.044 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.867 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 383 | 427 | 134 | 63 | 822 | 79 | 23 | 331 | 185 | 146 | 409 | 41 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 383 | 427 | 134 | 63 | 822 | 79 | 23 | 331 | 185 | 146 | 409 | 41 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 104 | 116 | 36 | 17 | 223 | 21 | 6 | 90 | 50 | 40 | 111 | 11 |
| Total Analysis Volume [veh/h] | 416 | 464 | 146 | 68 | 893 | 86 | 25 | 360 | 201 | 159 | 445 | 45 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 43 | 43 | 8 | 29 | 29 | 5 | 23 | 23 | 11 | 30 | 30 |
| g / C, Green / Cycle | 0.21 | 0.42 | 0.42 | 0.08 | 0.29 | 0.29 | 0.05 | 0.23 | 0.23 | 0.11 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.13 | 0.09 | 0.04 | 0.25 | 0.05 | 0.01 | 0.19 | 0.13 | 0.09 | 0.24 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1562 | 1751 | 3555 | 1580 | 1810 | 1883 | 1595 | 1785 | 1885 | 1612 |
| c, Capacity [veh/h] | 374 | 1489 | 663 | 134 | 1040 | 462 | 82 | 436 | 369 | 195 | 556 | 475 |
| d1, Uniform Delay [s] | 39.88 | 19.23 | 18.39 | 44.72 | 33.68 | 26.67 | 46.56 | 36.81 | 34.06 | 43.90 | 32.79 | 25.76 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.16 | 0.11 | 0.11 | 0.26 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 80.97 | 0.12 | 0.17 | 2.97 | 2.20 | 0.19 | 2.06 | 5.87 | 1.26 | 8.09 | 6.41 | 0.09 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.11 | 0.31 | 0.22 | 0.51 | 0.86 | 0.19 | 0.30 | 0.83 | 0.54 | 0.82 | 0.80 | 0.09 |
| d, Delay for Lane Group [s/veh] | 120.85 | 19.35 | 18.56 | 47.69 | 35.88 | 26.86 | 48.62 | 42.68 | 35.32 | 51.99 | 39.20 | 25.85 |
| Lane Group LOS | F | B | B | D | D | C | D | D | D | D | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 17.15 | 3.37 | 2.04 | 1.73 | 10.39 | 1.56 | 0.65 | 8.99 | 4.41 | 4.16 | 10.39 | 0.76 |
| 50th-Percentile Queue Length [ft/ln] | 428.79 | 84.22 | 51.09 | 43.31 | 259.73 | 39.02 | 16.25 | 224.74 | 110.15 | 104.03 | 259.86 | 18.96 |
| 95th-Percentile Queue Length [veh/ln] | 25.35 | 6.06 | 3.68 | 3.12 | 15.68 | 2.81 | 1.17 | 13.91 | 7.85 | 7.49 | 15.68 | 1.37 |
| 95th-Percentile Queue Length [ft/ln] | 633.72 | 151.60 | 91.96 | 77.95 | 391.88 | 70.23 | 29.26 | 347.67 | 196.22 | 187.25 | 392.04 | 34.14 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 120.85 | 19.35 | 18.56 | 47.69 | 35.88 | 26.86 | 48.62 | 42.68 | 35.32 | 51.99 | 39.20 | 25.85 |
| Movement LOS | F | B | B | D | D | C | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 60.39 | | | 35.91 | | | 40.41 | | | 41.41 | | |
| Approach LOS | E | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 45.38 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.867 | | | | | | | | | | | |

**Emissions**

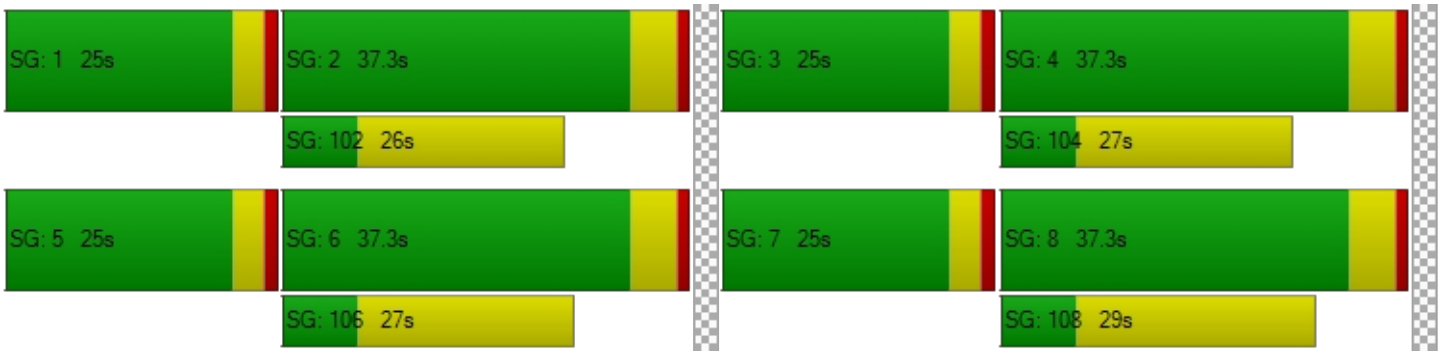
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 83.15 | 92.75 | 29.18 | 33.92 | 445.44 | 42.90 | 12.32 | 177.40 | 99.05 | 16.42 | 45.94 | 4.65 |
| Stops [stops/h] | 613.86 | 241.14 | 73.14 | 62.00 | 743.65 | 55.86 | 23.27 | 321.74 | 157.70 | 148.93 | 372.01 | 27.15 |
| Fuel consumption [US gal/h] | 20.71 | 8.00 | 2.46 | 2.40 | 28.97 | 2.54 | 0.88 | 12.21 | 6.39 | 4.10 | 9.75 | 0.73 |
| CO [g/h] | 1447.77 | 559.50 | 172.03 | 167.67 | 2024.71 | 177.87 | 61.72 | 853.27 | 446.89 | 286.34 | 681.51 | 51.27 |
| NOx [g/h] | 281.68 | 108.86 | 33.47 | 32.62 | 393.94 | 34.61 | 12.01 | 166.02 | 86.95 | 55.71 | 132.60 | 9.98 |
| VOC [g/h] | 335.54 | 129.67 | 39.87 | 38.86 | 469.25 | 41.22 | 14.30 | 197.75 | 103.57 | 66.36 | 157.95 | 11.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.89 | 39.89 | 39.89 | 39.89 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.014 | 2.819 | 2.604 | 2.583 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 636 | 636 | 636 | 636 |
| d_b, Bicycle Delay [s] | 23.38 | 23.38 | 23.38 | 23.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.406 | 2.423 | 2.527 | 2.630 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.838 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 312 | 908 | 0 | 0 | 474 | 730 | 0 | 0 | 0 | 213 | 0 | 18 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 312 | 908 | 0 | 0 | 474 | 730 | 0 | 0 | 0 | 213 | 0 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 85 | 247 | 0 | 0 | 129 | 198 | 0 | 0 | 0 | 58 | 0 | 5 |
| Total Analysis Volume [veh/h] | 339 | 987 | 0 | 0 | 515 | 793 | 0 | 0 | 0 | 232 | 0 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 14 | 64 | 45 | 45 | | 15 | 15 |
| g / C, Green / Cycle | 0.15 | 0.70 | 0.49 | 0.49 | | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.28 | 0.27 | 0.50 | | 0.13 | 0.01 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 1873 | 1572 | | 1792 | 1572 |
| c, Capacity [veh/h] | 408 | 2483 | 911 | 765 | | 292 | 256 |
| d1, Uniform Delay [s] | 38.31 | 5.93 | 16.84 | 23.77 | | 37.25 | 32.84 |
| k, delay calibration | 0.04 | 0.20 | 0.21 | 0.46 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.69 | 0.19 | 1.06 | 41.33 | | 9.97 | 0.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.40 | 0.57 | 1.04 | | 0.79 | 0.08 |
| d, Delay for Lane Group [s/veh] | 40.00 | 6.12 | 17.90 | 65.10 | | 47.22 | 33.12 |
| Lane Group LOS | D | A | B | F | | D | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.64 | 2.96 | 7.09 | 23.07 | | 5.47 | 0.37 |
| 50th-Percentile Queue Length [ft/ln] | 90.91 | 74.00 | 177.27 | 576.79 | | 136.67 | 9.34 |
| 95th-Percentile Queue Length [veh/ln] | 6.55 | 5.33 | 11.46 | 31.83 | | 9.30 | 0.67 |
| 95th-Percentile Queue Length [ft/ln] | 163.63 | 133.19 | 286.45 | 795.76 | | 232.53 | 16.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.00 | 6.12 | 0.00 | 0.00 | 17.90 | 65.10 | 0.00 | 0.00 | 0.00 | 47.22 | 0.00 | 33.12 |
| Movement LOS | D | A | | | B | F | | | | D | | C |
| d_A, Approach Delay [s/veh] | 14.78 | | | 46.52 | | | 0.00 | | | 46.10 | | |
| Approach LOS | B | | | D | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 31.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.838 | | | | | | | | | | | |

**Emissions**

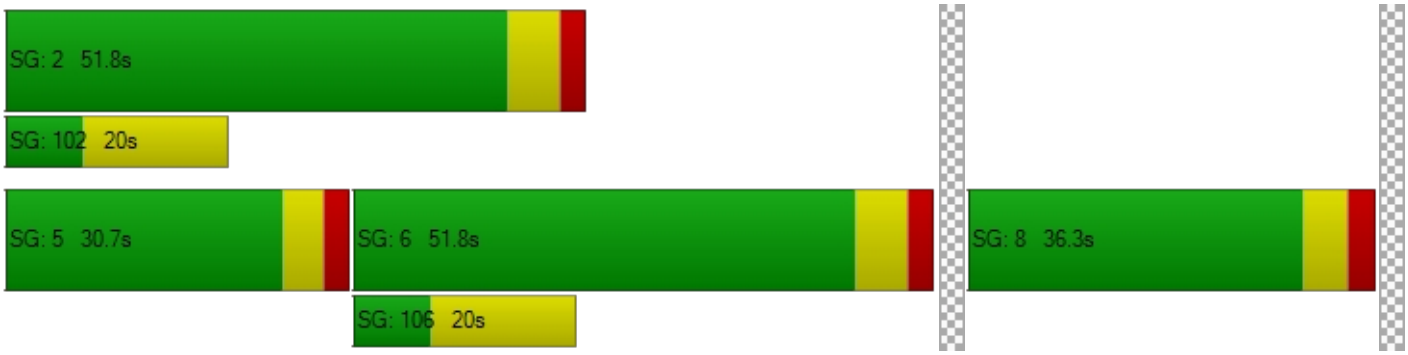
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.65 | 106.69 | 102.94 | 158.51 | | 19.94 | 1.72 |
| Stops [stops/h] | 283.32 | 230.61 | 276.25 | 898.82 | | 212.98 | 14.56 |
| Fuel consumption [US gal/h] | 7.54 | 7.75 | 8.84 | 27.11 | | 6.85 | 0.46 |
| CO [g/h] | 526.92 | 541.99 | 617.91 | 1895.25 | | 478.95 | 32.34 |
| NOx [g/h] | 102.52 | 105.45 | 120.22 | 368.75 | | 93.19 | 6.29 |
| VOC [g/h] | 122.12 | 125.61 | 143.21 | 439.24 | | 111.00 | 7.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.54 | 43.54 | 35.86 | 35.86 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.967 | 2.986 | 2.268 | 1.941 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 974 | 974 | 0 | 649 |
| d_b, Bicycle Delay [s] | 12.16 | 12.17 | 46.20 | 21.07 |
| l_b,int, Bicycle LOS Score for Intersection | 2.654 | 2.639 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.713 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1178 | 92 | 10 | 710 | 0 | 302 | 0 | 389 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1178 | 92 | 10 | 710 | 0 | 302 | 0 | 389 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 320 | 25 | 3 | 193 | 0 | 82 | 0 | 106 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1280 | 100 | 11 | 772 | 0 | 328 | 0 | 423 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 51 | 51 | 2 | 58 | 29 | 29 | |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.02 | 0.58 | 0.29 | 0.29 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.22 | 0.10 | 0.27 | |
| s, saturation flow rate [veh/h] | 1877 | 1830 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 956 | 932 | 29 | 2086 | 991 | 459 | |
| d1, Uniform Delay [s] | 19.02 | 19.31 | 48.60 | 11.07 | 28.01 | 34.48 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.38 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.70 | 5.27 | 3.05 | 0.51 | 0.41 | 21.67 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.74 | 0.38 | 0.37 | 0.33 | 0.92 | |
| d, Delay for Lane Group [s/veh] | 23.72 | 24.59 | 51.65 | 11.58 | 28.42 | 56.16 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.46 | 12.75 | 0.29 | 4.09 | 2.91 | 11.83 | |
| 50th-Percentile Queue Length [ft/ln] | 311.57 | 318.80 | 7.18 | 102.31 | 72.78 | 295.69 | |
| 95th-Percentile Queue Length [veh/ln] | 18.25 | 18.61 | 0.52 | 7.37 | 5.24 | 17.47 | |
| 95th-Percentile Queue Length [ft/ln] | 456.31 | 465.21 | 12.93 | 184.15 | 131.01 | 436.70 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 24.12 | 24.59 | 51.65 | 11.58 | 0.00 | 28.42 | 0.00 | 56.16 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 24.15 | | | 12.14 | | | 44.04 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 26.05 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.713 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.79 | 45.79 | 1.19 | 83.45 | 38.98 | 50.27 | |
| Stops [stops/h] | 448.86 | 459.28 | 10.35 | 294.77 | 209.71 | 425.99 | |
| Fuel consumption [US gal/h] | 9.38 | 9.60 | 0.29 | 8.34 | 7.10 | 14.43 | |
| CO [g/h] | 655.69 | 671.33 | 19.92 | 583.26 | 496.05 | 1008.49 | |
| NOx [g/h] | 127.57 | 130.62 | 3.88 | 113.48 | 96.51 | 196.22 | |
| VOC [g/h] | 151.96 | 155.59 | 4.62 | 135.18 | 114.96 | 233.73 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.954 | 2.985 | 2.392 | 1.774 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.698 | 2.206 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.031 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 265 | 10 | 5 | 394 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 265 | 10 | 5 | 394 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 0 | 72 | 3 | 1 | 107 |
| Total Analysis Volume [veh/h] | 12 | 0 | 288 | 11 | 5 | 428 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.61 | 10.13 | 0.00 | 0.00 | 7.86 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 2.40 | 2.40 | 0.00 | 0.00 | 0.21 | 0.21 |
| d_A, Approach Delay [s/veh] | 14.61 | | 0.00 | | 0.09 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.29 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 27.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.053 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 8 | 27 | 16 | 506 | 833 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 27 | 16 | 506 | 833 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 7 | 4 | 138 | 226 | 3 |
| Total Analysis Volume [veh/h] | 9 | 29 | 17 | 550 | 905 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.05 | 0.02 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 27.58 | 12.77 | 9.99 | 0.00 | 0.00 | 0.00 |
| Movement LOS | D | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.35 | 0.35 | 0.07 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.85 | 8.85 | 1.76 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.28 | | 0.30 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.52 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.178 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 20 | 544 | 37 | 7 | 786 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 20 | 544 | 37 | 7 | 786 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 5 | 148 | 10 | 2 | 214 |
| Total Analysis Volume [veh/h] | 40 | 22 | 591 | 40 | 8 | 854 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.18 | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 24.18 | 13.33 | 0.00 | 0.00 | 8.86 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.77 | 0.77 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 19.32 | 19.32 | 0.00 | 0.00 | 0.64 | 0.00 |
| d_A, Approach Delay [s/veh] | 20.33 | | 0.00 | | 0.08 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.86 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.773 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 104 | 308 | 49 | 24 | 311 | 153 | 76 | 398 | 145 | 176 | 488 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 104 | 308 | 49 | 24 | 311 | 153 | 76 | 398 | 145 | 176 | 488 | 23 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 84 | 13 | 7 | 85 | 42 | 21 | 108 | 39 | 48 | 133 | 6 |
| Total Analysis Volume [veh/h] | 113 | 335 | 53 | 26 | 338 | 166 | 83 | 433 | 158 | 191 | 530 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 24 | 24 | 33 | 33 | 8 | 23 | 23 | 15 | 29 | 29 |
| g / C, Green / Cycle | 0.22 | 0.22 | 0.22 | 0.30 | 0.30 | 0.08 | 0.20 | 0.20 | 0.13 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.18 | 0.03 | 0.01 | 0.28 | 0.05 | 0.12 | 0.10 | 0.11 | 0.15 | 0.02 |
| s, saturation flow rate [veh/h] | 1409 | 1900 | 1519 | 1810 | 1796 | 1738 | 3520 | 1602 | 1752 | 3566 | 1615 |
| c, Capacity [veh/h] | 309 | 417 | 333 | 538 | 534 | 132 | 718 | 327 | 237 | 939 | 425 |
| d1, Uniform Delay [s] | 36.76 | 41.05 | 35.03 | 27.79 | 38.07 | 49.78 | 40.09 | 39.00 | 46.57 | 35.36 | 30.58 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.23 | 0.49 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.27 | 1.40 | 0.08 | 0.08 | 26.72 | 1.86 | 1.75 | 2.36 | 2.47 | 1.14 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.80 | 0.16 | 0.05 | 0.94 | 0.63 | 0.60 | 0.48 | 0.81 | 0.56 | 0.06 |
| d, Delay for Lane Group [s/veh] | 37.03 | 42.44 | 35.11 | 27.86 | 64.79 | 51.63 | 41.84 | 41.36 | 49.05 | 36.50 | 30.70 |
| Lane Group LOS | D | D | D | C | E | D | D | D | D | D | C |
| Critical Lane Group | No | Yes | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.62 | 8.77 | 1.17 | 0.51 | 17.09 | 2.22 | 5.29 | 3.85 | 5.06 | 6.03 | 0.49 |
| 50th-Percentile Queue Length [ft/ln] | 65.55 | 219.14 | 29.23 | 12.65 | 427.26 | 55.44 | 132.22 | 96.14 | 126.46 | 150.75 | 12.36 |
| 95th-Percentile Queue Length [veh/ln] | 4.72 | 13.62 | 2.10 | 0.91 | 23.87 | 3.99 | 9.06 | 6.92 | 8.75 | 10.06 | 0.89 |
| 95th-Percentile Queue Length [ft/ln] | 117.99 | 340.53 | 52.62 | 22.77 | 596.76 | 99.79 | 226.51 | 173.05 | 218.67 | 251.43 | 22.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.03 | 42.44 | 35.11 | 27.86 | 64.79 | 64.79 | 51.63 | 41.84 | 41.36 | 49.05 | 36.50 | 30.70 |
| Movement LOS | D | D | D | C | E | E | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 40.45 | | | 62.98 | | | 42.93 | | | 39.52 | | |
| Approach LOS | D | | | E | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 45.72 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.773 | | | | | | | | | | | |

**Emissions**

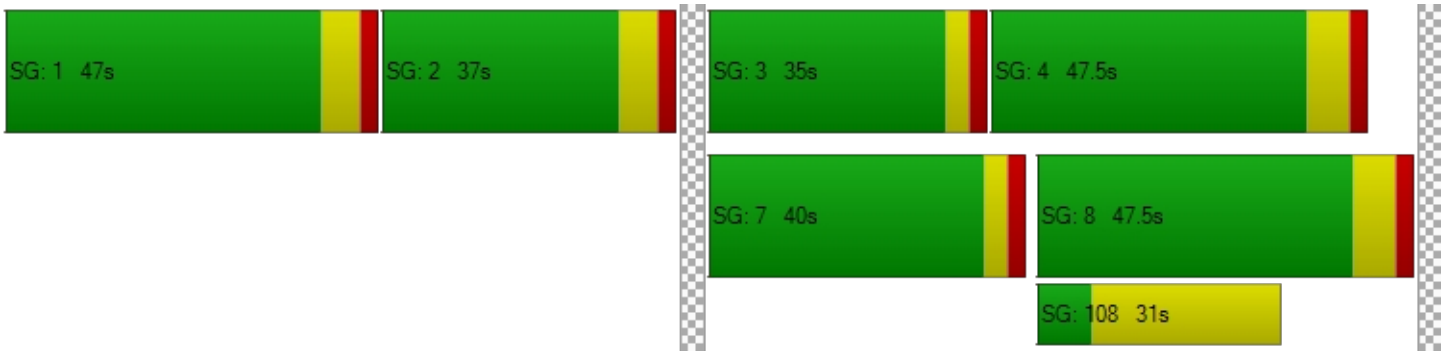
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 112.60 | 333.81 | 52.81 | 0.73 | 14.18 | 30.61 | 159.67 | 58.26 | 96.50 | 267.77 | 12.63 |
| Stops [stops/h] | 85.17 | 284.74 | 37.98 | 16.43 | 555.15 | 72.03 | 343.60 | 124.91 | 164.31 | 391.75 | 16.05 |
| Fuel consumption [US gal/h] | 5.96 | 18.21 | 2.76 | 0.27 | 10.30 | 3.00 | 14.31 | 5.20 | 7.66 | 18.92 | 0.83 |
| CO [g/h] | 416.40 | 1272.74 | 193.10 | 18.76 | 719.67 | 209.89 | 1000.13 | 363.38 | 535.42 | 1322.32 | 57.71 |
| NOx [g/h] | 81.02 | 247.63 | 37.57 | 3.65 | 140.02 | 40.84 | 194.59 | 70.70 | 104.17 | 257.27 | 11.23 |
| VOC [g/h] | 96.51 | 294.97 | 44.75 | 4.35 | 166.79 | 48.64 | 231.79 | 84.22 | 124.09 | 306.46 | 13.37 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 44.96 | 49.10 | 48.64 | 48.64 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.541 | 2.270 | 2.951 | 2.807 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 722 | 541 | 722 | 722 |
| d_b, Bicycle Delay [s] | 22.63 | 29.47 | 22.63 | 22.63 |
| l_b,int, Bicycle LOS Score for Intersection | 2.386 | 2.434 | 2.116 | 2.175 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.578 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 54 | 411 | 25 | 5 | 738 | 198 | 101 | 92 | 99 | 11 | 264 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 54 | 411 | 25 | 5 | 738 | 198 | 101 | 92 | 99 | 11 | 264 | 15 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 112 | 7 | 1 | 201 | 54 | 27 | 25 | 27 | 3 | 72 | 4 |
| Total Analysis Volume [veh/h] | 59 | 447 | 27 | 5 | 802 | 215 | 110 | 100 | 108 | 12 | 287 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 26 | 26 | 1 | 21 | 21 | 8 | 20 | 20 | 2 | 14 | 14 |
| g / C, Green / Cycle | 0.09 | 0.41 | 0.41 | 0.01 | 0.33 | 0.33 | 0.12 | 0.30 | 0.30 | 0.03 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.13 | 0.02 | 0.00 | 0.22 | 0.13 | 0.06 | 0.05 | 0.07 | 0.01 | 0.15 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1611 | 1810 | 3592 | 1594 | 1791 | 1825 | 1593 | 1794 | 1883 | 1400 |
| c, Capacity [veh/h] | 162 | 1445 | 660 | 22 | 1186 | 527 | 216 | 554 | 483 | 49 | 396 | 294 |
| d1, Uniform Delay [s] | 27.59 | 12.89 | 11.45 | 31.62 | 18.66 | 16.75 | 26.64 | 16.59 | 16.82 | 30.78 | 23.78 | 20.39 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.51 | 0.16 | 0.03 | 1.93 | 0.91 | 0.68 | 0.70 | 0.19 | 0.29 | 0.95 | 3.15 | 0.09 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.31 | 0.04 | 0.23 | 0.68 | 0.41 | 0.51 | 0.18 | 0.22 | 0.25 | 0.72 | 0.05 |
| d, Delay for Lane Group [s/veh] | 28.10 | 13.05 | 11.48 | 33.56 | 19.57 | 17.43 | 27.34 | 16.79 | 17.11 | 31.73 | 26.93 | 20.48 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.78 | 1.77 | 0.19 | 0.08 | 4.39 | 2.14 | 1.55 | 1.05 | 1.15 | 0.18 | 3.93 | 0.18 |
| 50th-Percentile Queue Length [ft/ln] | 19.62 | 44.23 | 4.81 | 2.04 | 109.68 | 53.47 | 38.76 | 26.13 | 28.77 | 4.51 | 98.28 | 4.48 |
| 95th-Percentile Queue Length [veh/ln] | 1.41 | 3.18 | 0.35 | 0.15 | 7.82 | 3.85 | 2.79 | 1.88 | 2.07 | 0.32 | 7.08 | 0.32 |
| 95th-Percentile Queue Length [ft/ln] | 35.32 | 79.61 | 8.66 | 3.67 | 195.55 | 96.24 | 69.77 | 47.04 | 51.79 | 8.12 | 176.90 | 8.06 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 28.10 | 13.05 | 11.48 | 33.56 | 19.57 | 17.43 | 27.34 | 16.79 | 17.11 | 31.73 | 26.93 | 20.48 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 14.64 | | | 19.19 | | | 20.55 | | | 26.78 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 19.37 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.578 | | | | | | | | | | | |

**Emissions**

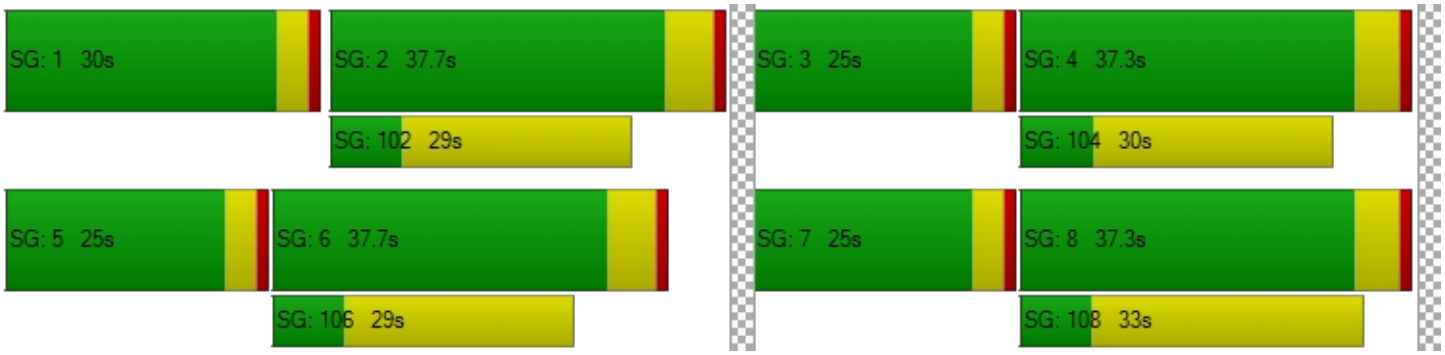
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.01 | 204.61 | 12.36 | 4.98 | 799.14 | 214.23 | 110.18 | 100.16 | 108.18 | 6.02 | 143.96 | 8.03 |
| Stops [stops/h] | 43.82 | 197.51 | 10.74 | 4.55 | 489.79 | 119.38 | 86.55 | 58.35 | 64.24 | 10.07 | 219.45 | 10.00 |
| Fuel consumption [US gal/h] | 1.91 | 11.07 | 0.64 | 0.27 | 37.47 | 9.77 | 5.63 | 4.79 | 5.18 | 0.41 | 9.24 | 0.47 |
| CO [g/h] | 133.82 | 773.90 | 44.87 | 18.93 | 2619.43 | 682.89 | 393.24 | 334.63 | 362.38 | 28.59 | 645.57 | 32.58 |
| NOx [g/h] | 26.04 | 150.57 | 8.73 | 3.68 | 509.65 | 132.86 | 76.51 | 65.11 | 70.51 | 5.56 | 125.61 | 6.34 |
| VOC [g/h] | 31.01 | 179.36 | 10.40 | 4.39 | 607.08 | 158.27 | 91.14 | 77.55 | 83.99 | 6.63 | 149.62 | 7.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.18 | 22.18 | 22.18 | 22.18 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.829 | 2.866 | 2.453 | 2.543 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 992 | 992 | 992 | 992 |
| d_b, Bicycle Delay [s] | 8.18 | 8.18 | 8.18 | 8.18 |
| l_b,int, Bicycle LOS Score for Intersection | 1.999 | 2.403 | 2.084 | 2.079 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 20.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 258 | 317 | 483 | 88 | 625 | 97 | 10 | 111 | 187 | 613 | 129 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 258 | 317 | 483 | 88 | 625 | 97 | 10 | 111 | 187 | 613 | 129 | 79 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 70 | 86 | 131 | 24 | 170 | 26 | 3 | 30 | 51 | 167 | 35 | 21 |
| Total Analysis Volume [veh/h] | 280 | 345 | 525 | 96 | 679 | 105 | 11 | 121 | 203 | 666 | 140 | 86 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 235 | | | 1115 | | | 1477 | | | 662 | | |
| Exiting Flow Rate [veh/h] | 1583 | | | 462 | | | 531 | | | 759 | | |
| Demand Flow Rate [veh/h] | 258 | 317 | 483 | 88 | 625 | 97 | 10 | 111 | 187 | 613 | 129 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 280 | 345 | 525 | 96 | 679 | 105 | 11 | 121 | 203 | 666 | 140 | 86 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.97 | 0.98 | 0.99 | 0.97 | 0.99 | 0.97 | 0.97 |
| Entry Flow Rate [veh/h] | 563 | 631 | 421 | 473 | 137 | 205 | 490 | 431 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1147 | 1147 | 485 | 551 | 347 | 405 | 735 | 810 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1102 | 1108 | 477 | 544 | 337 | 401 | 710 | 789 |
| X, volume / capacity | 0.49 | 0.55 | 0.87 | 0.86 | 0.39 | 0.51 | 0.67 | 0.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | E | E | C | C | C | B |
| 95th-Percentile Queue Length [veh] | 2.78 | 3.48 | 9.14 | 9.24 | 1.81 | 2.77 | 5.11 | 3.19 |
| 95th-Percentile Queue Length [ft] | 69.55 | 86.88 | 228.53 | 231.04 | 45.21 | 69.17 | 127.71 | 79.63 |
| Approach Delay [s/veh] | 9.40 | | 41.29 | | 19.98 | | 15.28 | |
| Approach LOS | A | | E | | C | | C | |
| Intersection Delay [s/veh] | 20.71 | | | | | | | |
| Intersection LOS | C | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.613 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 909 | 604 | 0 | 733 | 680 | 0 | 0 | 0 | 48 | 0 | 118 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 909 | 604 | 0 | 733 | 680 | 0 | 0 | 0 | 48 | 0 | 118 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 247 | 164 | 0 | 199 | 185 | 0 | 0 | 0 | 13 | 0 | 32 |
| Total Analysis Volume [veh/h] | 0 | 988 | 657 | 0 | 797 | 739 | 0 | 0 | 0 | 52 | 0 | 128 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 49 | 49 | 49 | | 49 | 49 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 29 | 29 | 29 | | 7 | 7 |
| g / C, Green / Cycle | 0.59 | 0.59 | 0.59 | | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.22 | 0.46 | | 0.03 | 0.08 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2112 | 2108 | 959 | | 263 | 237 |
| d1, Uniform Delay [s] | 5.63 | 5.24 | 7.50 | | 18.51 | 19.53 |
| k, delay calibration | 0.20 | 0.20 | 0.24 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.21 | 2.98 | | 0.78 | 4.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.38 | 0.77 | | 0.20 | 0.54 |
| d, Delay for Lane Group [s/veh] | 5.94 | 5.45 | 10.49 | | 19.28 | 23.58 |
| Lane Group LOS | A | A | B | | B | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.46 | 1.09 | 3.53 | | 0.47 | 1.34 |
| 50th-Percentile Queue Length [ft/ln] | 36.53 | 27.31 | 88.26 | | 11.71 | 33.41 |
| 95th-Percentile Queue Length [veh/ln] | 2.63 | 1.97 | 6.35 | | 0.84 | 2.41 |
| 95th-Percentile Queue Length [ft/ln] | 65.76 | 49.15 | 158.86 | | 21.09 | 60.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.94 | 0.00 | 0.00 | 5.45 | 10.49 | 0.00 | 0.00 | 0.00 | 19.28 | 0.00 | 23.58 |
| Movement LOS | | A | | | A | B | | | | B | | C |
| d_A, Approach Delay [s/veh] | 3.68 | | | 7.87 | | | 0.00 | | | 22.34 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 7.31 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.613 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 113.02 | 78.63 | 72.91 | | 3.68 | 9.06 |
| Stops [stops/h] | 212.57 | 158.89 | 256.78 | | 34.08 | 97.20 |
| Fuel consumption [US gal/h] | 7.71 | 5.56 | 7.27 | | 0.96 | 2.72 |
| CO [g/h] | 538.96 | 388.32 | 508.09 | | 67.12 | 190.31 |
| NOx [g/h] | 104.86 | 75.55 | 98.86 | | 13.06 | 37.03 |
| VOC [g/h] | 124.91 | 90.00 | 117.76 | | 15.56 | 44.11 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.74 | 21.74 | 14.97 | 14.97 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.818 | 3.056 | 2.041 | 2.013 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1414 | 1414 | 0 | 808 |
| d_b, Bicycle Delay [s] | 2.12 | 2.12 | 24.75 | 8.79 |
| l_b,int, Bicycle LOS Score for Intersection | 2.375 | 2.827 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 66.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.961 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1179 | 34 | 24 | 754 | 0 | 311 | 0 | 744 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1179 | 34 | 24 | 754 | 0 | 311 | 0 | 744 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 320 | 9 | 7 | 205 | 0 | 85 | 0 | 202 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1282 | 37 | 26 | 820 | 0 | 338 | 0 | 809 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 103 | 103 | 103 | 103 | 103 | 103 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 42 | 42 | 3 | 50 | 40 | 40 | |
| g / C, Green / Cycle | 0.40 | 0.40 | 0.03 | 0.49 | 0.39 | 0.39 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.35 | 0.36 | 0.01 | 0.23 | 0.19 | 0.51 | |
| s, saturation flow rate [veh/h] | 1873 | 1855 | 1758 | 3580 | 1749 | 1597 | |
| c, Capacity [veh/h] | 757 | 749 | 56 | 1758 | 678 | 619 | |
| d1, Uniform Delay [s] | 28.27 | 28.42 | 49.08 | 17.33 | 23.96 | 31.57 | |
| k, delay calibration | 0.33 | 0.34 | 0.04 | 0.19 | 0.23 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 9.28 | 10.05 | 2.25 | 0.35 | 1.21 | 149.20 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.87 | 0.88 | 0.47 | 0.47 | 0.50 | 1.31 | |
| d, Delay for Lane Group [s/veh] | 37.55 | 38.48 | 51.33 | 17.68 | 25.17 | 180.77 | |
| Lane Group LOS | D | D | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 15.69 | 15.90 | 0.67 | 5.94 | 5.87 | 39.30 | |
| 50th-Percentile Queue Length [ft/ln] | 392.13 | 397.55 | 16.80 | 148.59 | 146.84 | 982.60 | |
| 95th-Percentile Queue Length [veh/ln] | 22.18 | 22.44 | 1.21 | 9.94 | 9.85 | 58.48 | |
| 95th-Percentile Queue Length [ft/ln] | 554.51 | 561.04 | 30.25 | 248.55 | 246.21 | 1462.11 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 38.00 | 38.48 | 51.33 | 17.68 | 0.00 | 25.17 | 0.00 | 180.77 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | D | D | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 38.01 | | | 18.71 | | | 134.91 | | | 0.00 | | |
| Approach LOS | D | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 66.64 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.961 | | | | | | | | | | | |

**Emissions**

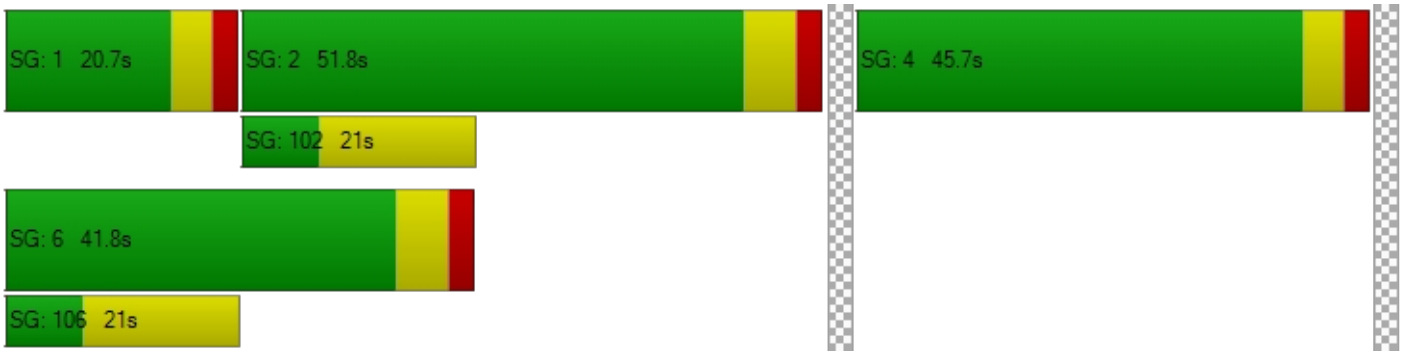
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 53.42 | 53.42 | 2.97 | 93.80 | 26.43 | 63.26 | |
| Stops [stops/h] | 548.30 | 555.87 | 23.50 | 415.54 | 205.32 | 1373.92 | |
| Fuel consumption [US gal/h] | 13.69 | 13.91 | 0.67 | 11.33 | 6.43 | 57.39 | |
| CO [g/h] | 956.75 | 972.04 | 46.53 | 792.08 | 449.38 | 4011.60 | |
| NOx [g/h] | 186.15 | 189.12 | 9.05 | 154.11 | 87.43 | 780.51 | |
| VOC [g/h] | 221.74 | 225.28 | 10.78 | 183.57 | 104.15 | 929.73 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 48.25 | 48.25 | 41.08 | 41.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.222 | 3.067 | 2.746 | 1.752 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 874 | 680 | 777 | 0 |
| d_b, Bicycle Delay [s] | 16.32 | 22.44 | 19.26 | 51.49 |
| l_b,int, Bicycle LOS Score for Intersection | 2.648 | 2.258 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.146 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 175 | 0 | 17 | 142 | 270 | 20 | 63 | 362 | 41 | 6 | 420 | 28 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 175 | 0 | 17 | 142 | 270 | 20 | 63 | 362 | 41 | 6 | 420 | 28 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 0 | 5 | 39 | 73 | 5 | 17 | 98 | 11 | 2 | 114 | 8 |
| Total Analysis Volume [veh/h] | 190 | 0 | 18 | 154 | 293 | 22 | 68 | 393 | 45 | 7 | 457 | 30 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 26 | 11 | 10 | 13 | 7 | 20 | 20 | 1 | 14 | 14 |
| g / C, Green / Cycle | 0.44 | 0.19 | 0.17 | 0.23 | 0.13 | 0.34 | 0.34 | 0.02 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.01 | 0.11 | 0.17 | 0.04 | 0.11 | 0.03 | 0.00 | 0.13 | 0.02 |
| s, saturation flow rate [veh/h] | 993 | 1481 | 1440 | 1877 | 1810 | 3466 | 1493 | 1810 | 3575 | 1615 |
| c, Capacity [veh/h] | 415 | 289 | 123 | 434 | 229 | 1173 | 505 | 37 | 830 | 375 |
| d1, Uniform Delay [s] | 18.95 | 19.22 | 22.01 | 20.80 | 23.21 | 14.47 | 13.23 | 28.21 | 19.81 | 17.60 |
| k, delay calibration | 0.15 | 0.12 | 0.04 | 0.48 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.12 | 0.10 | 119.27 | 9.82 | 0.26 | 0.26 | 0.12 | 0.89 | 0.94 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.06 | 1.25 | 0.73 | 0.30 | 0.34 | 0.09 | 0.19 | 0.55 | 0.08 |
| d, Delay for Lane Group [s/veh] | 20.07 | 19.32 | 141.28 | 30.61 | 23.48 | 14.72 | 13.34 | 29.10 | 20.75 | 17.75 |
| Lane Group LOS | C | B | F | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.97 | 0.18 | 5.50 | 4.82 | 0.75 | 1.58 | 0.34 | 0.09 | 2.38 | 0.28 |
| 50th-Percentile Queue Length [ft/ln] | 49.34 | 4.53 | 137.41 | 120.49 | 18.77 | 39.58 | 8.47 | 2.36 | 59.56 | 7.02 |
| 95th-Percentile Queue Length [veh/ln] | 3.55 | 0.33 | 9.89 | 8.42 | 1.35 | 2.85 | 0.61 | 0.17 | 4.29 | 0.51 |
| 95th-Percentile Queue Length [ft/ln] | 88.82 | 8.15 | 247.33 | 210.49 | 33.79 | 71.25 | 15.25 | 4.25 | 107.21 | 12.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.07 | 20.07 | 19.32 | 141.28 | 30.61 | 30.61 | 23.48 | 14.72 | 13.34 | 29.10 | 20.75 | 17.75 |
| Movement LOS | C | C | B | F | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 20.01 | | | 66.95 | | | 15.78 | | | 20.69 | | |
| Approach LOS | C | | | E | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 32.06 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 2.146 | | | | | | | | | | | |

**Emissions**

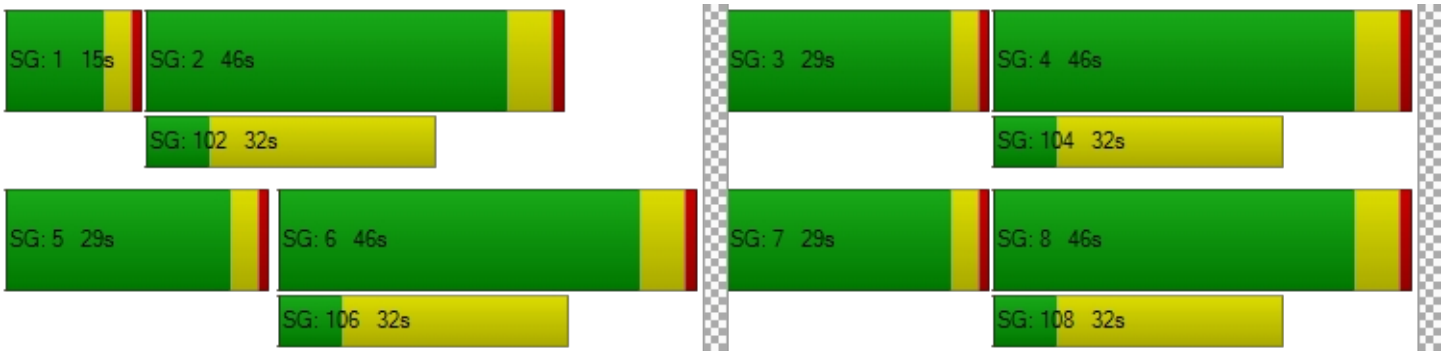
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.89 | 0.94 | 3.85 | 7.87 | 34.36 | 198.55 | 22.74 | 3.50 | 228.65 | 15.01 |
| Stops [stops/h] | 121.57 | 11.15 | 338.53 | 296.83 | 46.25 | 195.04 | 20.87 | 5.81 | 293.47 | 17.29 |
| Fuel consumption [US gal/h] | 2.63 | 0.24 | 6.46 | 3.93 | 2.19 | 10.82 | 1.20 | 0.25 | 14.09 | 0.88 |
| CO [g/h] | 183.59 | 16.89 | 451.25 | 274.45 | 152.75 | 756.36 | 84.16 | 17.33 | 985.00 | 61.27 |
| NOx [g/h] | 35.72 | 3.29 | 87.80 | 53.40 | 29.72 | 147.16 | 16.37 | 3.37 | 191.65 | 11.92 |
| VOC [g/h] | 42.55 | 3.91 | 104.58 | 63.61 | 35.40 | 175.29 | 19.50 | 4.02 | 228.28 | 14.20 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.26 | 19.26 | 19.26 | 19.26 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.186 | 2.100 | 2.924 | 2.935 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2361 | 1369 | 1369 | 1369 |
| d_b, Bicycle Delay [s] | 0.95 | 2.91 | 2.91 | 2.91 |
| l_b,int, Bicycle LOS Score for Intersection | 1.903 | 2.333 | 1.977 | 1.967 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.315 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 51 | 3 | 8 | 200 | 223 | 99 | 18 | 0 | 1 | 35 | 8 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 51 | 3 | 8 | 200 | 223 | 99 | 18 | 0 | 1 | 35 | 8 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 14 | 1 | 2 | 54 | 61 | 27 | 5 | 0 | 0 | 10 | 2 |
| Total Analysis Volume [veh/h] | 0 | 55 | 3 | 9 | 217 | 242 | 108 | 20 | 0 | 1 | 38 | 9 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 11 | 1 | 12 | 12 | 8 | 14 | 14 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.00 | 0.26 | 0.03 | 0.28 | 0.28 | 0.19 | 0.33 | 0.33 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.03 | 0.01 | 0.12 | 0.15 | 0.06 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 1853 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 0 | 476 | 48 | 531 | 451 | 340 | 1167 | 521 | 6 | 500 | 223 |
| d1, Uniform Delay [s] | 0.00 | 11.84 | 19.78 | 12.06 | 12.58 | 14.49 | 9.44 | 0.00 | 20.66 | 15.52 | 15.44 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.12 | 0.70 | 0.72 | 1.41 | 0.20 | 0.01 | 0.00 | 5.13 | 0.11 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.12 | 0.19 | 0.41 | 0.54 | 0.32 | 0.02 | 0.00 | 0.17 | 0.08 | 0.04 |
| d, Delay for Lane Group [s/veh] | 0.00 | 11.96 | 20.48 | 12.78 | 13.99 | 14.69 | 9.45 | 0.00 | 25.79 | 15.62 | 15.56 |
| Lane Group LOS | A | B | C | B | B | B | A | A | C | B | B |
| Critical Lane Group | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 0.31 | 0.08 | 1.26 | 1.51 | 0.76 | 0.05 | 0.00 | 0.02 | 0.13 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 7.87 | 1.96 | 31.39 | 37.84 | 18.96 | 1.26 | 0.00 | 0.40 | 3.22 | 1.62 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.57 | 0.14 | 2.26 | 2.72 | 1.37 | 0.09 | 0.00 | 0.03 | 0.23 | 0.12 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 14.17 | 3.53 | 56.50 | 68.11 | 34.13 | 2.26 | 0.00 | 0.73 | 5.80 | 2.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 11.96 | 11.96 | 20.48 | 12.78 | 13.99 | 14.69 | 9.45 | 0.00 | 25.79 | 15.62 | 15.56 |
| Movement LOS | A | B | B | C | B | B | B | A | A | C | B | B |
| d_A, Approach Delay [s/veh] | 11.96 | | | 13.55 | | | 13.87 | | | 15.82 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.64 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.315 | | | | | | | | | | | |

**Emissions**

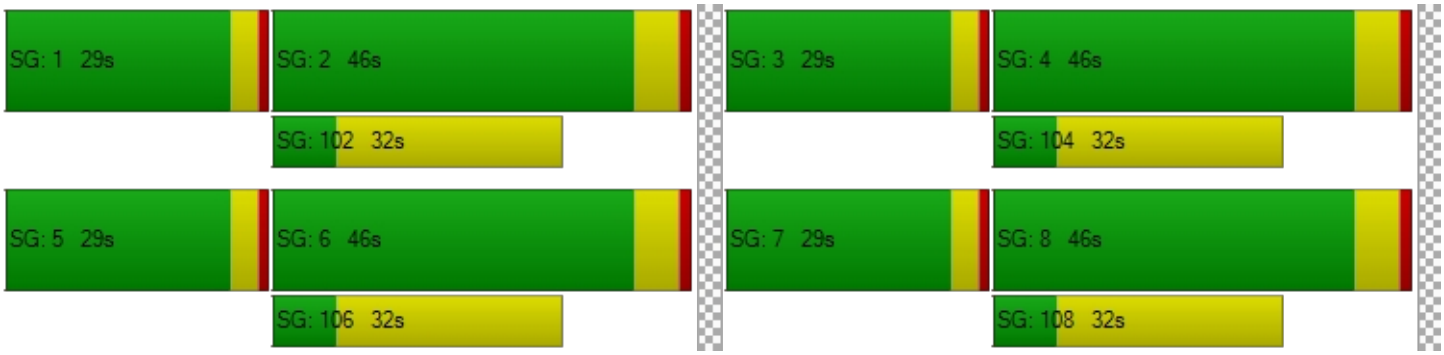
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 16.27 | 0.39 | 9.30 | 10.38 | 54.17 | 10.03 | 0.00 | 0.06 | 2.17 | 0.51 |
| Stops [stops/h] | 0.00 | 27.36 | 6.81 | 109.11 | 131.53 | 65.91 | 8.74 | 0.00 | 1.40 | 22.40 | 5.63 |
| Fuel consumption [US gal/h] | 0.00 | 1.04 | 0.14 | 2.24 | 2.68 | 2.92 | 0.50 | 0.00 | 0.02 | 0.47 | 0.12 |
| CO [g/h] | 0.00 | 72.64 | 9.47 | 156.58 | 187.34 | 203.91 | 34.93 | 0.00 | 1.72 | 33.12 | 8.12 |
| NOx [g/h] | 0.00 | 14.13 | 1.84 | 30.47 | 36.45 | 39.67 | 6.80 | 0.00 | 0.34 | 6.44 | 1.58 |
| VOC [g/h] | 0.00 | 16.84 | 2.19 | 36.29 | 43.42 | 47.26 | 8.10 | 0.00 | 0.40 | 7.68 | 1.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.17 | 11.17 | 11.17 | 11.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.186 | 2.319 | 2.473 | 2.426 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1931 | 1931 | 1931 | 1931 |
| d_b, Bicycle Delay [s] | 0.02 | 0.02 | 0.02 | 0.02 |
| l_b,int, Bicycle LOS Score for Intersection | 1.655 | 1.946 | 1.665 | 1.599 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.517 |

**Intersection Setup**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 469 | 104 | 10 | 21 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 469 | 104 | 10 | 21 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 127 | 28 | 3 | 6 | 0 |
| Total Analysis Volume [veh/h] | 0 | 510 | 113 | 11 | 23 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 3 | 0 | 1 | 6 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 25 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 11 | 0 | 11 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 4.0 | 4.0 | 0.0 |
| Minimum Recall | No | | No | Yes | Yes | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 37 | 37 | 37 | 37 | 37 | 37 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 14 | 8 | 15 | 4 | 4 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.21 | 0.41 | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.32 | 0.06 | 0.00 | 0.01 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 1589 | 1781 | 3560 | 3560 | 1589 |
| c, Capacity [veh/h] | 659 | 589 | 367 | 1474 | 357 | 159 |
| d1, Uniform Delay [s] | 0.00 | 10.83 | 12.49 | 6.39 | 15.11 | 0.00 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 1.55 | 0.18 | 0.00 | 0.11 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.87 | 0.31 | 0.01 | 0.06 | 0.00 |
| d, Delay for Lane Group [s/veh] | 0.00 | 12.38 | 12.66 | 6.39 | 15.22 | 0.00 |
| Lane Group LOS | A | B | B | A | B | A |
| Critical Lane Group | No | Yes | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 2.95 | 0.65 | 0.02 | 0.08 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 73.75 | 16.35 | 0.45 | 1.97 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 5.31 | 1.18 | 0.03 | 0.14 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 132.75 | 29.43 | 0.80 | 3.55 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 12.38 | 12.66 | 6.39 | 15.22 | 0.00 |
| Movement LOS | A | B | B | A | B | A |
| d_A, Approach Delay [s/veh] | 12.38 | | 12.11 | | 15.22 | |
| Approach LOS | B | | B | | B | |
| d_I, Intersection Delay [s/veh] | 12.43 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.517 | | | | | |

**Emissions**

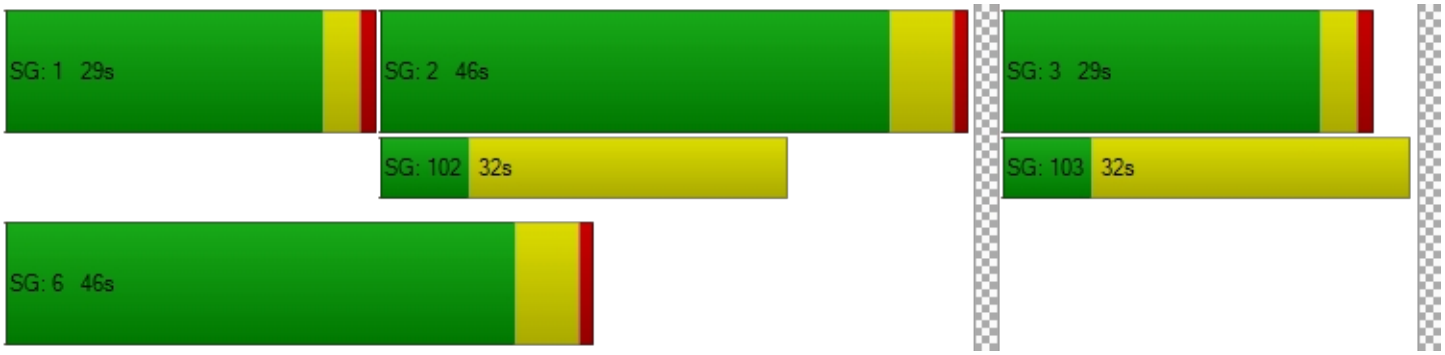
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 143.09 | 11.81 | 1.15 | 0.55 | 0.00 |
| Stops [stops/h] | 0.00 | 287.27 | 63.69 | 3.48 | 15.36 | 0.00 |
| Fuel consumption [US gal/h] | 0.00 | 8.76 | 1.13 | 0.08 | 0.18 | 0.00 |
| CO [g/h] | 0.00 | 612.56 | 78.95 | 5.65 | 12.48 | 0.00 |
| NOx [g/h] | 0.00 | 119.18 | 15.36 | 1.10 | 2.43 | 0.00 |
| VOC [g/h] | 0.00 | 141.97 | 18.30 | 1.31 | 2.89 | 0.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.12 | 9.12 | 9.12 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.089 | 2.374 | 2.252 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1353 | 2164 | 2164 |
| d_b, Bicycle Delay [s] | 1.94 | 0.12 | 0.12 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.662 | 1.579 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.293 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 156 | 4 | 0 | 334 | 153 | 3 | 290 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 156 | 4 | 0 | 334 | 153 | 3 | 290 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 1 | 0 | 91 | 42 | 1 | 79 |
| Total Analysis Volume [veh/h] | 170 | 4 | 0 | 363 | 166 | 3 | 315 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 7 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.25 | 0.25 | 0.00 | 0.34 | 0.34 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.00 | 0.00 | 0.10 | 0.11 | 0.00 | 0.09 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 3618 |
| c, Capacity [veh/h] | 447 | 409 | 1 | 1165 | 524 | 14 | 1239 |
| d1, Uniform Delay [s] | 9.18 | 8.31 | 0.00 | 7.33 | 7.35 | 14.65 | 7.04 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.20 | 0.00 | 0.00 | 0.21 | 0.47 | 2.67 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.01 | 0.00 | 0.31 | 0.32 | 0.21 | 0.25 |
| d, Delay for Lane Group [s/veh] | 9.37 | 8.32 | 0.00 | 7.54 | 7.82 | 17.32 | 7.18 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.64 | 0.01 | 0.00 | 0.37 | 0.38 | 0.03 | 0.46 |
| 50th-Percentile Queue Length [ft/ln] | 15.98 | 0.34 | 0.00 | 9.32 | 9.49 | 0.66 | 11.52 |
| 95th-Percentile Queue Length [veh/ln] | 1.15 | 0.02 | 0.00 | 0.67 | 0.68 | 0.05 | 0.83 |
| 95th-Percentile Queue Length [ft/ln] | 28.77 | 0.61 | 0.00 | 16.77 | 17.09 | 1.19 | 20.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.37 | 8.32 | 0.00 | 7.54 | 7.82 | 17.32 | 7.18 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.35 | | 7.63 | | | 7.28 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 7.81 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.293 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 127.23 | 2.99 | 0.00 | 181.62 | 83.05 | 3.75 | 393.37 |
| Stops [stops/h] | 77.73 | 1.64 | 0.00 | 90.64 | 46.17 | 3.22 | 112.06 |
| Fuel consumption [US gal/h] | 5.99 | 0.14 | 0.00 | 8.03 | 3.75 | 0.18 | 17.27 |
| CO [g/h] | 418.79 | 9.72 | 0.00 | 561.33 | 262.43 | 12.76 | 1207.42 |
| NOx [g/h] | 81.48 | 1.89 | 0.00 | 109.21 | 51.06 | 2.48 | 234.92 |
| VOC [g/h] | 97.06 | 2.25 | 0.00 | 130.09 | 60.82 | 2.96 | 279.83 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.85 | 11.34 | 11.34 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.143 | 2.682 | 2.388 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1486 | 2161 | 2161 |
| d_b, Bicycle Delay [s] | 0.98 | 0.10 | 0.10 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.996 | 1.822 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 6.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 629 | 69 | 33 | 65 | 22 | 154 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 629 | 69 | 33 | 65 | 22 | 154 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 171 | 19 | 9 | 18 | 6 | 42 |
| Total Analysis Volume [veh/h] | 684 | 75 | 36 | 71 | 24 | 167 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 28 | | 692 | | 39 | |
| Exiting Flow Rate [veh/h] | 211 | | 103 | | 764 | |
| Demand Flow Rate [veh/h] | 629 | 69 | 33 | 65 | 22 | 154 |
| Adjusted Demand Flow Rate [veh/h] | 684 | 75 | 36 | 71 | 24 | 167 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 0.99 | 1.00 | 0.96 | 0.98 | 0.85 | 0.95 |
| Entry Flow Rate [veh/h] | 692 | 75 | 53 | 58 | 29 | 175 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1316 | 1387 | 757 | 757 | 1371 | 1371 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1301 | 1387 | 728 | 742 | 1160 | 1309 |
| X, volume / capacity | 0.53 | 0.05 | 0.07 | 0.08 | 0.02 | 0.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 3.19 | 0.17 | 0.22 | 0.25 | 0.06 | 0.44 |
| 95th-Percentile Queue Length [ft] | 79.85 | 4.29 | 5.56 | 6.19 | 1.58 | 10.94 |
| Approach Delay [s/veh] | 7.89 | | 5.65 | | 3.73 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 6.91 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 38.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.560 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 158 | 42 | 2 | 2 | 95 | 576 | 140 | 228 | 55 | 16 | 496 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 288 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 158 | 42 | 2 | 2 | 95 | 288 | 140 | 228 | 55 | 16 | 496 | 17 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 11 | 1 | 1 | 26 | 78 | 38 | 62 | 15 | 4 | 135 | 5 |
| Total Analysis Volume [veh/h] | 172 | 46 | 2 | 2 | 103 | 313 | 152 | 248 | 60 | 17 | 539 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 11 | 33 | 33 | 1 | 23 | 23 | 10 | 29 | 29 | 4 | 23 | 23 |
| g / C, Green / Cycle | 0.12 | 0.34 | 0.34 | 0.01 | 0.23 | 0.23 | 0.10 | 0.30 | 0.30 | 0.04 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.01 | 0.00 | 0.00 | 0.06 | 0.20 | 0.05 | 0.08 | 0.04 | 0.01 | 0.15 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 207 | 1075 | 548 | 10 | 427 | 374 | 329 | 991 | 475 | 65 | 854 | 382 |
| d1, Uniform Delay [s] | 41.93 | 21.15 | 20.87 | 48.04 | 30.20 | 35.42 | 41.10 | 25.47 | 24.47 | 45.34 | 33.01 | 28.32 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.33 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.35 | 0.04 | 0.01 | 9.48 | 0.84 | 13.64 | 1.01 | 0.84 | 0.76 | 2.14 | 4.85 | 0.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.04 | 0.00 | 0.20 | 0.24 | 0.84 | 0.46 | 0.25 | 0.13 | 0.26 | 0.63 | 0.05 |
| d, Delay for Lane Group [s/veh] | 50.29 | 21.19 | 20.87 | 57.52 | 31.04 | 49.06 | 42.11 | 26.31 | 25.23 | 47.48 | 37.86 | 28.65 |
| Lane Group LOS | D | C | C | E | C | D | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.46 | 0.35 | 0.03 | 0.07 | 2.04 | 8.32 | 1.74 | 2.24 | 1.09 | 0.43 | 6.16 | 0.35 |
| 50th-Percentile Queue Length [ft/ln] | 111.52 | 8.78 | 0.77 | 1.85 | 50.93 | 208.08 | 43.61 | 56.09 | 27.24 | 10.84 | 153.92 | 8.85 |
| 95th-Percentile Queue Length [veh/ln] | 7.92 | 0.63 | 0.06 | 0.13 | 3.67 | 13.05 | 3.14 | 4.04 | 1.96 | 0.78 | 10.23 | 0.64 |
| 95th-Percentile Queue Length [ft/ln] | 198.12 | 15.80 | 1.38 | 3.34 | 91.67 | 326.36 | 78.50 | 100.97 | 49.03 | 19.51 | 255.65 | 15.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.29 | 21.19 | 20.87 | 57.52 | 31.04 | 49.06 | 42.11 | 26.31 | 25.23 | 47.48 | 37.86 | 28.65 |
| Movement LOS | D | C | C | E | C | D | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 43.94 | | | 44.66 | | | 31.39 | | | 37.86 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 38.58 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.560 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.93 | 4.26 | 0.19 | 0.14 | 7.32 | 22.23 | 21.01 | 34.27 | 8.29 | 21.20 | 672.25 | 22.45 |
| Stops [stops/h] | 165.72 | 26.08 | 1.14 | 2.75 | 75.68 | 309.20 | 129.61 | 166.71 | 40.48 | 16.10 | 457.44 | 13.16 |
| Fuel consumption [US gal/h] | 3.33 | 0.52 | 0.02 | 0.04 | 1.37 | 5.75 | 2.88 | 3.66 | 0.87 | 1.13 | 34.35 | 1.10 |
| CO [g/h] | 232.86 | 36.20 | 1.57 | 3.11 | 95.75 | 401.78 | 201.54 | 255.80 | 61.03 | 78.71 | 2401.33 | 77.01 |
| NOx [g/h] | 45.31 | 7.04 | 0.30 | 0.60 | 18.63 | 78.17 | 39.21 | 49.77 | 11.87 | 15.31 | 467.21 | 14.98 |
| VOC [g/h] | 53.97 | 8.39 | 0.36 | 0.72 | 22.19 | 93.12 | 46.71 | 59.28 | 14.14 | 18.24 | 556.53 | 17.85 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 38.08 | 38.08 | 38.08 | 38.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.521 | 2.893 | 2.844 | 2.942 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 413 | 619 | 826 | 826 |
| d_b, Bicycle Delay [s] | 30.52 | 23.10 | 16.71 | 16.71 |
| l_b,int, Bicycle LOS Score for Intersection | 1.741 | 2.725 | 1.939 | 2.033 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.287 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 126 | 2 | 70 | 172 | 179 | 49 | 170 | 13 | 1 | 272 | 117 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 126 | 2 | 70 | 172 | 179 | 49 | 170 | 13 | 1 | 272 | 117 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 34 | 1 | 19 | 47 | 49 | 13 | 46 | 4 | 0 | 74 | 32 |
| Total Analysis Volume [veh/h] | 33 | 137 | 2 | 76 | 187 | 195 | 53 | 185 | 14 | 1 | 296 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 17 | 8 | 20 | 20 | 7 | 16 | 16 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.07 | 0.24 | 0.11 | 0.28 | 0.28 | 0.09 | 0.23 | 0.23 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.08 | 0.02 | 0.10 | 0.12 | 0.02 | 0.05 | 0.01 | 0.00 | 0.08 | 0.05 |
| s, saturation flow rate [veh/h] | 1762 | 1766 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 120 | 419 | 381 | 521 | 449 | 312 | 800 | 372 | 6 | 520 | 408 |
| d1, Uniform Delay [s] | 31.53 | 22.51 | 28.86 | 20.60 | 21.09 | 29.84 | 22.31 | 21.31 | 35.43 | 28.38 | 27.27 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.45 | 1.58 | 0.09 | 2.38 | 3.77 | 0.09 | 0.31 | 0.09 | 5.13 | 2.10 | 0.92 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.33 | 0.20 | 0.36 | 0.43 | 0.17 | 0.23 | 0.04 | 0.17 | 0.57 | 0.31 |
| d, Delay for Lane Group [s/veh] | 31.98 | 24.09 | 28.96 | 22.98 | 24.86 | 29.93 | 22.62 | 21.40 | 40.56 | 30.48 | 28.18 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.54 | 2.02 | 0.54 | 2.52 | 2.79 | 0.41 | 1.24 | 0.18 | 0.02 | 2.16 | 0.88 |
| 50th-Percentile Queue Length [ft/ln] | 13.44 | 50.56 | 13.53 | 62.92 | 69.72 | 10.24 | 31.00 | 4.58 | 0.59 | 53.88 | 21.95 |
| 95th-Percentile Queue Length [veh/ln] | 0.97 | 3.64 | 0.97 | 4.53 | 5.02 | 0.74 | 2.23 | 0.33 | 0.04 | 3.88 | 1.58 |
| 95th-Percentile Queue Length [ft/ln] | 24.19 | 91.01 | 24.35 | 113.25 | 125.50 | 18.43 | 55.81 | 8.25 | 1.06 | 96.99 | 39.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.98 | 24.09 | 24.09 | 28.96 | 22.98 | 24.86 | 29.93 | 22.62 | 21.40 | 40.56 | 30.48 | 28.18 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.61 | | | 24.78 | | | 24.09 | | | 29.82 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.39 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.287 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.06 | 8.66 | 3.75 | 9.24 | 9.63 | 66.10 | 230.73 | 17.46 | 0.17 | 51.20 | 21.97 |
| Stops [stops/h] | 27.20 | 102.35 | 54.76 | 127.36 | 141.14 | 41.45 | 125.52 | 9.28 | 1.19 | 218.15 | 88.86 |
| Fuel consumption [US gal/h] | 0.45 | 1.60 | 1.41 | 3.14 | 3.48 | 3.27 | 11.04 | 0.83 | 0.05 | 9.32 | 3.82 |
| CO [g/h] | 31.43 | 112.08 | 98.86 | 219.42 | 242.96 | 228.79 | 771.96 | 58.09 | 3.16 | 651.49 | 266.79 |
| NOx [g/h] | 6.12 | 21.81 | 19.23 | 42.69 | 47.27 | 44.51 | 150.19 | 11.30 | 0.62 | 126.76 | 51.91 |
| VOC [g/h] | 7.28 | 25.98 | 22.91 | 50.85 | 56.31 | 53.02 | 178.91 | 13.46 | 0.73 | 150.99 | 61.83 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.42 | 25.42 | 25.42 | 25.42 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.209 | 2.761 | 2.920 | 2.788 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 562 | 562 | 843 | 843 |
| d_b, Bicycle Delay [s] | 18.38 | 18.38 | 11.89 | 11.89 |
| l_b,int, Bicycle LOS Score for Intersection | 1.843 | 2.315 | 1.768 | 1.909 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.256 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 152 | 75 | 504 | 645 | 52 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 152 | 75 | 504 | 645 | 52 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 41 | 20 | 137 | 175 | 14 |
| Total Analysis Volume [veh/h] | 0 | 165 | 82 | 548 | 701 | 57 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.26 | 0.10 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 12.48 | 9.69 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.01 | 0.32 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 25.32 | 7.99 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.48 | | 1.26 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.84 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.075 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 0 | 0 | 26 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 69 | 0 | 0 | 26 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 0 | 0 | 7 | 0 | 0 |
| Total Analysis Volume [veh/h] | 75 | 0 | 0 | 28 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.87 | 8.67 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.24 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.04 | 6.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.87 | | 0.00 | | 3.64 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.46 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 4101: Owens Mountain Parkway & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.606 |

**Intersection Setup**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 158 | 182 | 0 | 0 | 97 | 576 | 0 | 0 | 0 | 16 | 0 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 158 | 182 | 0 | 0 | 97 | 576 | 0 | 0 | 0 | 16 | 0 | 17 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 49 | 0 | 0 | 26 | 157 | 0 | 0 | 0 | 4 | 0 | 5 |
| Total Analysis Volume [veh/h] | 172 | 198 | 0 | 0 | 105 | 626 | 0 | 0 | 0 | 17 | 0 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 52 | 52 | 52 | 52 | | 52 | 52 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 40 | 26 | 26 | | 4 | 4 |
| g / C, Green / Cycle | 0.19 | 0.76 | 0.49 | 0.49 | | 0.08 | 0.08 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.06 | 0.06 | 0.39 | | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1589 | | 1781 | 1589 |
| c, Capacity [veh/h] | 344 | 2717 | 924 | 785 | | 151 | 135 |
| d1, Uniform Delay [s] | 18.95 | 1.56 | 7.13 | 11.10 | | 22.23 | 22.27 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | | 0.04 | 0.04 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.42 | 0.02 | 0.08 | 2.70 | | 0.12 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.50 | 0.07 | 0.11 | 0.80 | | 0.11 | 0.13 |
| d, Delay for Lane Group [s/veh] | 19.37 | 1.58 | 7.21 | 13.80 | | 22.35 | 22.43 |
| Lane Group LOS | B | A | A | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.73 | 0.07 | 0.52 | 5.23 | | 0.18 | 0.20 |
| 50th-Percentile Queue Length [ft/ln] | 43.21 | 1.64 | 12.98 | 130.66 | | 4.61 | 4.91 |
| 95th-Percentile Queue Length [veh/ln] | 3.11 | 0.12 | 0.93 | 8.98 | | 0.33 | 0.35 |
| 95th-Percentile Queue Length [ft/ln] | 77.79 | 2.95 | 23.37 | 224.39 | | 8.30 | 8.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.37 | 1.58 | 0.00 | 0.00 | 7.21 | 13.80 | 0.00 | 0.00 | 0.00 | 22.35 | 0.00 | 22.43 |
| Movement LOS | B | A | | | A | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 9.85 | | | 12.85 | | | 0.00 | | | 22.39 | | |
| Approach LOS | A | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 12.17 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.606 | | | | | | | | | | | |

**Emissions**

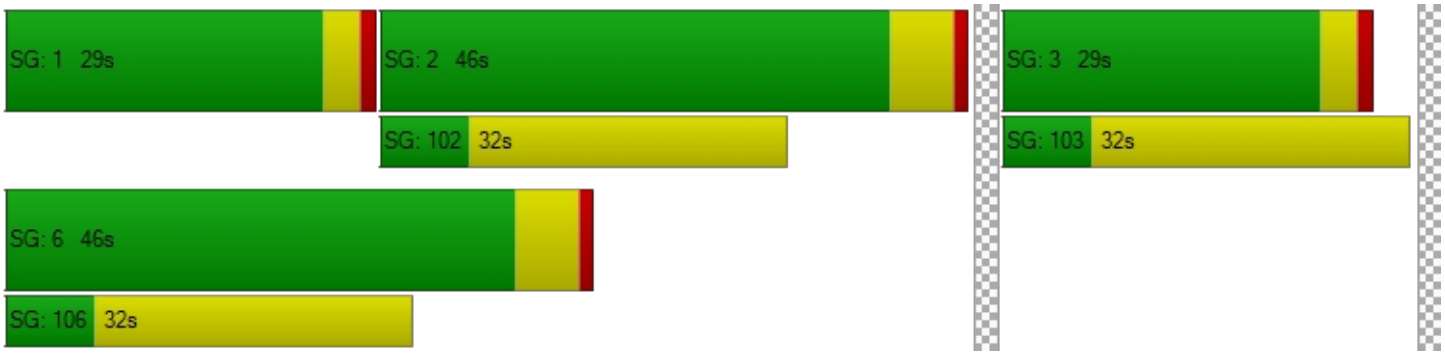
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.22 | 14.06 | 21.33 | 127.18 | | 1.01 | 1.07 |
| Stops [stops/h] | 118.68 | 9.01 | 35.66 | 358.84 | | 12.66 | 13.49 |
| Fuel consumption [US gal/h] | 1.84 | 0.69 | 1.23 | 8.98 | | 0.19 | 0.20 |
| CO [g/h] | 128.38 | 48.40 | 85.92 | 627.42 | | 13.19 | 14.02 |
| NOx [g/h] | 24.98 | 9.42 | 16.72 | 122.07 | | 2.57 | 2.73 |
| VOC [g/h] | 29.75 | 11.22 | 19.91 | 145.41 | | 3.06 | 3.25 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 16.37 | 16.37 | 16.37 | 16.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.502 | 2.331 | 2.073 | 1.921 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1526 | 1526 | 0 | 954 |
| d_b, Bicycle Delay [s] | 1.47 | 1.47 | 26.22 | 7.18 |
| l_b,int, Bicycle LOS Score for Intersection | 1.865 | 2.163 | 4.132 | 1.560 |
| Bicycle LOS | A | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4102: Owens Mountain Parkway and SR 168 EB Ramp Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.217 |

**Intersection Setup**

| Name | Tollhouse | | | Tollhouse | | | SR 168 EB Off-Ramps | | | SR 168 EB On-Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Tollhouse | | | SR 168 EB Off-Ramps | | | SR 168 EB On-Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 200 | 2 | 2 | 111 | 0 | 140 | 0 | 55 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 200 | 2 | 2 | 111 | 0 | 140 | 0 | 55 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 54 | 1 | 1 | 30 | 0 | 38 | 0 | 15 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 217 | 2 | 2 | 121 | 0 | 152 | 0 | 60 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 8 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 40 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 25 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 14 | 0 | 14 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lag | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 8 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | 27 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 9 | 9 | 0 | 13 | 6 | 6 | |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.01 | 0.47 | 0.24 | 0.24 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.06 | 0.00 | 0.03 | 0.09 | 0.04 | |
| s, saturation flow rate [veh/h] | 1870 | 1864 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 589 | 587 | 13 | 1668 | 425 | 380 | |
| d1, Uniform Delay [s] | 6.81 | 6.81 | 13.48 | 4.00 | 8.66 | 8.23 | |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.15 | 0.15 | 5.49 | 0.02 | 0.51 | 0.19 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.19 | 0.16 | 0.07 | 0.36 | 0.16 | |
| d, Delay for Lane Group [s/veh] | 6.96 | 6.97 | 18.97 | 4.01 | 9.16 | 8.42 | |
| Lane Group LOS | A | A | B | A | A | A | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.29 | 0.29 | 0.03 | 0.08 | 0.54 | 0.20 | |
| 50th-Percentile Queue Length [ft/ln] | 7.29 | 7.29 | 0.72 | 1.88 | 13.43 | 4.98 | |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 0.53 | 0.05 | 0.14 | 0.97 | 0.36 | |
| 95th-Percentile Queue Length [ft/ln] | 13.12 | 13.13 | 1.30 | 3.38 | 24.18 | 8.97 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.96 | 6.97 | 18.97 | 4.01 | 0.00 | 9.16 | 0.00 | 8.42 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | A | | A | | | |
| d_A, Approach Delay [s/veh] | 6.96 | | | 4.26 | | | 8.95 | | | 0.00 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.12 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.217 | | | | | | | | | | | |

**Emissions**

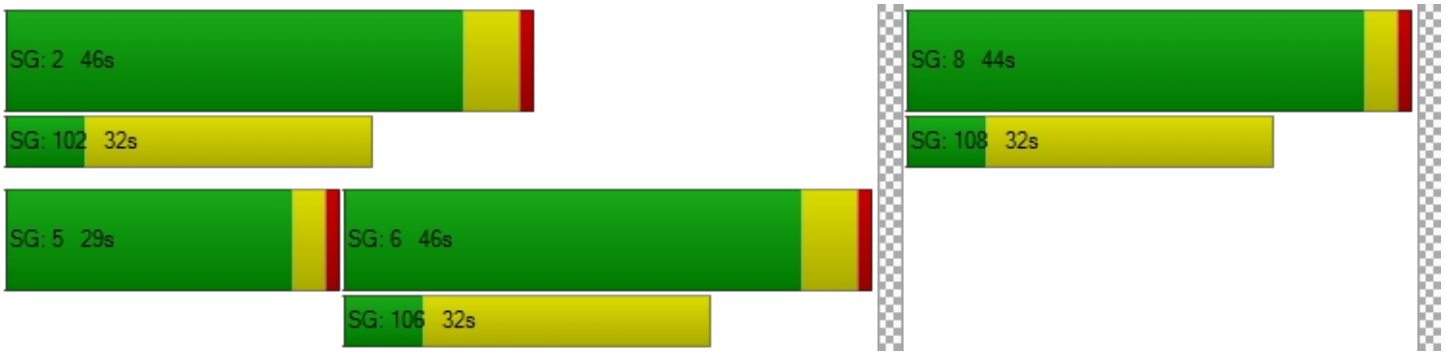
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 6.67 | 6.67 | 0.19 | 11.21 | 11.83 | 4.67 | |
| Stops [stops/h] | 38.61 | 38.63 | 3.82 | 19.91 | 71.16 | 26.40 | |
| Fuel consumption [US gal/h] | 0.64 | 0.64 | 0.04 | 0.67 | 1.16 | 0.44 | |
| CO [g/h] | 44.94 | 44.95 | 2.55 | 46.84 | 81.35 | 30.83 | |
| NOx [g/h] | 8.74 | 8.75 | 0.50 | 9.11 | 15.83 | 6.00 | |
| VOC [g/h] | 10.42 | 10.42 | 0.59 | 10.86 | 18.85 | 7.14 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.82 | 4.82 | 4.82 | 4.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.149 | 2.583 | 1.929 | 1.348 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2943 | 2943 | 2943 | 0 |
| d_b, Bicycle Delay [s] | 3.02 | 3.02 | 3.02 | 13.59 |
| l_b,int, Bicycle LOS Score for Intersection | 1.740 | 1.661 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4201: Shepherd Avenue & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.332 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 175 | 0 | 0 | 242 | 179 | 0 | 0 | 0 | 1 | 0 | 117 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 175 | 0 | 0 | 242 | 179 | 0 | 0 | 0 | 1 | 0 | 117 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 48 | 0 | 0 | 66 | 49 | 0 | 0 | 0 | 0 | 0 | 32 |
| Total Analysis Volume [veh/h] | 33 | 190 | 0 | 0 | 263 | 195 | 0 | 0 | 0 | 1 | 0 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 0 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 32 | 32 | 32 | 32 | | 32 | 32 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 17 | 10 | 10 | | 8 | 8 |
| g / C, Green / Cycle | 0.09 | 0.52 | 0.31 | 0.31 | | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.05 | 0.12 | 0.14 | | 0.00 | 0.08 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1626 | | 1781 | 1589 |
| c, Capacity [veh/h] | 159 | 1852 | 575 | 500 | | 415 | 370 |
| d1, Uniform Delay [s] | 13.69 | 3.94 | 8.85 | 9.04 | | 9.53 | 10.36 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.24 | 0.03 | 0.64 | 0.93 | | 0.00 | 0.78 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.10 | 0.40 | 0.46 | | 0.00 | 0.34 |
| d, Delay for Lane Group [s/veh] | 13.93 | 3.97 | 9.49 | 9.98 | | 9.54 | 11.14 |
| Lane Group LOS | B | A | A | A | | A | B |
| Critical Lane Group | Yes | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.19 | 0.15 | 0.73 | 0.77 | | 0.00 | 0.63 |
| 50th-Percentile Queue Length [ft/ln] | 4.71 | 3.79 | 18.33 | 19.36 | | 0.11 | 15.79 |
| 95th-Percentile Queue Length [veh/ln] | 0.34 | 0.27 | 1.32 | 1.39 | | 0.01 | 1.14 |
| 95th-Percentile Queue Length [ft/ln] | 8.47 | 6.82 | 32.99 | 34.86 | | 0.20 | 28.43 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.93 | 3.97 | 0.00 | 0.00 | 9.55 | 9.98 | 0.00 | 0.00 | 0.00 | 9.54 | 0.00 | 11.14 |
| Movement LOS | B | A | | | A | A | | | | A | | B |
| d_A, Approach Delay [s/veh] | 5.45 | | | 9.73 | | | 0.00 | | | 11.12 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.77 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.332 | | | | | | | | | | | |

**Emissions**

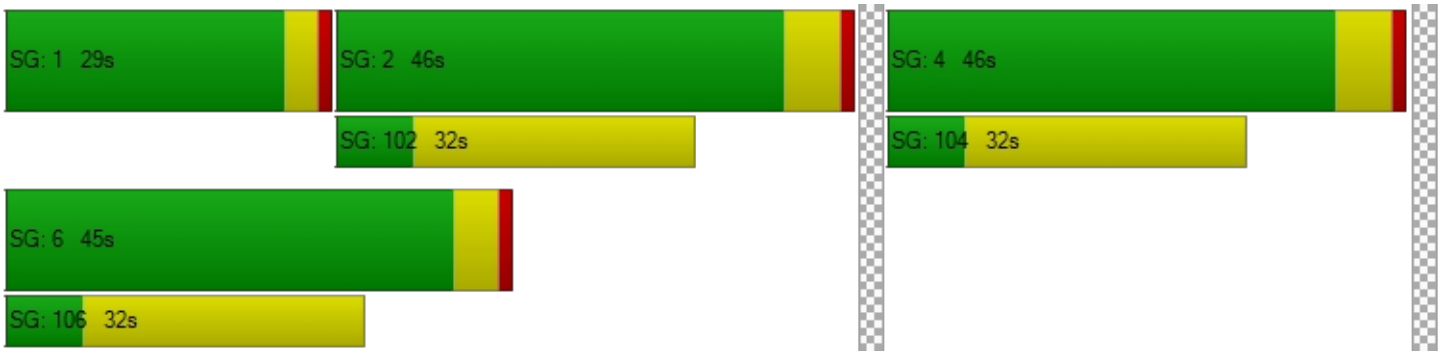
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.63 | 9.39 | 285.98 | 285.98 | | 0.09 | 11.06 |
| Stops [stops/h] | 21.00 | 33.83 | 81.76 | 86.39 | | 0.49 | 70.47 |
| Fuel consumption [US gal/h] | 0.28 | 0.73 | 11.27 | 11.37 | | 0.01 | 1.13 |
| CO [g/h] | 19.34 | 50.81 | 788.06 | 794.61 | | 0.57 | 79.18 |
| NOx [g/h] | 3.76 | 9.89 | 153.33 | 154.60 | | 0.11 | 15.40 |
| VOC [g/h] | 4.48 | 11.78 | 182.64 | 184.16 | | 0.13 | 18.35 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.01 | 7.01 | 7.01 | 7.01 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.597 | 2.381 | 1.581 | 1.917 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2479 | 2479 | 0 | 2479 |
| d_b, Bicycle Delay [s] | 0.92 | 0.92 | 16.14 | 0.92 |
| l_b,int, Bicycle LOS Score for Intersection | 1.744 | 1.937 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4202: Shepherd Avenue & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.167 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 156 | 2 | 70 | 173 | 0 | 49 | 0 | 13 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 156 | 2 | 70 | 173 | 0 | 49 | 0 | 13 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 42 | 1 | 19 | 47 | 0 | 13 | 0 | 4 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 170 | 2 | 76 | 188 | 0 | 53 | 0 | 14 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Split | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 31 | 31 | 31 | 31 | 31 | 31 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 8 | 8 | 5 | 18 | 6 | 6 | |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.17 | 0.56 | 0.18 | 0.18 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.05 | 0.04 | 0.05 | 0.03 | 0.01 | |
| s, saturation flow rate [veh/h] | 1870 | 1862 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 494 | 492 | 308 | 2012 | 319 | 284 | |
| d1, Uniform Delay [s] | 8.86 | 8.87 | 11.17 | 3.12 | 10.86 | 10.63 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.24 | 0.24 | 0.15 | 0.03 | 0.35 | 0.10 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.17 | 0.17 | 0.25 | 0.09 | 0.17 | 0.05 | |
| d, Delay for Lane Group [s/veh] | 9.10 | 9.10 | 11.33 | 3.15 | 11.21 | 10.73 | |
| Lane Group LOS | A | A | B | A | B | B | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.35 | 0.35 | 0.35 | 0.10 | 0.26 | 0.07 | |
| 50th-Percentile Queue Length [ft/ln] | 8.66 | 8.66 | 8.83 | 2.39 | 6.54 | 1.69 | |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 0.62 | 0.64 | 0.17 | 0.47 | 0.12 | |
| 95th-Percentile Queue Length [ft/ln] | 15.58 | 15.59 | 15.89 | 4.30 | 11.77 | 3.04 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.10 | 9.10 | 11.33 | 3.15 | 0.00 | 11.21 | 0.00 | 10.73 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | B | | B | | | |
| d_A, Approach Delay [s/veh] | 9.10 | | | 5.50 | | | 11.11 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.48 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.167 | | | | | | | | | | | |

**Emissions**

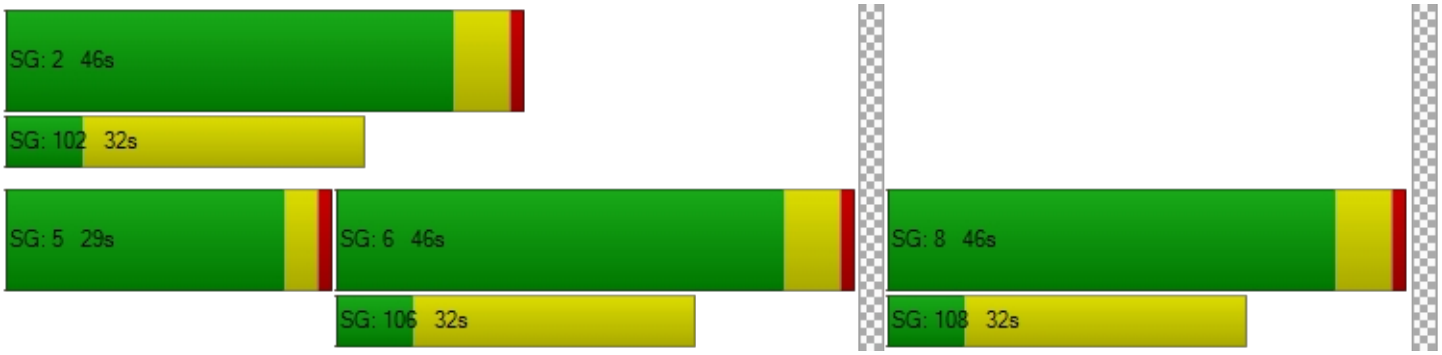
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.58 | 3.58 | 4.74 | 11.71 | 3.92 | 1.04 | |
| Stops [stops/h] | 40.02 | 40.04 | 40.80 | 22.08 | 30.21 | 7.82 | |
| Fuel consumption [US gal/h] | 0.53 | 0.53 | 0.60 | 0.72 | 0.45 | 0.12 | |
| CO [g/h] | 36.88 | 36.89 | 41.63 | 50.66 | 31.40 | 8.14 | |
| NOx [g/h] | 7.18 | 7.18 | 8.10 | 9.86 | 6.11 | 1.58 | |
| VOC [g/h] | 8.55 | 8.55 | 9.65 | 11.74 | 7.28 | 1.89 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.52 | 6.52 | 6.52 | 6.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.155 | 2.464 | 1.894 | 1.432 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2568 | 2568 | 2568 | 0 |
| d_b, Bicycle Delay [s] | 1.26 | 1.26 | 1.26 | 15.58 |
| l_b,int, Bicycle LOS Score for Intersection | 1.702 | 1.777 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4216: New Intersection**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name | International | International |
|---|---|---|
| Approach | Eastbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 |
| Speed [mph] | 30.00 | 30.00 |
| Grade [%] | 0.00 | 0.00 |
| Curb Present | No | No |
| Crosswalk | Yes | Yes |

**Volumes**

| Name | International | International |
|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | |
| Growth Factor | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 |
| Presence of On-Street Parking | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_di, Inbound Pedestrian Volume crossing m | 0 | 0 |
| v_co, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | 0 |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | 0 |
| Bicycle Volume [bicycles/h] | 0 | 0 |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive |
|---|---|---|
| Signal Group | 0 | 0 |
| Auxiliary Signal Groups | | |
| Maximum Green [s] | 0 | 0 |
| Amber [s] | 0.0 | 0.0 |
| All red [s] | 0.0 | 0.0 |
| Walk [s] | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 |
| Rest In Walk | | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | |
|---|---|---|
| Split [s] | 0 | 0 |
| Lead / Lag | - | - |
| Minimum Green [s] | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 |
| Minimum Recall | | |
| Maximum Recall | | |
| Pedestrian Recall | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

**Lane Group Results**

**Movement, Approach, & Intersection Results**

| | | |
|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | | |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | 0.00 | |
| Intersection LOS | A | |
| Intersection V/C | 0.000 | |

**Emissions**

**Other Modes**

| | | |
|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.00 | 45.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.950 | 1.725 |
| Crosswalk LOS | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 |
| d_b, Bicycle Delay [s] | 45.00 | 45.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.560 |
| Bicycle LOS | A | A |

Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Cumulative Plus Proj PM.pdf

Scenario 6 Cumulative PM Plus Proj
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.435 | 20.9 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | EB Right | 0.435 | 22.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.527 | 29.1 | C |
| 4 | Minnewawa Ave & International Ave | Roundabout | HCM 7th Edition | NB Left | | 4.3 | A |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.451 | 18.8 | B |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.566 | 21.7 | C |
| 7 | Clovis Ave & International Ave | Signalized | HCM 7th Edition | SB Left | 0.331 | 9.1 | A |
| 8 | Clovis Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.465 | 13.2 | B |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.489 | 26.1 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.632 | 27.4 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.666 | 31.2 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 1.056 | 85.0 | F |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.825 | 45.0 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.559 | 11.6 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.477 | 20.1 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | NB Left | 0.790 | 43.8 | D |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.688 | 26.9 | C |
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.856 | 47.1 | D |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.831 | 47.0 | D |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.692 | 65.0 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.698 | 27.7 | C |
| 23 | Fowler Ave & Teague Ave | Signalized | HCM 7th Edition | WB Left | 0.359 | 10.0 | A |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.574 | 16.0 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.682 | 23.9 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.503 | 12.4 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.817 | 37.0 | D |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.017 | 17.8 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.008 | 19.6 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.055 | 16.0 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.630 | 31.7 | C |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | WB Left | 0.495 | 15.6 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | EB Thru | | 12.9 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.435 | 4.6 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.967 | 65.2 | E |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.659 | 37.0 | D |
| 37 | Locan Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.518 | 15.7 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Signalized | HCM 7th Edition | WB Thru | 0.517 | 14.2 | B |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.333 | 8.2 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | WB Right | | 5.5 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.483 | 32.1 | C |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | NB Left | 0.321 | 27.1 | C |
| 43 | Shepherd Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.170 | 10.8 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.055 | 9.2 | A |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.278 | 3.8 | A |
| 4102 | Owens Mountain Parkway & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.196 | 8.5 | A |
| 4201 | Shepherd Avenue & SR 168 WB Ramps | Signalized | HCM 7th Edition | NB Left | 0.228 | 5.5 | A |
| 4202 | Shepherd Avenue & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.260 | 10.3 | B |
| 4219 | New Intersection | Signalized | HCM 7th Edition | | 0.000 | 0.0 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.435 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 250.00 | 100.00 | 250.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.61 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 246 | 740 | 68 | 28 | 337 | 88 | 16 | 58 | 246 | 33 | 64 | 68 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 246 | 740 | 68 | 28 | 337 | 88 | 16 | 58 | 246 | 33 | 64 | 68 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 67 | 201 | 18 | 8 | 92 | 24 | 4 | 16 | 67 | 9 | 17 | 18 |
| Total Analysis Volume [veh/h] | 267 | 804 | 74 | 30 | 366 | 96 | 17 | 63 | 267 | 36 | 70 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 3 | 15 | 15 | 2 | 14 | 14 | 4 | 15 | 15 |
| g / C, Green / Cycle | 0.13 | 0.33 | 0.33 | 0.05 | 0.24 | 0.24 | 0.03 | 0.22 | 0.22 | 0.06 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.16 | 0.05 | 0.01 | 0.07 | 0.06 | 0.00 | 0.02 | 0.17 | 0.02 | 0.02 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 5176 | 1615 | 3514 | 5159 | 1615 | 3514 | 3618 | 1604 | 1810 | 3549 | 1584 |
| c, Capacity [veh/h] | 450 | 1700 | 530 | 185 | 1223 | 383 | 117 | 806 | 357 | 109 | 853 | 381 |
| d1, Uniform Delay [s] | 25.51 | 16.55 | 14.65 | 28.05 | 19.42 | 19.18 | 29.11 | 19.05 | 22.46 | 27.92 | 18.25 | 18.76 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.67 | 0.39 | 0.15 | 0.44 | 1.10 | 0.21 | 0.10 | 7.14 | 0.65 | 0.07 | 0.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.59 | 0.47 | 0.14 | 0.16 | 0.30 | 0.25 | 0.15 | 0.08 | 0.75 | 0.33 | 0.08 | 0.19 |
| d, Delay for Lane Group [s/veh] | 25.98 | 17.22 | 15.04 | 28.20 | 19.86 | 20.28 | 29.32 | 19.15 | 29.59 | 28.57 | 18.32 | 19.19 |
| Lane Group LOS | C | B | B | C | B | C | C | B | C | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.64 | 2.56 | 0.66 | 0.19 | 1.27 | 1.07 | 0.11 | 0.32 | 3.84 | 0.51 | 0.37 | 0.83 |
| 50th-Percentile Queue Length [ft/ln] | 41.11 | 64.03 | 16.43 | 4.82 | 31.84 | 26.71 | 2.87 | 8.11 | 96.10 | 12.66 | 9.29 | 20.85 |
| 95th-Percentile Queue Length [veh/ln] | 2.96 | 4.61 | 1.18 | 0.35 | 2.29 | 1.92 | 0.21 | 0.58 | 6.92 | 0.91 | 0.67 | 1.50 |
| 95th-Percentile Queue Length [ft/ln] | 74.00 | 115.25 | 29.58 | 8.67 | 57.31 | 48.07 | 5.17 | 14.61 | 172.98 | 22.80 | 16.71 | 37.54 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.98 | 17.22 | 15.04 | 28.20 | 19.86 | 20.28 | 29.32 | 19.15 | 29.59 | 28.57 | 18.32 | 19.19 |
| Movement LOS | C | B | B | C | B | C | C | B | C | C | B | B |
| d_A, Approach Delay [s/veh] | 19.12 | | | 20.45 | | | 27.68 | | | 20.72 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.93 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.435 | | | | | | | | | | | |

**Emissions**

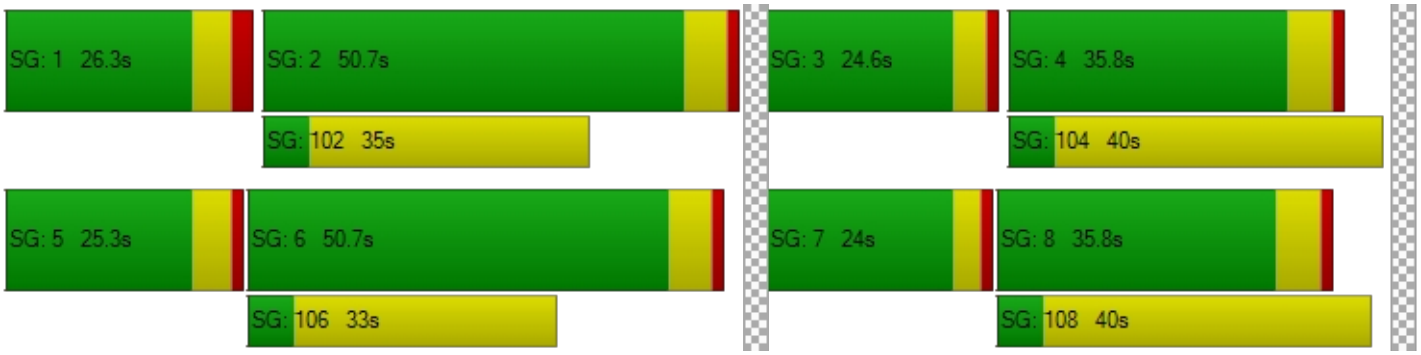
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 134.78 | 405.86 | 37.36 | 2.95 | 36.05 | 9.46 | 1.69 | 6.28 | 26.60 | 31.12 | 60.51 | 63.96 |
| Stops [stops/h] | 191.50 | 447.40 | 38.27 | 22.44 | 222.48 | 62.21 | 13.37 | 37.80 | 223.84 | 29.50 | 43.25 | 48.57 |
| Fuel consumption [US gal/h] | 8.86 | 23.28 | 2.06 | 0.62 | 6.10 | 1.67 | 0.33 | 0.93 | 5.30 | 1.65 | 2.99 | 3.19 |
| CO [g/h] | 619.65 | 1627.03 | 144.34 | 43.03 | 426.49 | 116.58 | 22.77 | 65.05 | 370.67 | 115.56 | 209.06 | 223.01 |
| NOx [g/h] | 120.56 | 316.56 | 28.08 | 8.37 | 82.98 | 22.68 | 4.43 | 12.66 | 72.12 | 22.48 | 40.67 | 43.39 |
| VOC [g/h] | 143.61 | 377.08 | 33.45 | 9.97 | 98.84 | 27.02 | 5.28 | 15.08 | 85.91 | 26.78 | 48.45 | 51.69 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.57 | 22.57 | 22.57 | 22.57 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.244 | 3.082 | 2.850 | 2.625 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1456 | 1456 | 971 | 971 |
| d_b, Bicycle Delay [s] | 2.29 | 2.29 | 8.19 | 8.19 |
| l_b,int, Bicycle LOS Score for Intersection | 2.189 | 1.830 | 1.846 | 1.659 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.435 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 92 | 966 | 245 | 145 | 484 | 46 | 22 | 104 | 119 | 126 | 156 | 140 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 92 | 966 | 245 | 145 | 484 | 46 | 22 | 104 | 119 | 126 | 156 | 140 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 263 | 67 | 39 | 132 | 13 | 6 | 28 | 32 | 34 | 42 | 38 |
| Total Analysis Volume [veh/h] | 100 | 1050 | 266 | 158 | 526 | 50 | 24 | 113 | 129 | 137 | 170 | 152 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 31 | 31 | 8 | 32 | 32 | 3 | 9 | 9 | 8 | 11 | 11 |
| g / C, Green / Cycle | 0.09 | 0.40 | 0.40 | 0.10 | 0.41 | 0.41 | 0.04 | 0.11 | 0.11 | 0.10 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.20 | 0.16 | 0.04 | 0.10 | 0.03 | 0.01 | 0.03 | 0.08 | 0.04 | 0.05 | 0.09 |
| s, saturation flow rate [veh/h] | 3459 | 5176 | 1615 | 3514 | 5135 | 1615 | 3514 | 3583 | 1605 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 318 | 2081 | 649 | 353 | 2108 | 663 | 149 | 405 | 181 | 346 | 537 | 240 |
| d1, Uniform Delay [s] | 32.80 | 17.32 | 16.53 | 32.73 | 14.96 | 13.85 | 35.67 | 31.38 | 33.05 | 32.67 | 29.40 | 30.92 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.21 | 0.62 | 1.35 | 0.33 | 0.20 | 0.16 | 0.19 | 0.45 | 6.09 | 0.27 | 0.75 | 6.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.50 | 0.41 | 0.45 | 0.25 | 0.08 | 0.16 | 0.28 | 0.71 | 0.40 | 0.32 | 0.63 |
| d, Delay for Lane Group [s/veh] | 33.00 | 17.94 | 17.88 | 33.06 | 15.15 | 14.01 | 35.85 | 31.83 | 39.14 | 32.94 | 30.15 | 37.02 |
| Lane Group LOS | C | B | B | C | B | B | D | C | D | C | C | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.82 | 4.08 | 3.11 | 1.30 | 1.76 | 0.48 | 0.21 | 0.94 | 2.51 | 1.18 | 1.43 | 2.98 |
| 50th-Percentile Queue Length [ft/ln] | 20.39 | 101.96 | 77.85 | 32.41 | 44.12 | 12.11 | 5.29 | 23.48 | 62.63 | 29.60 | 35.65 | 74.59 |
| 95th-Percentile Queue Length [veh/ln] | 1.47 | 7.34 | 5.61 | 2.33 | 3.18 | 0.87 | 0.38 | 1.69 | 4.51 | 2.13 | 2.57 | 5.37 |
| 95th-Percentile Queue Length [ft/ln] | 36.69 | 183.52 | 140.14 | 58.34 | 79.41 | 21.80 | 9.51 | 42.27 | 112.73 | 53.28 | 64.18 | 134.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.00 | 17.94 | 17.88 | 33.06 | 15.15 | 14.01 | 35.85 | 31.83 | 39.14 | 32.94 | 30.15 | 37.02 |
| Movement LOS | C | B | B | C | B | B | D | C | D | C | C | D |
| d_A, Approach Delay [s/veh] | 18.99 | | | 18.93 | | | 35.74 | | | 33.26 | | |
| Approach LOS | B | | | B | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.435 | | | | | | | | | | | |

**Emissions**

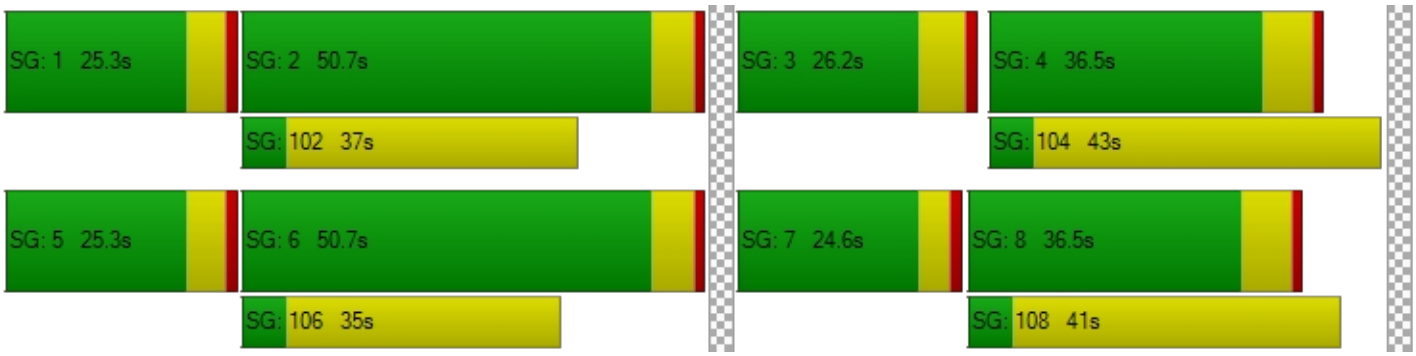
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 101.31 | 1063.72 | 269.48 | 79.76 | 265.53 | 25.24 | 2.61 | 12.29 | 14.03 | 142.13 | 176.36 | 157.69 |
| Stops [stops/h] | 76.14 | 571.20 | 145.39 | 121.05 | 247.16 | 22.62 | 19.74 | 87.71 | 116.95 | 110.55 | 133.17 | 139.29 |
| Fuel consumption [US gal/h] | 5.23 | 48.22 | 12.22 | 5.59 | 14.31 | 1.34 | 0.46 | 2.03 | 2.68 | 7.38 | 9.04 | 8.41 |
| CO [g/h] | 365.78 | 3370.86 | 854.45 | 390.90 | 1000.15 | 93.32 | 32.33 | 142.17 | 187.26 | 515.87 | 631.82 | 587.60 |
| NOx [g/h] | 71.17 | 655.85 | 166.24 | 76.05 | 194.59 | 18.16 | 6.29 | 27.66 | 36.43 | 100.37 | 122.93 | 114.33 |
| VOC [g/h] | 84.77 | 781.23 | 198.03 | 90.59 | 231.80 | 21.63 | 7.49 | 32.95 | 43.40 | 119.56 | 146.43 | 136.18 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 30.08 | 30.08 | 30.08 | 30.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.242 | 3.279 | 2.697 | 2.726 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1167 | 1167 | 778 | 778 |
| d_b, Bicycle Delay [s] | 6.69 | 6.69 | 14.39 | 14.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.338 | 1.963 | 1.779 | 1.938 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.527 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 241 | 875 | 238 | 59 | 841 | 63 | 82 | 478 | 135 | 111 | 487 | 258 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 241 | 875 | 238 | 59 | 841 | 63 | 82 | 478 | 135 | 111 | 487 | 258 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 238 | 65 | 16 | 229 | 17 | 22 | 130 | 37 | 30 | 132 | 70 |
| Total Analysis Volume [veh/h] | 262 | 951 | 259 | 64 | 914 | 68 | 89 | 520 | 147 | 121 | 529 | 280 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 9 | 28 | 28 | 6 | 26 | 26 | 7 | 17 | 17 | 8 | 19 | 19 |
| g / C, Green / Cycle | 0.10 | 0.33 | 0.33 | 0.07 | 0.30 | 0.30 | 0.08 | 0.21 | 0.21 | 0.09 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.18 | 0.16 | 0.02 | 0.18 | 0.04 | 0.03 | 0.14 | 0.09 | 0.03 | 0.15 | 0.17 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1591 | 3514 | 3600 | 1585 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 357 | 1717 | 534 | 260 | 1562 | 485 | 294 | 743 | 327 | 316 | 820 | 366 |
| d1, Uniform Delay [s] | 36.69 | 22.99 | 22.36 | 36.73 | 24.76 | 21.25 | 36.26 | 31.00 | 29.18 | 36.11 | 29.49 | 30.46 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.10 | 0.91 | 2.21 | 0.18 | 1.14 | 0.42 | 0.21 | 2.83 | 2.27 | 0.28 | 1.18 | 4.57 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.55 | 0.48 | 0.25 | 0.59 | 0.14 | 0.30 | 0.70 | 0.45 | 0.38 | 0.65 | 0.77 |
| d, Delay for Lane Group [s/veh] | 37.79 | 23.90 | 24.57 | 36.91 | 25.90 | 21.67 | 36.47 | 33.83 | 31.45 | 36.40 | 30.67 | 35.03 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.48 | 4.72 | 3.97 | 0.59 | 4.77 | 0.94 | 0.81 | 4.77 | 2.59 | 1.11 | 4.55 | 5.29 |
| 50th-Percentile Queue Length [ft/ln] | 62.11 | 118.10 | 99.15 | 14.67 | 119.30 | 23.49 | 20.28 | 119.20 | 64.71 | 27.63 | 113.74 | 132.30 |
| 95th-Percentile Queue Length [veh/ln] | 4.47 | 8.29 | 7.14 | 1.06 | 8.35 | 1.69 | 1.46 | 8.35 | 4.66 | 1.99 | 8.05 | 9.06 |
| 95th-Percentile Queue Length [ft/ln] | 111.81 | 207.22 | 178.47 | 26.40 | 208.86 | 42.29 | 36.51 | 208.72 | 116.48 | 49.73 | 201.19 | 226.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.79 | 23.90 | 24.57 | 36.91 | 25.90 | 21.67 | 36.47 | 33.83 | 31.45 | 36.40 | 30.67 | 35.03 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 26.49 | | | 26.29 | | | 33.68 | | | 32.73 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.527 | | | | | | | | | | | |

**Emissions**

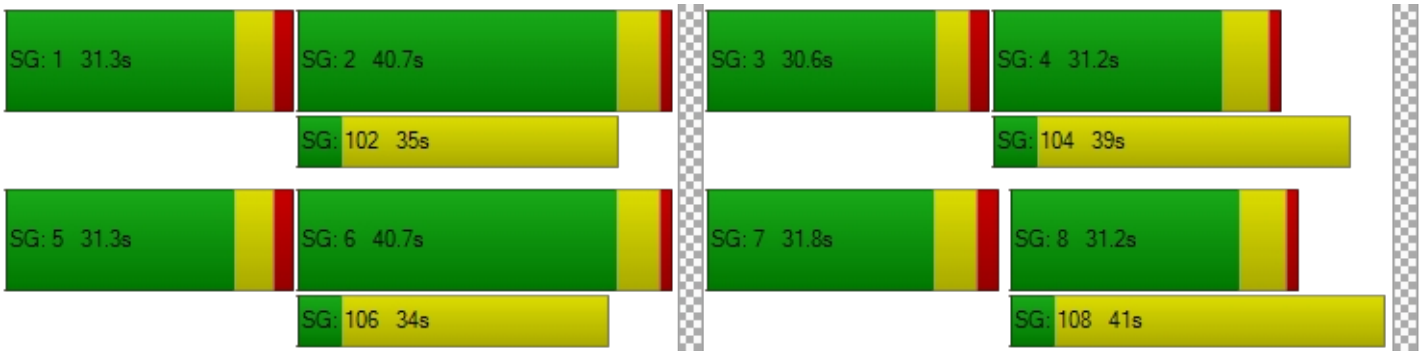
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.75 | 155.17 | 42.26 | 64.84 | 925.94 | 68.89 | 11.63 | 67.95 | 19.21 | 125.36 | 548.08 | 290.10 |
| Stops [stops/h] | 213.03 | 607.58 | 170.03 | 50.31 | 613.71 | 40.29 | 69.57 | 408.81 | 110.97 | 94.75 | 390.08 | 226.87 |
| Fuel consumption [US gal/h] | 6.72 | 19.15 | 5.32 | 3.42 | 45.25 | 3.23 | 2.12 | 12.13 | 3.29 | 6.55 | 27.64 | 15.19 |
| CO [g/h] | 469.47 | 1338.51 | 371.87 | 239.36 | 3162.65 | 225.44 | 148.04 | 847.90 | 229.80 | 457.76 | 1932.29 | 1062.01 |
| NOx [g/h] | 91.34 | 260.43 | 72.35 | 46.57 | 615.34 | 43.86 | 28.80 | 164.97 | 44.71 | 89.06 | 375.95 | 206.63 |
| VOC [g/h] | 108.80 | 310.21 | 86.18 | 55.47 | 732.97 | 52.25 | 34.31 | 196.51 | 53.26 | 106.09 | 447.83 | 246.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2975.49 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.47 | 33.47 | 33.47 | 33.47 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.326 | 3.349 | 2.967 | 3.084 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 834 | 834 | 595 | 595 |
| d_b, Bicycle Delay [s] | 14.28 | 14.28 | 20.77 | 20.71 |
| l_b,int, Bicycle LOS Score for Intersection | 2.369 | 2.135 | 2.183 | 2.327 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 4.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 145 | 96 | 2 | 10 | 92 | 23 | 37 | 27 | 57 | 2 | 42 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 145 | 96 | 2 | 10 | 92 | 23 | 37 | 27 | 57 | 2 | 42 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 26 | 1 | 3 | 25 | 6 | 10 | 7 | 15 | 1 | 11 | 3 |
| Total Analysis Volume [veh/h] | 158 | 104 | 2 | 11 | 100 | 25 | 40 | 29 | 62 | 2 | 46 | 13 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 80 | | | 209 | | | 114 | | | 305 | | |
| Exiting Flow Rate [veh/h] | 165 | | | 157 | | | 232 | | | 42 | | |
| Demand Flow Rate [veh/h] | 145 | 96 | 2 | 10 | 92 | 23 | 37 | 27 | 57 | 2 | 42 | 12 |
| Adjusted Demand Flow Rate [veh/h] | 158 | 104 | 2 | 11 | 100 | 25 | 40 | 29 | 62 | 2 | 46 | 13 |

**Lanes**

| | | | | |
|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1380.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00102 | 0.00102 |
| HV Adjustment Factor | 0.99 | 1.00 | 1.00 | 1.00 |
| Entry Flow Rate [veh/h] | 267 | 137 | 132 | 61 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1272 | 1116 | 1229 | 1012 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1259 | 1111 | 1224 | 1012 |
| X, volume / capacity | 0.21 | 0.12 | 0.11 | 0.06 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| Lane LOS | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.79 | 0.42 | 0.36 | 0.19 |
| 95th-Percentile Queue Length [ft] | 19.78 | 10.43 | 8.97 | 4.81 |
| Approach Delay [s/veh] | 4.67 | 4.31 | 3.83 | 4.09 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 4.34 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.451 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 15 | 28 | 170 | 62 | 43 | 71 | 290 | 40 | 15 | 321 | 181 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 69 | 15 | 28 | 170 | 62 | 43 | 71 | 290 | 40 | 15 | 321 | 181 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 4 | 8 | 46 | 17 | 12 | 19 | 79 | 11 | 4 | 87 | 49 |
| Total Analysis Volume [veh/h] | 75 | 16 | 30 | 185 | 67 | 47 | 77 | 315 | 43 | 16 | 349 | 197 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 3.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 6 | 10 | 9 | 8 | 22 | 22 | 2 | 17 | 17 |
| g / C, Green / Cycle | 0.13 | 0.11 | 0.18 | 0.16 | 0.14 | 0.39 | 0.39 | 0.04 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.03 | 0.10 | 0.06 | 0.04 | 0.17 | 0.03 | 0.01 | 0.18 | 0.12 |
| s, saturation flow rate [veh/h] | 1810 | 1694 | 1810 | 1757 | 1810 | 1891 | 1568 | 1810 | 1894 | 1615 |
| c, Capacity [veh/h] | 244 | 184 | 330 | 274 | 248 | 730 | 605 | 79 | 555 | 473 |
| d1, Uniform Delay [s] | 22.36 | 23.40 | 21.32 | 21.82 | 22.29 | 12.96 | 11.10 | 26.41 | 17.55 | 16.30 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.12 | 0.12 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.77 | 0.56 | 1.43 | 0.26 | 0.44 | 0.05 | 0.46 | 1.93 | 0.96 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.25 | 0.56 | 0.42 | 0.31 | 0.43 | 0.07 | 0.20 | 0.63 | 0.42 |
| d, Delay for Lane Group [s/veh] | 22.62 | 24.17 | 21.88 | 23.26 | 22.55 | 13.40 | 11.16 | 26.87 | 19.48 | 17.27 |
| Lane Group LOS | C | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.87 | 0.57 | 2.13 | 1.39 | 0.89 | 2.68 | 0.31 | 0.21 | 3.87 | 2.00 |
| 50th-Percentile Queue Length [ft/ln] | 21.67 | 14.30 | 53.25 | 34.76 | 22.21 | 67.12 | 7.82 | 5.21 | 96.69 | 49.96 |
| 95th-Percentile Queue Length [veh/ln] | 1.56 | 1.03 | 3.83 | 2.50 | 1.60 | 4.83 | 0.56 | 0.38 | 6.96 | 3.60 |
| 95th-Percentile Queue Length [ft/ln] | 39.00 | 25.74 | 95.85 | 62.57 | 39.97 | 120.82 | 14.07 | 9.39 | 174.05 | 89.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.62 | 24.17 | 24.17 | 21.88 | 23.26 | 23.26 | 22.55 | 13.40 | 11.16 | 26.87 | 19.48 | 17.27 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 23.21 | | | 22.40 | | | 14.80 | | | 18.92 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.75 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.451 | | | | | | | | | | | |

**Emissions**

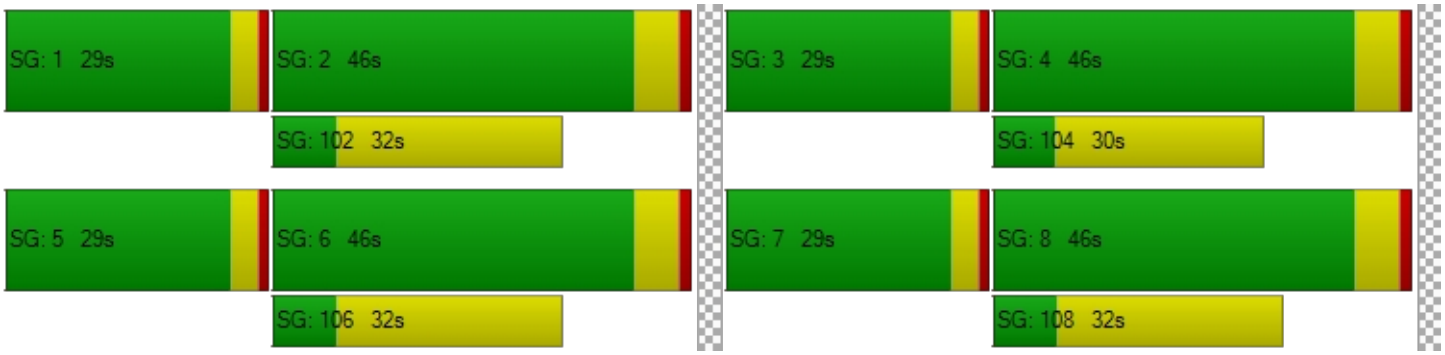
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 75.35 | 46.22 | 93.13 | 57.39 | 79.88 | 326.79 | 44.61 | 9.82 | 214.23 | 120.92 |
| Stops [stops/h] | 54.60 | 36.04 | 134.20 | 87.61 | 55.97 | 169.15 | 19.70 | 13.14 | 243.68 | 125.91 |
| Fuel consumption [US gal/h] | 3.75 | 2.33 | 5.40 | 3.39 | 3.95 | 15.25 | 2.04 | 0.56 | 11.55 | 6.37 |
| CO [g/h] | 262.05 | 162.72 | 377.37 | 236.68 | 276.18 | 1065.71 | 142.80 | 39.45 | 807.28 | 444.98 |
| NOx [g/h] | 50.99 | 31.66 | 73.42 | 46.05 | 53.73 | 207.35 | 27.78 | 7.68 | 157.07 | 86.58 |
| VOC [g/h] | 60.73 | 37.71 | 87.46 | 54.85 | 64.01 | 246.99 | 33.09 | 9.14 | 187.09 | 103.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.63 | 18.63 | 18.63 | 18.63 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.166 | 2.106 | 2.575 | 2.372 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1400 | 1400 | 1400 | 1400 |
| d_b, Bicycle Delay [s] | 2.57 | 2.57 | 2.57 | 2.57 |
| l_b,int, Bicycle LOS Score for Intersection | 1.759 | 2.053 | 2.277 | 2.487 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.566 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 294 | 231 | 106 | 9 | 100 | 40 | 69 | 464 | 107 | 98 | 404 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 294 | 231 | 106 | 9 | 100 | 40 | 69 | 464 | 107 | 98 | 404 | 4 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 79 | 62 | 28 | 2 | 27 | 11 | 19 | 125 | 29 | 26 | 109 | 1 |
| Total Analysis Volume [veh/h] | 316 | 248 | 114 | 10 | 108 | 43 | 74 | 499 | 115 | 105 | 434 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 20 | 20 | 2 | 9 | 8 | 13 | 13 | 9 | 15 | 15 |
| g / C, Green / Cycle | 0.21 | 0.34 | 0.34 | 0.03 | 0.15 | 0.13 | 0.22 | 0.22 | 0.15 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.07 | 0.07 | 0.01 | 0.08 | 0.04 | 0.14 | 0.07 | 0.06 | 0.12 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3592 | 1615 | 1810 | 1801 | 1810 | 3618 | 1615 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 382 | 1211 | 544 | 52 | 278 | 236 | 799 | 357 | 273 | 874 | 390 |
| d1, Uniform Delay [s] | 22.98 | 14.39 | 14.42 | 28.93 | 23.80 | 24.06 | 21.48 | 19.94 | 23.34 | 19.93 | 17.59 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.57 | 0.08 | 0.19 | 1.77 | 1.65 | 0.75 | 0.81 | 0.52 | 0.89 | 0.44 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.20 | 0.21 | 0.19 | 0.54 | 0.31 | 0.62 | 0.32 | 0.38 | 0.50 | 0.01 |
| d, Delay for Lane Group [s/veh] | 27.55 | 14.48 | 14.61 | 30.70 | 25.44 | 24.81 | 22.29 | 20.45 | 24.22 | 20.37 | 17.60 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.22 | 1.03 | 0.96 | 0.15 | 1.89 | 0.89 | 2.80 | 1.21 | 1.24 | 2.28 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 105.56 | 25.76 | 24.11 | 3.87 | 47.30 | 22.25 | 70.03 | 30.29 | 31.06 | 56.90 | 0.93 |
| 95th-Percentile Queue Length [veh/ln] | 7.59 | 1.85 | 1.74 | 0.28 | 3.41 | 1.60 | 5.04 | 2.18 | 2.24 | 4.10 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 189.81 | 46.36 | 43.41 | 6.96 | 85.13 | 40.05 | 126.05 | 54.51 | 55.90 | 102.43 | 1.68 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.55 | 14.48 | 14.61 | 30.70 | 25.44 | 25.44 | 24.81 | 22.29 | 20.45 | 24.22 | 20.37 | 17.60 |
| Movement LOS | C | B | B | C | C | C | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 20.59 | | | 25.77 | | | 22.25 | | | 21.10 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.68 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.566 | | | | | | | | | | | |

**Emissions**

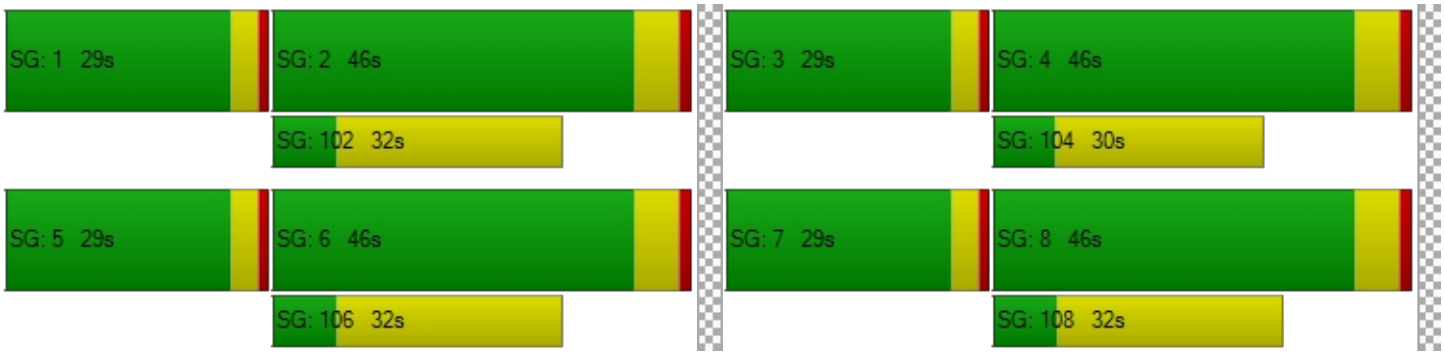
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.83 | 29.69 | 13.65 | 10.05 | 151.71 | 76.67 | 517.00 | 119.15 | 52.58 | 217.34 | 2.00 |
| Stops [stops/h] | 250.10 | 122.05 | 57.13 | 9.16 | 112.05 | 52.72 | 331.84 | 71.75 | 73.58 | 269.64 | 2.21 |
| Fuel consumption [US gal/h] | 6.18 | 3.27 | 1.52 | 0.52 | 7.38 | 3.75 | 24.67 | 5.57 | 3.41 | 13.22 | 0.12 |
| CO [g/h] | 431.85 | 228.29 | 106.04 | 36.40 | 515.54 | 262.15 | 1724.45 | 389.36 | 238.21 | 923.83 | 8.06 |
| NOx [g/h] | 84.02 | 44.42 | 20.63 | 7.08 | 100.31 | 51.00 | 335.52 | 75.75 | 46.35 | 179.74 | 1.57 |
| VOC [g/h] | 100.08 | 52.91 | 24.58 | 8.44 | 119.48 | 60.76 | 399.66 | 90.24 | 55.21 | 214.11 | 1.87 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.38 | 20.38 | 20.38 | 20.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.572 | 2.287 | 2.832 | 2.747 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1316 | 1316 | 1316 | 1316 |
| d_b, Bicycle Delay [s] | 3.55 | 3.55 | 3.55 | 3.55 |
| l_b,int, Bicycle LOS Score for Intersection | 2.119 | 1.825 | 2.127 | 2.008 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.331 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 28 | 616 | 0 | 21 | 411 | 0 | 0 | 0 | 13 | 0 | 5 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 28 | 616 | 0 | 21 | 411 | 0 | 0 | 0 | 13 | 0 | 5 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 167 | 0 | 6 | 112 | 0 | 0 | 0 | 4 | 0 | 1 | 2 |
| Total Analysis Volume [veh/h] | 30 | 670 | 0 | 23 | 447 | 0 | 0 | 0 | 14 | 0 | 5 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 25 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 12 | 12 | 2 | 11 | 11 | 0 | 3 | 3 | 0 | 3 | 3 |
| g / C, Green / Cycle | 0.08 | 0.35 | 0.35 | 0.07 | 0.34 | 0.34 | 0.00 | 0.09 | 0.09 | 0.00 | 0.09 | 0.09 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.19 | 0.00 | 0.01 | 0.13 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 149 | 1259 | 562 | 118 | 1198 | 535 | 1 | 178 | 152 | 1 | 178 | 152 |
| d1, Uniform Delay [s] | 14.11 | 8.50 | 0.00 | 14.59 | 8.32 | 0.00 | 0.00 | 0.00 | 13.64 | 0.00 | 13.55 | 13.58 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.25 | 0.38 | 0.00 | 0.30 | 0.28 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.10 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.20 | 0.53 | 0.00 | 0.20 | 0.37 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.03 | 0.05 |
| d, Delay for Lane Group [s/veh] | 14.36 | 8.88 | 0.00 | 14.89 | 8.59 | 0.00 | 0.00 | 0.00 | 14.04 | 0.00 | 13.66 | 13.82 |
| Lane Group LOS | B | A | A | B | A | A | A | A | B | A | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.18 | 1.31 | 0.00 | 0.14 | 0.86 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.03 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 4.44 | 32.84 | 0.00 | 3.53 | 21.45 | 0.00 | 0.00 | 0.00 | 2.32 | 0.00 | 0.80 | 1.33 |
| 95th-Percentile Queue Length [veh/ln] | 0.32 | 2.36 | 0.00 | 0.25 | 1.54 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.06 | 0.10 |
| 95th-Percentile Queue Length [ft/ln] | 7.99 | 59.11 | 0.00 | 6.36 | 38.62 | 0.00 | 0.00 | 0.00 | 4.17 | 0.00 | 1.44 | 2.39 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 14.36 | 8.88 | 0.00 | 14.89 | 8.59 | 0.00 | 0.00 | 0.00 | 14.04 | 0.00 | 13.66 | 13.82 |
| Movement LOS | B | A | A | B | A | A | A | A | B | A | B | B |
| d_A, Approach Delay [s/veh] | 9.11 | | | 8.90 | | | 14.04 | | | 13.76 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.14 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.331 | | | | | | | | | | | |

**Emissions**

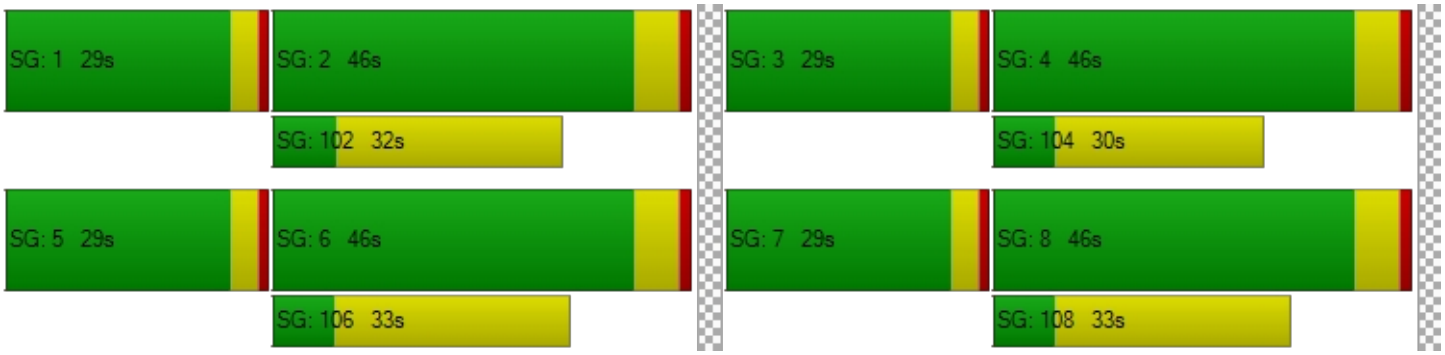
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.68 | 350.17 | 0.00 | 0.54 | 10.56 | 0.00 | 0.00 | 0.00 | 10.56 | 0.00 | 0.12 | 0.19 |
| Stops [stops/h] | 19.47 | 287.94 | 0.00 | 15.48 | 188.10 | 0.00 | 0.00 | 0.00 | 10.16 | 0.00 | 3.52 | 5.82 |
| Fuel consumption [US gal/h] | 0.84 | 17.22 | 0.00 | 0.18 | 2.26 | 0.00 | 0.00 | 0.00 | 0.53 | 0.00 | 0.04 | 0.06 |
| CO [g/h] | 58.76 | 1203.46 | 0.00 | 12.41 | 157.68 | 0.00 | 0.00 | 0.00 | 37.11 | 0.00 | 2.67 | 4.37 |
| NOx [g/h] | 11.43 | 234.15 | 0.00 | 2.42 | 30.68 | 0.00 | 0.00 | 0.00 | 7.22 | 0.00 | 0.52 | 0.85 |
| VOC [g/h] | 13.62 | 278.91 | 0.00 | 2.88 | 36.54 | 0.00 | 0.00 | 0.00 | 8.60 | 0.00 | 0.62 | 1.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.27 | 7.27 | 7.27 | 7.27 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.692 | 2.576 | 2.080 | 2.077 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2436 | 2436 | 2436 | 2436 |
| d_b, Bicycle Delay [s] | 0.78 | 0.78 | 0.78 | 0.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.137 | 1.947 | 1.583 | 1.581 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.465 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 82 | 929 | 8 | 5 | 520 | 0 | 0 | 104 | 50 | 1 | 27 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 82 | 929 | 8 | 5 | 520 | 0 | 0 | 104 | 50 | 1 | 27 | 4 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 252 | 2 | 1 | 141 | 0 | 0 | 28 | 14 | 0 | 7 | 1 |
| Total Analysis Volume [veh/h] | 89 | 1010 | 9 | 5 | 565 | 0 | 0 | 113 | 54 | 1 | 29 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 21 | 21 | 1 | 14 | 14 | 0 | 10 | 10 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.16 | 0.43 | 0.43 | 0.02 | 0.29 | 0.29 | 0.00 | 0.21 | 0.21 | 0.00 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.28 | 0.01 | 0.00 | 0.16 | 0.00 | 0.00 | 0.06 | 0.03 | 0.00 | 0.02 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 287 | 1544 | 689 | 27 | 1023 | 457 | 0 | 395 | 336 | 6 | 401 | 341 |
| d1, Uniform Delay [s] | 17.59 | 10.64 | 7.67 | 23.12 | 14.35 | 0.00 | 0.00 | 15.73 | 15.30 | 23.63 | 14.90 | 14.70 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.23 | 0.52 | 0.01 | 1.21 | 0.67 | 0.00 | 0.00 | 0.60 | 0.34 | 5.25 | 0.12 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.65 | 0.01 | 0.19 | 0.55 | 0.00 | 0.00 | 0.29 | 0.16 | 0.17 | 0.07 | 0.01 |
| d, Delay for Lane Group [s/veh] | 17.82 | 11.16 | 7.68 | 24.33 | 15.01 | 0.00 | 0.00 | 16.33 | 15.64 | 28.88 | 15.02 | 14.73 |
| Lane Group LOS | B | B | A | C | B | A | A | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.78 | 3.34 | 0.04 | 0.06 | 2.28 | 0.00 | 0.00 | 0.89 | 0.41 | 0.02 | 0.23 | 0.03 |
| 50th-Percentile Queue Length [ft/ln] | 19.58 | 83.58 | 1.08 | 1.49 | 57.01 | 0.00 | 0.00 | 22.17 | 10.33 | 0.47 | 5.84 | 0.80 |
| 95th-Percentile Queue Length [veh/ln] | 1.41 | 6.02 | 0.08 | 0.11 | 4.10 | 0.00 | 0.00 | 1.60 | 0.74 | 0.03 | 0.42 | 0.06 |
| 95th-Percentile Queue Length [ft/ln] | 35.24 | 150.44 | 1.94 | 2.69 | 102.62 | 0.00 | 0.00 | 39.90 | 18.59 | 0.84 | 10.52 | 1.44 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 17.82 | 11.16 | 7.68 | 24.33 | 15.01 | 0.00 | 0.00 | 16.33 | 15.64 | 28.88 | 15.02 | 14.73 |
| Movement LOS | B | B | A | C | B | A | A | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 11.67 | | | 15.10 | | | 16.11 | | | 15.39 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.17 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.465 | | | | | | | | | | | |

**Emissions**

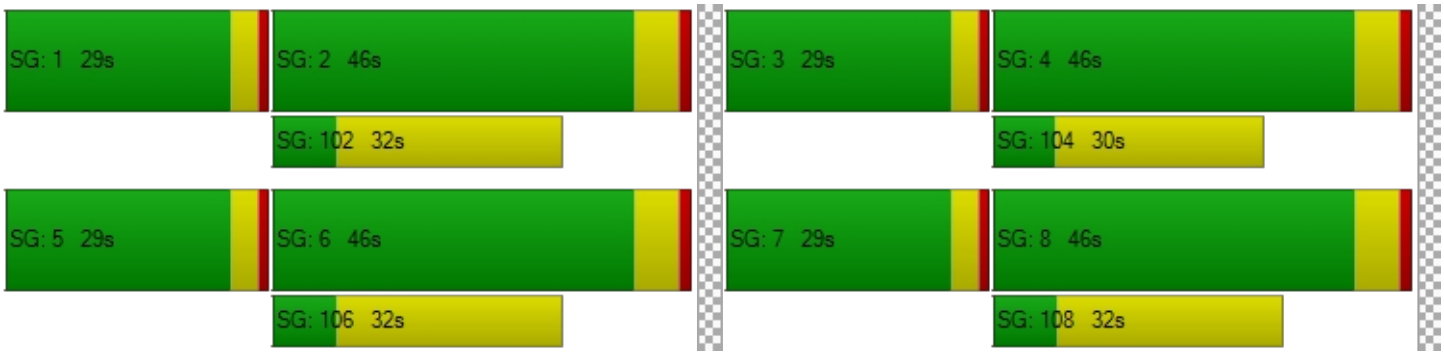
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 92.00 | 1044.00 | 9.30 | 2.61 | 295.29 | 0.00 | 0.00 | 69.36 | 33.15 | 0.39 | 11.33 | 1.56 |
| Stops [stops/h] | 59.45 | 507.50 | 3.27 | 4.53 | 346.18 | 0.00 | 0.00 | 67.30 | 31.35 | 1.41 | 17.74 | 2.43 |
| Fuel consumption [US gal/h] | 4.44 | 48.08 | 0.42 | 0.16 | 15.80 | 0.00 | 0.00 | 3.59 | 1.70 | 0.03 | 0.65 | 0.09 |
| CO [g/h] | 310.24 | 3360.50 | 29.01 | 11.00 | 1104.09 | 0.00 | 0.00 | 250.94 | 118.68 | 2.08 | 45.66 | 6.28 |
| NOx [g/h] | 60.36 | 653.83 | 5.65 | 2.14 | 214.82 | 0.00 | 0.00 | 48.82 | 23.09 | 0.40 | 8.88 | 1.22 |
| VOC [g/h] | 71.90 | 778.83 | 6.72 | 2.55 | 255.88 | 0.00 | 0.00 | 58.16 | 27.51 | 0.48 | 10.58 | 1.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 13.99 | 13.99 | 13.99 | 13.99 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.697 | 2.673 | 2.198 | 2.133 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1687 | 1687 | 1687 | 1687 |
| d_b, Bicycle Delay [s] | 0.58 | 0.58 | 0.58 | 0.58 |
| l_b,int, Bicycle LOS Score for Intersection | 2.474 | 2.030 | 1.835 | 1.616 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.489 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 238 | 426 | 242 | 197 | 214 | 30 | 179 | 345 | 84 | 37 | 327 | 217 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 238 | 426 | 242 | 197 | 214 | 30 | 179 | 345 | 84 | 37 | 327 | 217 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 63 | 112 | 64 | 52 | 56 | 8 | 47 | 91 | 22 | 10 | 86 | 57 |
| Total Analysis Volume [veh/h] | 251 | 448 | 255 | 207 | 225 | 32 | 188 | 363 | 88 | 39 | 344 | 228 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 20 | 20 | 11 | 20 | 20 | 11 | 21 | 21 | 7 | 17 | 17 |
| g / C, Green / Cycle | 0.15 | 0.26 | 0.26 | 0.15 | 0.26 | 0.26 | 0.15 | 0.28 | 0.28 | 0.10 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.13 | 0.16 | 0.06 | 0.06 | 0.02 | 0.05 | 0.10 | 0.05 | 0.01 | 0.10 | 0.14 |
| s, saturation flow rate [veh/h] | 3514 | 3578 | 1611 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1611 |
| c, Capacity [veh/h] | 533 | 935 | 421 | 530 | 942 | 421 | 527 | 1021 | 455 | 315 | 825 | 367 |
| d1, Uniform Delay [s] | 29.53 | 23.77 | 24.69 | 29.20 | 22.23 | 21.27 | 29.09 | 21.82 | 20.76 | 31.54 | 25.10 | 26.45 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.24 | 0.86 | 3.13 | 0.17 | 0.66 | 0.39 | 0.15 | 0.31 | 0.30 | 0.06 | 0.50 | 2.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.48 | 0.61 | 0.39 | 0.24 | 0.08 | 0.36 | 0.36 | 0.19 | 0.12 | 0.42 | 0.62 |
| d, Delay for Lane Group [s/veh] | 29.77 | 24.62 | 27.82 | 29.38 | 22.89 | 21.66 | 29.24 | 22.13 | 21.07 | 31.61 | 25.60 | 28.97 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.96 | 3.20 | 4.01 | 1.67 | 1.62 | 0.46 | 1.42 | 2.34 | 1.10 | 0.32 | 2.61 | 3.82 |
| 50th-Percentile Queue Length [ft/ln] | 48.94 | 79.92 | 100.37 | 41.71 | 40.41 | 11.55 | 35.44 | 58.44 | 27.42 | 8.08 | 65.27 | 95.61 |
| 95th-Percentile Queue Length [veh/ln] | 3.52 | 5.75 | 7.23 | 3.00 | 2.91 | 0.83 | 2.55 | 4.21 | 1.97 | 0.58 | 4.70 | 6.88 |
| 95th-Percentile Queue Length [ft/ln] | 88.09 | 143.85 | 180.67 | 75.08 | 72.73 | 20.78 | 63.79 | 105.20 | 49.35 | 14.54 | 117.49 | 172.11 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.77 | 24.62 | 27.82 | 29.38 | 22.89 | 21.66 | 29.24 | 22.13 | 21.07 | 31.61 | 25.60 | 28.97 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.83 | | | 25.70 | | | 24.07 | | | 27.24 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.07 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.489 | | | | | | | | | | | |

**Emissions**

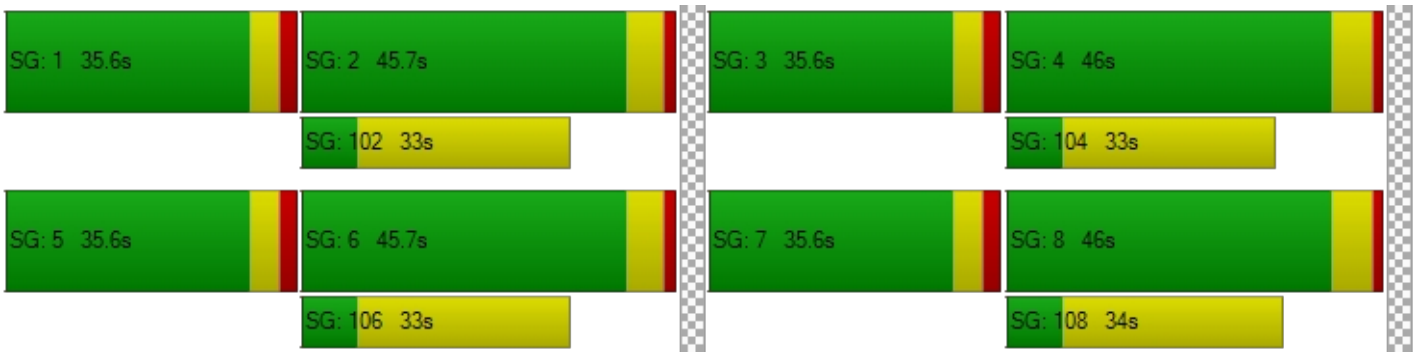
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 255.55 | 456.12 | 259.62 | 213.97 | 232.57 | 33.08 | 94.15 | 181.78 | 44.07 | 19.55 | 172.45 | 114.30 |
| Stops [stops/h] | 185.31 | 302.60 | 190.03 | 157.94 | 153.00 | 21.86 | 134.19 | 221.29 | 51.91 | 30.58 | 247.15 | 181.02 |
| Fuel consumption [US gal/h] | 12.58 | 21.64 | 12.71 | 10.92 | 11.47 | 1.62 | 6.33 | 11.12 | 2.65 | 1.22 | 10.26 | 7.05 |
| CO [g/h] | 879.64 | 1512.79 | 888.13 | 763.20 | 801.59 | 113.48 | 442.56 | 777.22 | 185.22 | 85.60 | 716.95 | 492.77 |
| NOx [g/h] | 171.15 | 294.33 | 172.80 | 148.49 | 155.96 | 22.08 | 86.11 | 151.22 | 36.04 | 16.66 | 139.49 | 95.88 |
| VOC [g/h] | 203.87 | 350.60 | 205.83 | 176.88 | 185.78 | 26.30 | 102.57 | 180.13 | 42.93 | 19.84 | 166.16 | 114.20 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5298.37 | 0.00 | 5154.67 |
| d_p, Pedestrian Delay [s] | 27.83 | 27.83 | 27.83 | 27.83 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.955 | 2.878 | 2.973 | 2.891 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1052 | 1052 | 1052 | 1052 |
| d_b, Bicycle Delay [s] | 8.55 | 8.55 | 8.55 | 8.55 |
| l_b,int, Bicycle LOS Score for Intersection | 2.347 | 1.942 | 2.087 | 2.064 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 92 | 906 | 46 | 67 | 492 | 27 | 42 | 757 | 126 | 36 | 712 | 225 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 92 | 906 | 46 | 67 | 492 | 27 | 42 | 757 | 126 | 36 | 712 | 225 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 238 | 12 | 18 | 129 | 7 | 11 | 199 | 33 | 9 | 187 | 59 |
| Total Analysis Volume [veh/h] | 97 | 954 | 48 | 71 | 518 | 28 | 44 | 797 | 133 | 38 | 749 | 237 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 31 | 31 | 8 | 30 | 30 | 7 | 26 | 26 | 6 | 26 | 26 |
| g / C, Green / Cycle | 0.10 | 0.35 | 0.35 | 0.09 | 0.34 | 0.34 | 0.08 | 0.30 | 0.30 | 0.07 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.26 | 0.03 | 0.04 | 0.14 | 0.02 | 0.02 | 0.22 | 0.08 | 0.02 | 0.21 | 0.15 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1564 | 1801 | 3595 | 1614 | 1810 | 3612 | 1606 | 1810 | 3586 | 1615 |
| c, Capacity [veh/h] | 187 | 1269 | 550 | 170 | 1232 | 553 | 136 | 1091 | 485 | 125 | 1062 | 478 |
| d1, Uniform Delay [s] | 37.23 | 25.03 | 18.99 | 37.46 | 22.14 | 19.28 | 38.42 | 27.40 | 23.28 | 38.80 | 27.47 | 25.47 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.82 | 1.40 | 0.10 | 0.61 | 0.35 | 0.06 | 0.50 | 1.46 | 0.46 | 0.50 | 1.28 | 1.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.52 | 0.75 | 0.09 | 0.42 | 0.42 | 0.05 | 0.32 | 0.73 | 0.27 | 0.30 | 0.71 | 0.50 |
| d, Delay for Lane Group [s/veh] | 38.06 | 26.43 | 19.10 | 38.07 | 22.49 | 19.34 | 38.92 | 28.86 | 23.74 | 39.30 | 28.75 | 26.64 |
| Lane Group LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.91 | 8.15 | 0.62 | 1.39 | 3.82 | 0.36 | 0.87 | 7.08 | 2.01 | 0.76 | 6.61 | 3.92 |
| 50th-Percentile Queue Length [ft/ln] | 47.78 | 203.87 | 15.49 | 34.83 | 95.48 | 9.07 | 21.80 | 176.90 | 50.16 | 18.94 | 165.15 | 98.03 |
| 95th-Percentile Queue Length [veh/ln] | 3.44 | 12.84 | 1.12 | 2.51 | 6.87 | 0.65 | 1.57 | 11.44 | 3.61 | 1.36 | 10.82 | 7.06 |
| 95th-Percentile Queue Length [ft/ln] | 86.01 | 320.96 | 27.88 | 62.70 | 171.86 | 16.33 | 39.25 | 285.96 | 90.28 | 34.09 | 270.53 | 176.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.06 | 26.43 | 19.10 | 38.07 | 22.49 | 19.34 | 38.92 | 28.86 | 23.74 | 39.30 | 28.75 | 26.64 |
| Movement LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.14 | | | 24.14 | | | 28.61 | | | 28.65 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.45 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.632 | | | | | | | | | | | |

**Emissions**

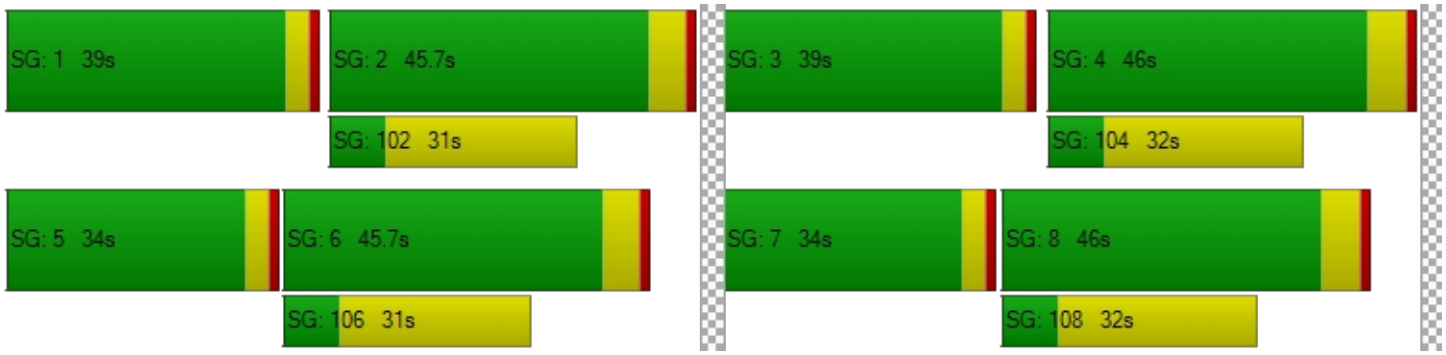
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 50.93 | 500.88 | 25.20 | 72.29 | 527.39 | 28.51 | 3.81 | 68.94 | 11.50 | 22.87 | 450.76 | 142.63 |
| Stops [stops/h] | 78.61 | 670.80 | 25.48 | 57.30 | 314.16 | 14.92 | 35.87 | 582.05 | 82.52 | 31.16 | 543.39 | 161.27 |
| Fuel consumption [US gal/h] | 3.47 | 30.64 | 1.37 | 3.74 | 24.35 | 1.27 | 0.92 | 14.28 | 2.06 | 1.48 | 26.59 | 8.18 |
| CO [g/h] | 242.86 | 2141.82 | 95.57 | 261.45 | 1702.39 | 88.98 | 64.65 | 998.17 | 144.20 | 103.12 | 1858.61 | 571.72 |
| NOx [g/h] | 47.25 | 416.72 | 18.59 | 50.87 | 331.22 | 17.31 | 12.58 | 194.21 | 28.06 | 20.06 | 361.62 | 111.24 |
| VOC [g/h] | 56.28 | 496.39 | 22.15 | 60.59 | 394.55 | 20.62 | 14.98 | 231.34 | 33.42 | 23.90 | 430.75 | 132.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.46 | 33.46 | 33.46 | 33.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.966 | 2.979 | 2.901 | 2.924 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 914 | 914 | 914 | 914 |
| d_b, Bicycle Delay [s] | 12.90 | 12.90 | 12.90 | 12.90 |
| l_b,int, Bicycle LOS Score for Intersection | 2.466 | 2.069 | 2.363 | 2.404 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.666 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 106 | 805 | 206 | 56 | 472 | 13 | 22 | 369 | 203 | 35 | 180 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 106 | 805 | 206 | 56 | 472 | 13 | 22 | 369 | 203 | 35 | 180 | 149 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 219 | 56 | 15 | 128 | 4 | 6 | 100 | 55 | 10 | 49 | 40 |
| Total Analysis Volume [veh/h] | 115 | 875 | 224 | 61 | 513 | 14 | 24 | 401 | 221 | 38 | 196 | 162 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 31 | 31 | 9 | 29 | 29 | 5 | 25 | 25 | 6 | 27 | 27 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.35 | 0.11 | 0.33 | 0.33 | 0.05 | 0.29 | 0.29 | 0.07 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.30 | 0.30 | 0.03 | 0.14 | 0.14 | 0.01 | 0.21 | 0.14 | 0.02 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1741 | 1810 | 1874 | 1856 | 1810 | 1874 | 1578 | 1761 | 1876 | 1582 |
| c, Capacity [veh/h] | 234 | 664 | 611 | 193 | 615 | 609 | 96 | 539 | 454 | 126 | 575 | 485 |
| d1, Uniform Delay [s] | 35.36 | 26.31 | 26.49 | 36.08 | 22.96 | 22.96 | 39.67 | 28.18 | 25.69 | 38.47 | 23.47 | 23.36 |
| k, delay calibration | 0.11 | 0.34 | 0.35 | 0.11 | 0.11 | 0.11 | 0.11 | 0.16 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.60 | 9.51 | 11.44 | 0.93 | 0.48 | 0.48 | 1.33 | 3.01 | 0.81 | 1.32 | 0.35 | 0.40 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.49 | 0.86 | 0.87 | 0.32 | 0.43 | 0.43 | 0.25 | 0.74 | 0.49 | 0.30 | 0.34 | 0.33 |
| d, Delay for Lane Group [s/veh] | 36.96 | 35.82 | 37.93 | 37.01 | 23.43 | 23.45 | 41.01 | 31.19 | 26.50 | 39.79 | 23.82 | 23.77 |
| Lane Group LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.25 | 11.62 | 11.23 | 1.19 | 4.00 | 3.97 | 0.51 | 7.43 | 3.61 | 0.78 | 2.95 | 2.44 |
| 50th-Percentile Queue Length [ft/ln] | 56.37 | 290.54 | 280.69 | 29.76 | 99.90 | 99.17 | 12.66 | 185.80 | 90.23 | 19.52 | 73.82 | 60.94 |
| 95th-Percentile Queue Length [veh/ln] | 4.06 | 17.21 | 16.72 | 2.14 | 7.19 | 7.14 | 0.91 | 11.90 | 6.50 | 1.41 | 5.32 | 4.39 |
| 95th-Percentile Queue Length [ft/ln] | 101.46 | 430.31 | 418.07 | 53.57 | 179.82 | 178.50 | 22.80 | 297.57 | 162.41 | 35.14 | 132.88 | 109.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.96 | 36.56 | 37.93 | 37.01 | 23.44 | 23.45 | 41.01 | 31.19 | 26.50 | 39.79 | 23.82 | 23.77 |
| Movement LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 36.85 | | | 24.85 | | | 29.95 | | | 25.33 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.666 | | | | | | | | | | | |

**Emissions**

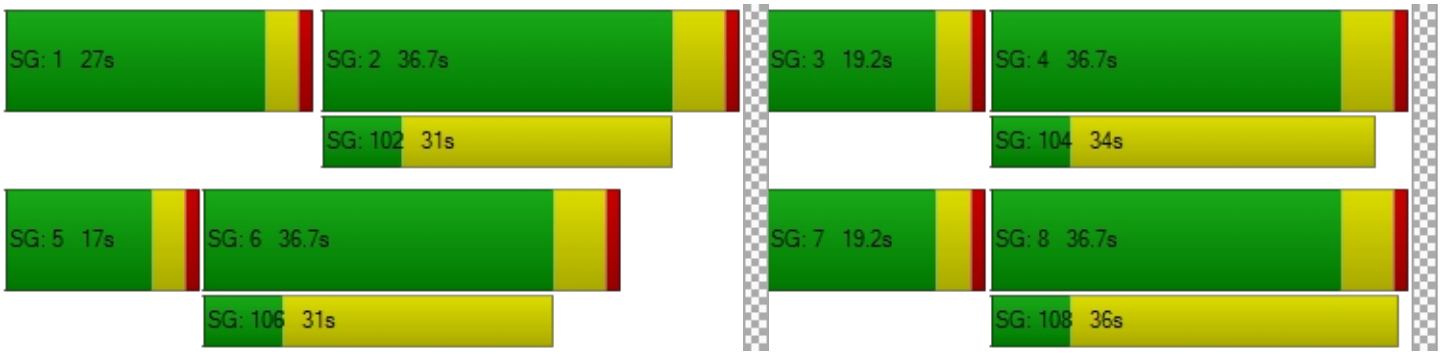
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 61.10 | 301.81 | 282.09 | 32.03 | 138.89 | 137.80 | 2.41 | 40.20 | 22.16 | 18.09 | 93.28 | 77.10 |
| Stops [stops/h] | 93.12 | 479.99 | 463.71 | 49.16 | 165.04 | 163.83 | 20.92 | 306.95 | 149.06 | 32.25 | 121.96 | 100.67 |
| Fuel consumption [US gal/h] | 4.12 | 20.45 | 19.53 | 2.17 | 8.07 | 8.01 | 0.54 | 7.74 | 3.80 | 1.33 | 5.66 | 4.68 |
| CO [g/h] | 287.79 | 1429.70 | 1365.36 | 151.57 | 564.40 | 560.09 | 37.95 | 541.03 | 265.94 | 92.87 | 395.92 | 327.00 |
| NOx [g/h] | 55.99 | 278.17 | 265.65 | 29.49 | 109.81 | 108.97 | 7.38 | 105.26 | 51.74 | 18.07 | 77.03 | 63.62 |
| VOC [g/h] | 66.70 | 331.35 | 316.44 | 35.13 | 130.81 | 129.81 | 8.79 | 125.39 | 61.63 | 21.52 | 91.76 | 75.79 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.28 | 33.28 | 33.28 | 33.28 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.935 | 2.780 | 2.484 | 2.525 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 711 | 711 | 711 | 711 |
| d_b, Bicycle Delay [s] | 18.09 | 18.09 | 18.09 | 18.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.561 | 2.045 | 2.626 | 2.213 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 85.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.056 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 449.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 680 | 526 | 300 | 213 | 323 | 415 | 682 | 1685 | 464 | 349 | 1443 | 161 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 680 | 526 | 300 | 213 | 323 | 415 | 682 | 1685 | 464 | 349 | 1443 | 161 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 179 | 138 | 79 | 56 | 85 | 109 | 179 | 443 | 122 | 92 | 380 | 42 |
| Total Analysis Volume [veh/h] | 716 | 554 | 316 | 224 | 340 | 437 | 718 | 1774 | 488 | 367 | 1519 | 169 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 28 | 45 | 0 | 19 | 36 | 0 | 24 | 44 | 0 | 24 | 44 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 36 | 36 | 14 | 26 | 26 | 30 | 55 | 55 | 17 | 42 | 42 |
| g / C, Green / Cycle | 0.17 | 0.26 | 0.26 | 0.10 | 0.19 | 0.19 | 0.22 | 0.40 | 0.40 | 0.12 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.30 | 0.15 | 0.20 | 0.06 | 0.07 | 0.16 | 0.21 | 0.34 | 0.30 | 0.11 | 0.29 | 0.11 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2769 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 409 | 941 | 419 | 354 | 981 | 528 | 752 | 2056 | 641 | 421 | 1564 | 487 |
| d1, Uniform Delay [s] | 57.18 | 44.55 | 46.95 | 59.65 | 48.55 | 53.70 | 53.60 | 38.10 | 35.88 | 59.84 | 47.60 | 37.50 |
| k, delay calibration | 0.10 | 0.04 | 0.18 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 340.86 | 0.22 | 4.51 | 0.70 | 0.24 | 3.81 | 3.50 | 5.09 | 8.32 | 2.25 | 16.82 | 1.95 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.75 | 0.59 | 0.75 | 0.63 | 0.35 | 0.83 | 0.96 | 0.86 | 0.76 | 0.87 | 0.97 | 0.35 |
| d, Delay for Lane Group [s/veh] | 398.04 | 44.77 | 51.46 | 60.34 | 48.79 | 57.51 | 57.10 | 43.20 | 44.20 | 62.09 | 64.42 | 39.45 |
| Lane Group LOS | F | D | D | E | D | E | E | D | D | E | E | D |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 26.37 | 8.22 | 10.38 | 3.74 | 3.37 | 7.41 | 12.38 | 18.57 | 15.15 | 6.34 | 19.10 | 4.65 |
| 50th-Percentile Queue Length [ft/ln] | 659.22 | 205.58 | 259.42 | 93.57 | 84.13 | 185.22 | 309.47 | 464.13 | 378.87 | 158.41 | 477.52 | 116.16 |
| 95th-Percentile Queue Length [veh/ln] | 42.57 | 12.93 | 15.66 | 6.74 | 6.06 | 11.87 | 18.15 | 25.63 | 21.54 | 10.46 | 26.27 | 8.18 |
| 95th-Percentile Queue Length [ft/ln] | 1064.26 | 323.15 | 391.49 | 168.43 | 151.43 | 296.81 | 453.73 | 640.79 | 538.48 | 261.61 | 656.71 | 204.54 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 398.04 | 44.77 | 51.46 | 60.34 | 48.79 | 57.51 | 57.10 | 43.20 | 44.20 | 62.09 | 64.42 | 39.45 |
| Movement LOS | F | D | D | E | D | E | E | D | D | E | E | D |
| d_A, Approach Delay [s/veh] | 205.58 | | | 55.18 | | | 46.71 | | | 61.95 | | |
| Approach LOS | F | | | E | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 84.99 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 1.056 | | | | | | | | | | | |

**Emissions**

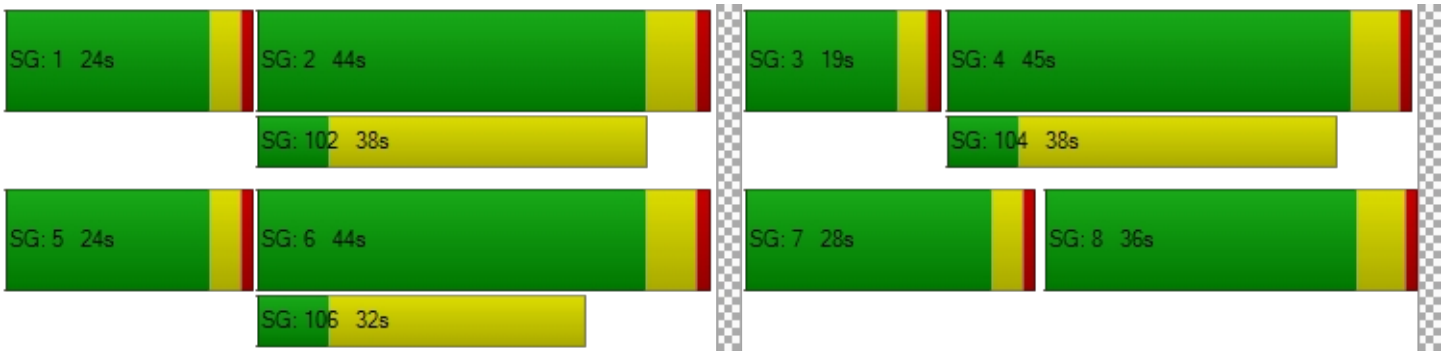
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 52.34 | 40.50 | 23.10 | 119.01 | 180.64 | 232.18 | 81.70 | 201.86 | 55.53 | 183.16 | 758.09 | 84.34 |
| Stops [stops/h] | 1371.81 | 427.80 | 269.92 | 194.71 | 262.59 | 385.43 | 644.00 | 1448.75 | 394.21 | 329.64 | 1490.54 | 120.86 |
| Fuel consumption [US gal/h] | 73.33 | 10.70 | 6.79 | 9.25 | 12.83 | 17.86 | 19.15 | 40.53 | 11.19 | 15.01 | 64.43 | 5.75 |
| CO [g/h] | 5126.02 | 747.93 | 474.47 | 646.63 | 896.98 | 1248.71 | 1338.52 | 2832.76 | 782.43 | 1049.44 | 4503.59 | 401.96 |
| NOx [g/h] | 997.34 | 145.52 | 92.31 | 125.81 | 174.52 | 242.95 | 260.43 | 551.15 | 152.23 | 204.18 | 876.24 | 78.21 |
| VOC [g/h] | 1188.00 | 173.34 | 109.96 | 149.86 | 207.88 | 289.40 | 310.22 | 656.52 | 181.34 | 243.22 | 1043.75 | 93.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 30.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 58.64 | 58.64 | 42.22 | 58.64 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.198 | 3.503 | 3.881 | 3.580 |
| Crosswalk LOS | C | D | D | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 568 | 438 | 549 | 549 |
| d_b, Bicycle Delay [s] | 35.48 | 42.26 | 36.42 | 36.42 |
| l_b,int, Bicycle LOS Score for Intersection | 2.432 | 2.110 | 3.199 | 2.690 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.825 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 676 | 0 | 1203 | 0 | 0 | 0 | 0 | 1636 | 383 | 0 | 2194 | 238 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 676 | 0 | 1203 | 0 | 0 | 0 | 0 | 1636 | 383 | 0 | 2194 | 238 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 180 | 0 | 320 | 0 | 0 | 0 | 0 | 435 | 102 | 0 | 584 | 63 |
| Total Analysis Volume [veh/h] | 719 | 0 | 1280 | 0 | 0 | 0 | 0 | 1740 | 407 | 0 | 2334 | 253 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.45 | | 0.34 | 0.27 | 0.16 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4442 | 828 |
| d1, Uniform Delay [s] | 30.86 | 41.07 | | 23.24 | 21.12 | 18.27 |
| k, delay calibration | 0.27 | 0.29 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.50 | 93.51 | | 1.27 | 0.45 | 0.95 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 1.20 | | 0.65 | 0.53 | 0.31 |
| d, Delay for Lane Group [s/veh] | 31.36 | 134.58 | | 24.51 | 21.57 | 19.23 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.51 | 30.06 | | 12.70 | 9.17 | 4.47 |
| 50th-Percentile Queue Length [ft/ln] | 137.69 | 751.48 | | 317.41 | 229.24 | 111.69 |
| 95th-Percentile Queue Length [veh/ln] | 9.36 | 43.81 | | 18.54 | 14.14 | 7.93 |
| 95th-Percentile Queue Length [ft/ln] | 233.90 | 1095.29 | | 463.50 | 353.39 | 198.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.36 | 0.00 | 134.58 | 0.00 | 0.00 | 0.00 | 0.00 | 24.51 | 0.00 | 0.00 | 21.57 | 19.23 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 97.45 | | | 0.00 | | | 20.09 | | | 21.34 | | |
| Approach LOS | F | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 45.05 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.825 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 94.25 | 167.79 | | 273.80 | 265.58 | 28.79 |
| Stops [stops/h] | 451.09 | 1641.37 | | 1039.90 | 1251.75 | 121.97 |
| Fuel consumption [US gal/h] | 16.12 | 71.15 | | 30.99 | 34.91 | 3.49 |
| CO [g/h] | 1126.77 | 4973.32 | | 2166.36 | 2440.34 | 244.18 |
| NOx [g/h] | 219.23 | 967.63 | | 421.50 | 474.80 | 47.51 |
| VOC [g/h] | 261.14 | 1152.62 | | 502.08 | 565.57 | 56.59 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersectio | 3.067 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 |
| I_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.517 | 2.413 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.559 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 75 | 0 | 380 | 0 | 1955 | 586 | 0 | 2090 | 841 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 75 | 0 | 380 | 0 | 1955 | 586 | 0 | 2090 | 841 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 20 | 0 | 101 | 0 | 520 | 156 | 0 | 556 | 224 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 80 | 0 | 404 | 0 | 2080 | 623 | 0 | 2223 | 895 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 24 | 24 | 92 | 92 | 92 |
| g / C, Green / Cycle | | 0.18 | 0.18 | 0.71 | 0.71 | 0.71 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.14 | 0.30 | 0.39 | 0.32 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 641 | 520 | 4876 | 1135 | 4907 |
| d1, Uniform Delay [s] | | 44.36 | 50.51 | 7.69 | 8.80 | 7.91 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.21 | 6.09 | 0.27 | 1.91 | 0.30 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.12 | 0.78 | 0.43 | 0.55 | 0.45 |
| d, Delay for Lane Group [s/veh] | | 44.58 | 56.59 | 7.97 | 10.71 | 8.21 |
| Lane Group LOS | | D | E | A | B | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.11 | 6.70 | 5.18 | 7.58 | 5.70 |
| 50th-Percentile Queue Length [ft/ln] | | 27.69 | 167.42 | 129.59 | 189.42 | 142.39 |
| 95th-Percentile Queue Length [veh/ln] | | 1.99 | 10.94 | 8.92 | 12.09 | 9.61 |
| 95th-Percentile Queue Length [ft/ln] | | 49.83 | 273.52 | 222.94 | 302.27 | 240.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 44.58 | 0.00 | 56.59 | 0.00 | 7.97 | 10.71 | 0.00 | 8.21 | 0.00 |
| Movement LOS | | | | D | | E | | A | B | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 54.61 | | | 8.60 | | | 5.96 | | |
| Approach LOS | A | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 11.63 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.559 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 12.33 | 62.26 | 201.41 | 60.33 | 349.81 |
| Stops [stops/h] | | 61.40 | 371.30 | 574.81 | 210.04 | 631.58 |
| Fuel consumption [US gal/h] | | 1.57 | 9.27 | 17.42 | 6.04 | 23.56 |
| CO [g/h] | | 109.91 | 647.72 | 1217.89 | 422.00 | 1646.68 |
| NOx [g/h] | | 21.38 | 126.02 | 236.96 | 82.11 | 320.38 |
| VOC [g/h] | | 25.47 | 150.12 | 282.26 | 97.80 | 381.63 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.036 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1143 | 1143 | |
| d_b, Bicycle Delay [s] | 64.93 | 29.59 | 11.93 | 11.93 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.675 | 2.477 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.477 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 117 | 167 | 66 | 32 | 131 | 83 | 173 | 485 | 125 | 31 | 452 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 117 | 167 | 66 | 32 | 131 | 83 | 173 | 485 | 125 | 31 | 452 | 33 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 44 | 18 | 9 | 35 | 22 | 46 | 129 | 33 | 8 | 120 | 9 |
| Total Analysis Volume [veh/h] | 124 | 178 | 70 | 34 | 139 | 88 | 184 | 516 | 133 | 33 | 481 | 35 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 14 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lag | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 15 | 15 | 5 | 10 | 10 | 11 | 20 | 20 | 5 | 15 | 15 |
| g / C, Green / Cycle | 0.16 | 0.24 | 0.24 | 0.08 | 0.16 | 0.16 | 0.17 | 0.34 | 0.34 | 0.08 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.10 | 0.04 | 0.02 | 0.07 | 0.06 | 0.10 | 0.14 | 0.08 | 0.02 | 0.14 | 0.02 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 285 | 452 | 384 | 144 | 304 | 258 | 309 | 1195 | 533 | 141 | 858 | 383 |
| d1, Uniform Delay [s] | 23.07 | 19.34 | 18.30 | 26.20 | 23.05 | 22.58 | 23.16 | 15.71 | 14.66 | 26.28 | 20.26 | 17.92 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 0.61 | 0.24 | 0.31 | 1.53 | 1.10 | 0.68 | 0.38 | 0.37 | 0.31 | 0.95 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.44 | 0.39 | 0.18 | 0.24 | 0.46 | 0.34 | 0.59 | 0.43 | 0.25 | 0.23 | 0.56 | 0.09 |
| d, Delay for Lane Group [s/veh] | 23.46 | 19.94 | 18.55 | 26.51 | 24.57 | 23.69 | 23.84 | 16.08 | 15.03 | 26.60 | 21.21 | 18.09 |
| Lane Group LOS | C | B | B | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.44 | 1.89 | 0.70 | 0.43 | 1.71 | 1.06 | 2.14 | 2.30 | 1.13 | 0.43 | 2.81 | 0.36 |
| 50th-Percentile Queue Length [ft/ln] | 36.06 | 47.17 | 17.50 | 10.65 | 42.81 | 26.54 | 53.42 | 57.40 | 28.23 | 10.74 | 70.19 | 9.12 |
| 95th-Percentile Queue Length [veh/ln] | 2.60 | 3.40 | 1.26 | 0.77 | 3.08 | 1.91 | 3.85 | 4.13 | 2.03 | 0.77 | 5.05 | 0.66 |
| 95th-Percentile Queue Length [ft/ln] | 64.91 | 84.90 | 31.50 | 19.17 | 77.05 | 47.77 | 96.15 | 103.32 | 50.81 | 19.34 | 126.33 | 16.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.46 | 19.94 | 18.55 | 26.51 | 24.57 | 23.69 | 23.84 | 16.08 | 15.03 | 26.60 | 21.21 | 18.09 |
| Movement LOS | C | B | B | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 20.85 | | | 24.53 | | | 17.63 | | | 21.34 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.477 | | | | | | | | | | | |

**Emissions**

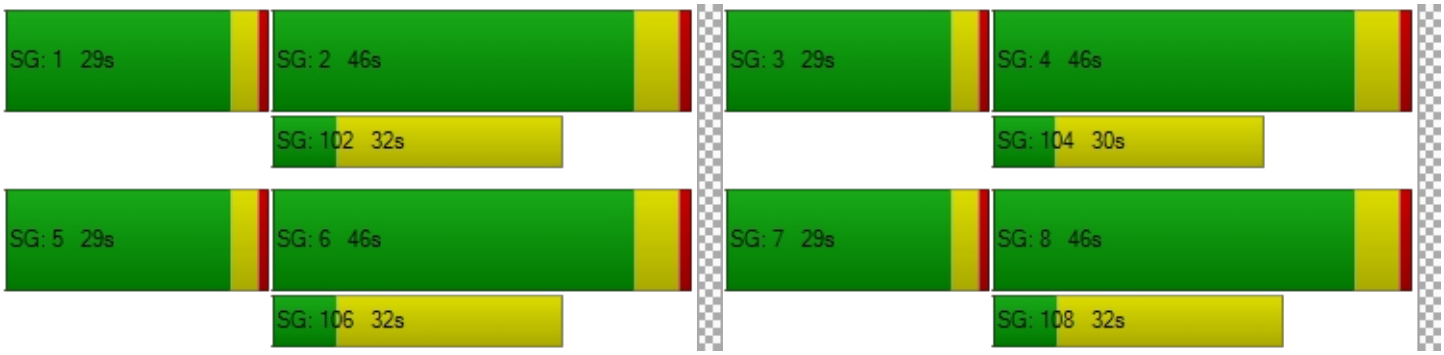
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 124.84 | 179.21 | 70.48 | 34.07 | 139.30 | 88.19 | 92.24 | 258.67 | 66.67 | 16.26 | 237.05 | 17.25 |
| Stops [stops/h] | 85.62 | 111.99 | 41.55 | 25.28 | 101.64 | 63.01 | 126.83 | 272.57 | 67.02 | 25.51 | 333.29 | 21.65 |
| Fuel consumption [US gal/h] | 5.94 | 8.26 | 3.20 | 1.67 | 6.73 | 4.23 | 5.93 | 14.54 | 3.67 | 0.99 | 13.62 | 0.95 |
| CO [g/h] | 414.93 | 577.22 | 223.44 | 116.43 | 470.68 | 295.71 | 414.42 | 1016.05 | 256.42 | 69.22 | 951.94 | 66.34 |
| NOx [g/h] | 80.73 | 112.31 | 43.47 | 22.65 | 91.58 | 57.53 | 80.63 | 197.69 | 49.89 | 13.47 | 185.21 | 12.91 |
| VOC [g/h] | 96.16 | 133.78 | 51.79 | 26.98 | 109.08 | 68.53 | 96.05 | 235.48 | 59.43 | 16.04 | 220.62 | 15.38 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.32 | 20.32 | 20.32 | 20.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.357 | 2.350 | 2.844 | 2.653 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1319 | 1319 | 1319 | 1319 |
| d_b, Bicycle Delay [s] | 3.51 | 3.51 | 3.51 | 3.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.173 | 1.990 | 2.247 | 2.013 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 43.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.790 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 380 | 309 | 66 | 17 | 331 | 35 | 61 | 500 | 265 | 33 | 551 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 380 | 309 | 66 | 17 | 331 | 35 | 61 | 500 | 265 | 33 | 551 | 30 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 103 | 84 | 18 | 5 | 90 | 10 | 17 | 136 | 72 | 9 | 150 | 8 |
| Total Analysis Volume [veh/h] | 413 | 336 | 72 | 18 | 360 | 38 | 66 | 543 | 288 | 36 | 599 | 33 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 2 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 0 | | | 3 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 48 | 48 | 5 | 27 | 9 | 32 | 32 | 7 | 29 | 29 |
| g / C, Green / Cycle | 0.23 | 0.45 | 0.45 | 0.04 | 0.26 | 0.09 | 0.29 | 0.29 | 0.07 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.18 | 0.04 | 0.01 | 0.21 | 0.04 | 0.23 | 0.23 | 0.02 | 0.17 | 0.17 |
| s, saturation flow rate [veh/h] | 1762 | 1900 | 1615 | 1810 | 1869 | 1810 | 1892 | 1668 | 1752 | 1900 | 1865 |
| c, Capacity [veh/h] | 410 | 847 | 720 | 78 | 478 | 160 | 558 | 491 | 119 | 521 | 511 |
| d1, Uniform Delay [s] | 41.23 | 20.05 | 17.28 | 49.71 | 37.79 | 46.34 | 34.85 | 34.90 | 47.67 | 34.03 | 34.04 |
| k, delay calibration | 0.44 | 0.12 | 0.12 | 0.04 | 0.19 | 0.04 | 0.23 | 0.23 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 43.44 | 0.33 | 0.07 | 0.56 | 6.36 | 0.63 | 5.30 | 6.13 | 0.53 | 1.92 | 1.97 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.01 | 0.40 | 0.10 | 0.23 | 0.83 | 0.41 | 0.79 | 0.79 | 0.30 | 0.61 | 0.61 |
| d, Delay for Lane Group [s/veh] | 84.67 | 20.38 | 17.34 | 50.27 | 44.14 | 46.97 | 40.15 | 41.04 | 48.20 | 35.95 | 36.00 |
| Lane Group LOS | F | C | B | D | D | D | D | D | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 15.26 | 5.36 | 0.99 | 0.47 | 10.26 | 1.64 | 10.85 | 9.73 | 0.91 | 7.20 | 7.09 |
| 50th-Percentile Queue Length [ft/ln] | 381.38 | 134.04 | 24.72 | 11.65 | 256.47 | 41.12 | 271.36 | 243.36 | 22.69 | 179.98 | 177.22 |
| 95th-Percentile Queue Length [veh/ln] | 21.75 | 9.16 | 1.78 | 0.84 | 15.51 | 2.96 | 16.26 | 14.85 | 1.63 | 11.60 | 11.46 |
| 95th-Percentile Queue Length [ft/ln] | 543.84 | 228.97 | 44.49 | 20.96 | 387.79 | 74.02 | 406.44 | 371.27 | 40.84 | 289.99 | 286.38 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 84.67 | 20.38 | 17.34 | 50.27 | 44.14 | 44.14 | 46.97 | 40.32 | 41.04 | 48.20 | 35.97 | 36.00 |
| Movement LOS | F | C | B | D | D | D | D | D | D | D | D | D |
| d_A, Approach Delay [s/veh] | 52.46 | | | 44.41 | | | 41.04 | | | 36.63 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 43.83 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.790 | | | | | | | | | | | |

**Emissions**

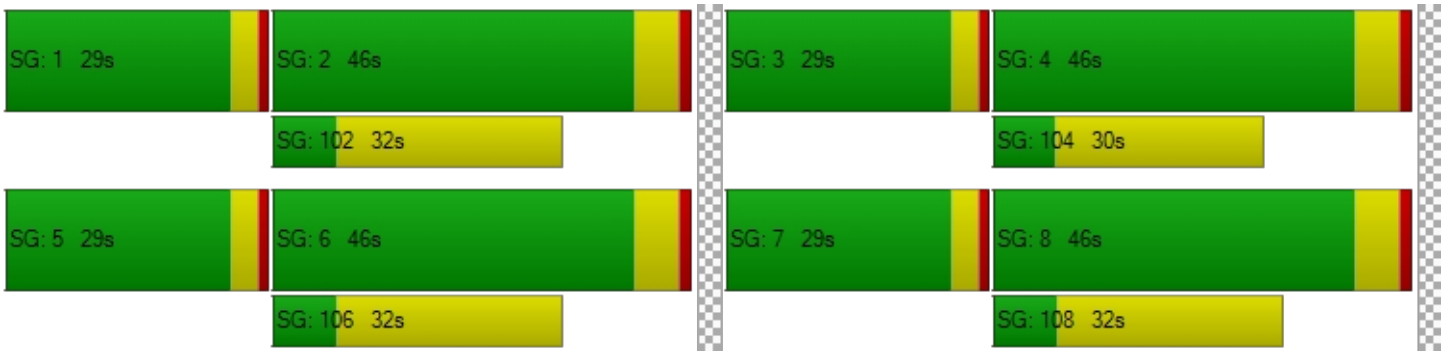
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 205.36 | 167.07 | 35.80 | 18.12 | 400.70 | 39.72 | 265.26 | 234.86 | 17.96 | 158.92 | 156.31 |
| Stops [stops/h] | 511.89 | 179.91 | 33.17 | 15.63 | 344.24 | 55.19 | 364.22 | 326.63 | 30.45 | 241.57 | 237.87 |
| Fuel consumption [US gal/h] | 20.52 | 9.36 | 1.89 | 1.00 | 21.59 | 2.68 | 17.22 | 15.37 | 1.35 | 10.78 | 10.61 |
| CO [g/h] | 1434.31 | 654.07 | 132.37 | 69.88 | 1509.16 | 187.23 | 1203.81 | 1074.39 | 94.17 | 753.65 | 741.72 |
| NOx [g/h] | 279.07 | 127.26 | 25.76 | 13.60 | 293.63 | 36.43 | 234.22 | 209.04 | 18.32 | 146.63 | 144.31 |
| VOC [g/h] | 332.42 | 151.59 | 30.68 | 16.19 | 349.76 | 43.39 | 278.99 | 249.00 | 21.82 | 174.67 | 171.90 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.21 | 43.21 | 43.21 | 43.21 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.748 | 2.363 | 2.878 | 2.689 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 746 | 746 | 746 | 746 |
| d_b, Bicycle Delay [s] | 21.10 | 21.10 | 21.10 | 21.10 |
| l_b,int, Bicycle LOS Score for Intersection | 2.914 | 2.246 | 2.300 | 2.111 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.688 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 46 | 647 | 118 | 99 | 417 | 67 | 171 | 297 | 172 | 47 | 359 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 46 | 647 | 118 | 99 | 417 | 67 | 171 | 297 | 172 | 47 | 359 | 57 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 170 | 31 | 26 | 110 | 18 | 45 | 78 | 45 | 12 | 94 | 15 |
| Total Analysis Volume [veh/h] | 48 | 681 | 124 | 104 | 439 | 71 | 180 | 313 | 181 | 49 | 378 | 60 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 22 | 22 | 9 | 24 | 24 | 10 | 23 | 23 | 7 | 20 | 20 |
| g / C, Green / Cycle | 0.09 | 0.28 | 0.28 | 0.12 | 0.32 | 0.32 | 0.13 | 0.30 | 0.30 | 0.09 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.22 | 0.22 | 0.06 | 0.14 | 0.14 | 0.10 | 0.17 | 0.12 | 0.03 | 0.20 | 0.04 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1765 | 1810 | 1868 | 1765 | 1810 | 1892 | 1549 | 1810 | 1874 | 1580 |
| c, Capacity [veh/h] | 154 | 531 | 502 | 214 | 592 | 559 | 235 | 572 | 469 | 158 | 488 | 411 |
| d1, Uniform Delay [s] | 33.13 | 25.40 | 25.42 | 31.84 | 20.96 | 21.01 | 32.49 | 22.52 | 21.25 | 33.06 | 26.48 | 21.95 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.13 | 2.57 | 2.76 | 1.69 | 0.52 | 0.56 | 5.21 | 0.82 | 0.52 | 1.10 | 2.68 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.78 | 0.78 | 0.48 | 0.44 | 0.45 | 0.77 | 0.55 | 0.39 | 0.31 | 0.77 | 0.15 |
| d, Delay for Lane Group [s/veh] | 34.26 | 27.97 | 28.18 | 33.54 | 21.48 | 21.57 | 37.70 | 23.34 | 21.77 | 34.16 | 29.15 | 22.12 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.85 | 6.74 | 6.42 | 1.79 | 3.43 | 3.30 | 3.35 | 4.39 | 2.39 | 0.85 | 6.18 | 0.78 |
| 50th-Percentile Queue Length [ft/ln] | 21.22 | 168.60 | 160.53 | 44.75 | 85.86 | 82.62 | 83.78 | 109.86 | 59.86 | 21.32 | 154.43 | 19.59 |
| 95th-Percentile Queue Length [veh/ln] | 1.53 | 11.00 | 10.58 | 3.22 | 6.18 | 5.95 | 6.03 | 7.83 | 4.31 | 1.54 | 10.25 | 1.41 |
| 95th-Percentile Queue Length [ft/ln] | 38.20 | 275.07 | 264.43 | 80.54 | 154.55 | 148.72 | 150.80 | 195.81 | 107.76 | 38.38 | 256.33 | 35.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.26 | 28.05 | 28.18 | 33.54 | 21.51 | 21.57 | 37.70 | 23.34 | 21.77 | 34.16 | 29.15 | 22.12 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 28.42 | | | 23.56 | | | 26.75 | | | 28.79 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.92 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.688 | | | | | | | | | | | |

**Emissions**

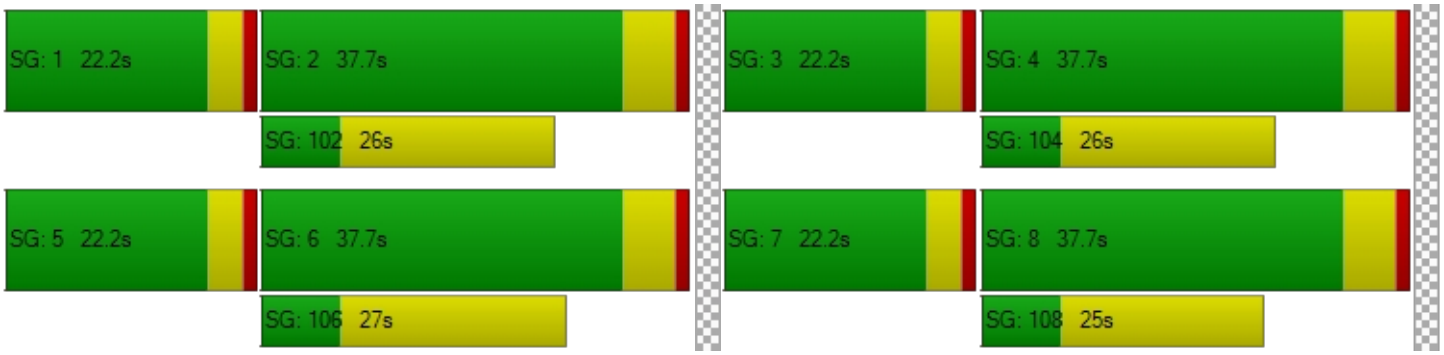
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 25.94 | 223.32 | 211.68 | 51.71 | 129.49 | 124.11 | 85.67 | 148.97 | 86.14 | 24.15 | 186.27 | 29.57 |
| Stops [stops/h] | 39.65 | 314.99 | 299.91 | 83.60 | 160.41 | 154.36 | 156.51 | 205.26 | 111.84 | 39.84 | 288.52 | 36.61 |
| Fuel consumption [US gal/h] | 1.65 | 13.45 | 12.77 | 3.52 | 7.57 | 7.27 | 6.26 | 9.14 | 5.15 | 1.66 | 12.21 | 1.74 |
| CO [g/h] | 115.56 | 939.92 | 892.96 | 246.17 | 529.22 | 508.10 | 437.82 | 639.22 | 359.65 | 116.29 | 853.81 | 121.53 |
| NOx [g/h] | 22.48 | 182.87 | 173.74 | 47.90 | 102.97 | 98.86 | 85.18 | 124.37 | 69.97 | 22.63 | 166.12 | 23.65 |
| VOC [g/h] | 26.78 | 217.84 | 206.95 | 57.05 | 122.65 | 117.76 | 101.47 | 148.14 | 83.35 | 26.95 | 197.88 | 28.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.32 | 28.32 | 28.32 | 28.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.687 | 2.740 | 2.551 | 2.498 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 830 | 830 | 830 | 830 |
| d_b, Bicycle Delay [s] | 13.18 | 13.19 | 13.19 | 13.19 |
| l_b,int, Bicycle LOS Score for Intersection | 2.263 | 2.066 | 2.672 | 2.363 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 47.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.856 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 322 | 493 | 159 | 296 | 288 | 192 | 179 | 1357 | 623 | 149 | 1224 | 120 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 322 | 493 | 159 | 296 | 288 | 192 | 179 | 1357 | 623 | 149 | 1224 | 120 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 84 | 128 | 41 | 77 | 75 | 50 | 47 | 353 | 162 | 39 | 319 | 31 |
| Total Analysis Volume [veh/h] | 335 | 514 | 166 | 308 | 300 | 200 | 186 | 1414 | 649 | 155 | 1275 | 125 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 28 | 28 | 14 | 21 | 21 | 13 | 62 | 62 | 13 | 61 | 61 |
| g / C, Green / Cycle | 0.16 | 0.21 | 0.21 | 0.11 | 0.16 | 0.16 | 0.10 | 0.47 | 0.47 | 0.10 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.14 | 0.10 | 0.09 | 0.08 | 0.12 | 0.05 | 0.27 | 0.40 | 0.04 | 0.25 | 0.08 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 260 | 743 | 333 | 373 | 564 | 252 | 348 | 2402 | 746 | 345 | 2392 | 749 |
| d1, Uniform Delay [s] | 55.56 | 48.35 | 46.17 | 57.86 | 51.35 | 53.75 | 56.67 | 26.10 | 31.82 | 56.19 | 25.22 | 20.57 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 132.85 | 0.94 | 0.93 | 1.79 | 0.62 | 4.53 | 0.48 | 1.07 | 13.18 | 0.34 | 0.86 | 0.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.29 | 0.69 | 0.50 | 0.83 | 0.53 | 0.79 | 0.53 | 0.59 | 0.87 | 0.45 | 0.53 | 0.17 |
| d, Delay for Lane Group [s/veh] | 188.41 | 49.28 | 47.10 | 59.66 | 51.98 | 58.28 | 57.15 | 27.16 | 44.99 | 56.54 | 26.07 | 21.05 |
| Lane Group LOS | F | D | D | E | D | E | E | C | D | E | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 9.04 | 7.82 | 4.85 | 5.14 | 4.65 | 6.73 | 2.99 | 11.09 | 20.95 | 2.41 | 9.26 | 2.28 |
| 50th-Percentile Queue Length [ft/ln] | 226.10 | 195.52 | 121.26 | 128.60 | 116.16 | 168.34 | 74.70 | 277.26 | 523.80 | 60.26 | 231.47 | 56.89 |
| 95th-Percentile Queue Length [veh/ln] | 15.44 | 12.41 | 8.46 | 8.86 | 8.18 | 10.99 | 5.38 | 16.55 | 28.46 | 4.34 | 14.25 | 4.10 |
| 95th-Percentile Queue Length [ft/ln] | 386.06 | 310.18 | 211.55 | 221.58 | 204.53 | 274.73 | 134.45 | 413.80 | 711.47 | 108.47 | 356.23 | 102.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 188.41 | 49.28 | 47.10 | 59.66 | 51.98 | 58.28 | 57.15 | 27.16 | 44.99 | 56.54 | 26.07 | 21.05 |
| Movement LOS | F | D | D | E | D | E | E | C | D | E | C | C |
| d_A, Approach Delay [s/veh] | 94.84 | | | 56.46 | | | 34.79 | | | 28.70 | | |
| Approach LOS | F | | | E | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 47.05 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.856 | | | | | | | | | | | |

**Emissions**

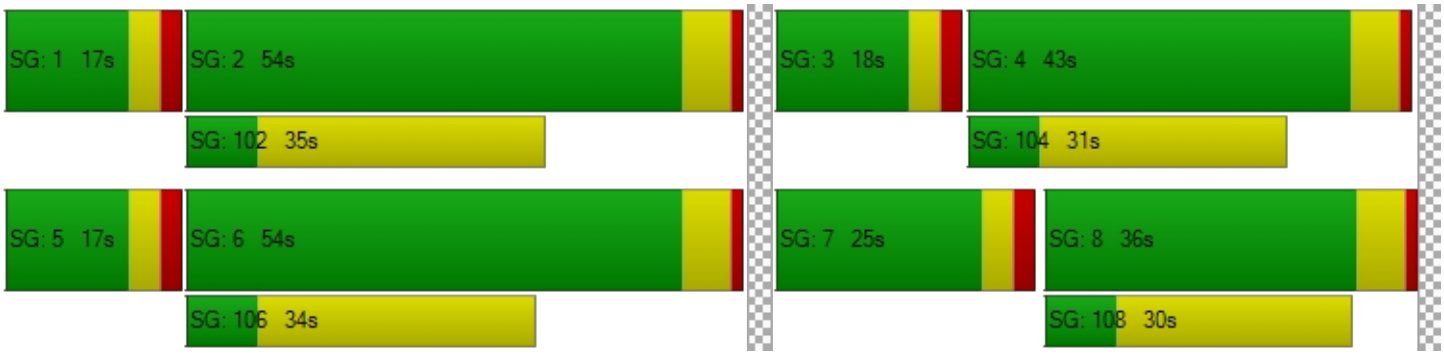
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 35.06 | 53.80 | 17.37 | 166.44 | 162.11 | 108.07 | 92.83 | 705.69 | 323.90 | 17.87 | 146.96 | 14.41 |
| Stops [stops/h] | 492.88 | 426.22 | 132.16 | 280.33 | 253.22 | 183.48 | 162.83 | 906.62 | 570.92 | 131.37 | 756.88 | 62.01 |
| Fuel consumption [US gal/h] | 18.94 | 11.27 | 3.51 | 12.14 | 11.25 | 7.83 | 6.88 | 41.87 | 22.43 | 4.03 | 21.21 | 1.80 |
| CO [g/h] | 1323.86 | 787.68 | 245.46 | 848.51 | 786.05 | 547.64 | 481.18 | 2927.06 | 1567.85 | 281.61 | 1482.74 | 125.83 |
| NOx [g/h] | 257.58 | 153.25 | 47.76 | 165.09 | 152.94 | 106.55 | 93.62 | 569.50 | 305.05 | 54.79 | 288.49 | 24.48 |
| VOC [g/h] | 306.82 | 182.55 | 56.89 | 196.65 | 182.17 | 126.92 | 111.52 | 678.37 | 363.37 | 65.27 | 343.64 | 29.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.52 | 55.52 | 55.52 | 55.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.006 | 2.840 | 3.307 | 3.427 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.02 | 39.23 | 26.59 | 26.59 |
| l_b,int, Bicycle LOS Score for Intersection | 2.397 | 2.226 | 2.797 | 2.415 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 47.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.831 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 435 | 59 | 7 | 7 | 75 | 24 | 35 | 70 | 473 | 0 | 13 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 435 | 59 | 7 | 7 | 75 | 24 | 35 | 70 | 473 | 0 | 13 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 118 | 16 | 2 | 2 | 20 | 7 | 10 | 19 | 129 | 0 | 4 | 3 |
| Total Analysis Volume [veh/h] | 473 | 64 | 8 | 8 | 82 | 26 | 38 | 76 | 514 | 0 | 14 | 13 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 32 | 2 | 9 | 7 | 35 | 0 | 28 |
| g / C, Green / Cycle | 0.29 | 0.38 | 0.02 | 0.11 | 0.08 | 0.41 | 0.00 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.30 | 0.04 | 0.00 | 0.06 | 0.02 | 0.36 | 0.00 | 0.02 |
| s, saturation flow rate [veh/h] | 1595 | 1844 | 1810 | 1823 | 1810 | 1647 | 1810 | 1751 |
| c, Capacity [veh/h] | 467 | 701 | 41 | 201 | 139 | 675 | 0 | 583 |
| d1, Uniform Delay [s] | 30.23 | 17.08 | 41.00 | 35.96 | 37.18 | 23.19 | 0.00 | 19.31 |
| k, delay calibration | 0.44 | 0.12 | 0.04 | 0.15 | 0.04 | 0.32 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 42.68 | 0.07 | 0.86 | 3.16 | 0.39 | 10.02 | 0.00 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.01 | 0.10 | 0.20 | 0.54 | 0.27 | 0.87 | 0.00 | 0.05 |
| d, Delay for Lane Group [s/veh] | 72.91 | 17.15 | 41.86 | 39.13 | 37.57 | 33.20 | 0.00 | 19.36 |
| Lane Group LOS | F | B | D | D | D | C | A | B |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 14.24 | 0.85 | 0.17 | 2.19 | 0.75 | 12.10 | 0.00 | 0.36 |
| 50th-Percentile Queue Length [ft/ln] | 356.03 | 21.17 | 4.18 | 54.74 | 18.82 | 302.48 | 0.00 | 9.09 |
| 95th-Percentile Queue Length [veh/ln] | 20.60 | 1.52 | 0.30 | 3.94 | 1.35 | 17.80 | 0.00 | 0.65 |
| 95th-Percentile Queue Length [ft/ln] | 515.06 | 38.11 | 7.53 | 98.54 | 33.87 | 445.10 | 0.00 | 16.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 72.91 | 17.15 | 17.15 | 41.86 | 39.13 | 39.13 | 37.57 | 33.20 | 33.20 | 0.00 | 19.36 | 19.36 |
| Movement LOS | F | B | B | D | D | D | D | C | C | A | B | B |
| d_A, Approach Delay [s/veh] | 65.54 | | | 39.31 | | | 33.47 | | | 19.36 | | |
| Approach LOS | E | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 46.98 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.831 | | | | | | | | | | | |

**Emissions**

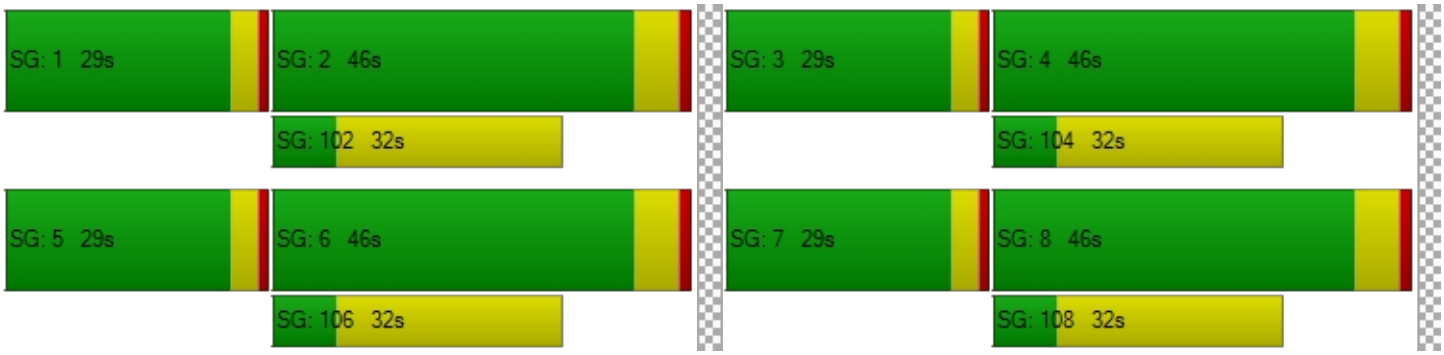
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 237.26 | 36.12 | 0.37 | 4.94 | 19.11 | 296.69 | 0.00 | 10.22 |
| Stops [stops/h] | 600.59 | 35.72 | 7.06 | 92.34 | 31.74 | 510.26 | 0.00 | 15.33 |
| Fuel consumption [US gal/h] | 22.62 | 1.93 | 0.17 | 2.18 | 1.25 | 19.02 | 0.00 | 0.61 |
| CO [g/h] | 1580.94 | 135.14 | 11.77 | 152.19 | 87.55 | 1329.43 | 0.00 | 42.76 |
| NOx [g/h] | 307.59 | 26.29 | 2.29 | 29.61 | 17.03 | 258.66 | 0.00 | 8.32 |
| VOC [g/h] | 366.40 | 31.32 | 2.73 | 35.27 | 20.29 | 308.11 | 0.00 | 9.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.39 | 32.39 | 32.39 | 32.39 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.493 | 2.050 | 2.308 | 1.976 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 937 | 937 | 937 | 937 |
| d_b, Bicycle Delay [s] | 12.05 | 12.05 | 12.05 | 12.05 |
| l_b,int, Bicycle LOS Score for Intersection | 2.459 | 1.751 | 2.596 | 1.604 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 65.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.692 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 375 | 206 | 33 | 396 | 158 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 375 | 206 | 33 | 396 | 158 | 96 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 102 | 56 | 9 | 108 | 43 | 26 |
| Total Analysis Volume [veh/h] | 408 | 224 | 36 | 430 | 172 | 104 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Free | Free | Stop |
|---|---|---|---|
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.04 | 0.00 | 0.69 | 0.19 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.83 | 0.00 | 64.95 | 56.94 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.06 | 0.06 | 8.08 | 8.08 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 1.53 | 1.53 | 201.91 | 201.91 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.68 | | 61.93 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 12.67 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.698 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 172 | 529 | 66 | 117 | 309 | 80 | 71 | 385 | 98 | 151 | 337 | 123 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 172 | 529 | 66 | 117 | 309 | 80 | 71 | 385 | 98 | 151 | 337 | 123 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 45 | 138 | 17 | 30 | 80 | 21 | 18 | 100 | 26 | 39 | 88 | 32 |
| Total Analysis Volume [veh/h] | 179 | 551 | 69 | 122 | 322 | 83 | 74 | 401 | 102 | 157 | 351 | 128 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 26 | 26 | 8 | 25 | 25 | 6 | 17 | 17 | 8 | 19 | 19 |
| g / C, Green / Cycle | 0.12 | 0.35 | 0.35 | 0.11 | 0.33 | 0.33 | 0.08 | 0.22 | 0.22 | 0.11 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.29 | 0.04 | 0.07 | 0.17 | 0.05 | 0.04 | 0.14 | 0.14 | 0.09 | 0.13 | 0.13 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1885 | 1615 | 1810 | 1900 | 1769 | 1787 | 1900 | 1730 |
| c, Capacity [veh/h] | 224 | 649 | 560 | 198 | 627 | 537 | 151 | 423 | 394 | 198 | 475 | 432 |
| d1, Uniform Delay [s] | 32.43 | 23.01 | 16.96 | 32.35 | 20.43 | 17.85 | 33.31 | 26.61 | 26.65 | 32.99 | 24.64 | 24.68 |
| k, delay calibration | 0.04 | 0.13 | 0.11 | 0.04 | 0.11 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.52 | 3.96 | 0.10 | 1.17 | 0.65 | 0.13 | 0.91 | 2.66 | 2.94 | 2.74 | 1.68 | 1.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.85 | 0.12 | 0.62 | 0.51 | 0.15 | 0.49 | 0.61 | 0.62 | 0.79 | 0.53 | 0.53 |
| d, Delay for Lane Group [s/veh] | 34.95 | 26.97 | 17.06 | 33.52 | 21.08 | 17.99 | 34.23 | 29.27 | 29.59 | 35.73 | 26.32 | 26.57 |
| Lane Group LOS | C | C | B | C | C | B | C | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.12 | 8.69 | 0.75 | 2.05 | 4.19 | 0.94 | 1.27 | 4.23 | 4.01 | 2.73 | 3.68 | 3.41 |
| 50th-Percentile Queue Length [ft/ln] | 77.99 | 217.23 | 18.78 | 51.34 | 104.78 | 23.46 | 31.78 | 105.66 | 100.37 | 68.14 | 91.88 | 85.25 |
| 95th-Percentile Queue Length [veh/ln] | 5.62 | 13.52 | 1.35 | 3.70 | 7.54 | 1.69 | 2.29 | 7.60 | 7.23 | 4.91 | 6.62 | 6.14 |
| 95th-Percentile Queue Length [ft/ln] | 140.38 | 338.08 | 33.81 | 92.42 | 188.60 | 42.23 | 57.21 | 189.94 | 180.67 | 122.66 | 165.38 | 153.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.95 | 26.97 | 17.06 | 33.52 | 21.08 | 17.99 | 34.23 | 29.38 | 29.59 | 35.73 | 26.39 | 26.57 |
| Movement LOS | C | C | B | C | C | B | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.90 | | | 23.47 | | | 30.04 | | | 28.73 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.68 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.698 | | | | | | | | | | | |

**Emissions**

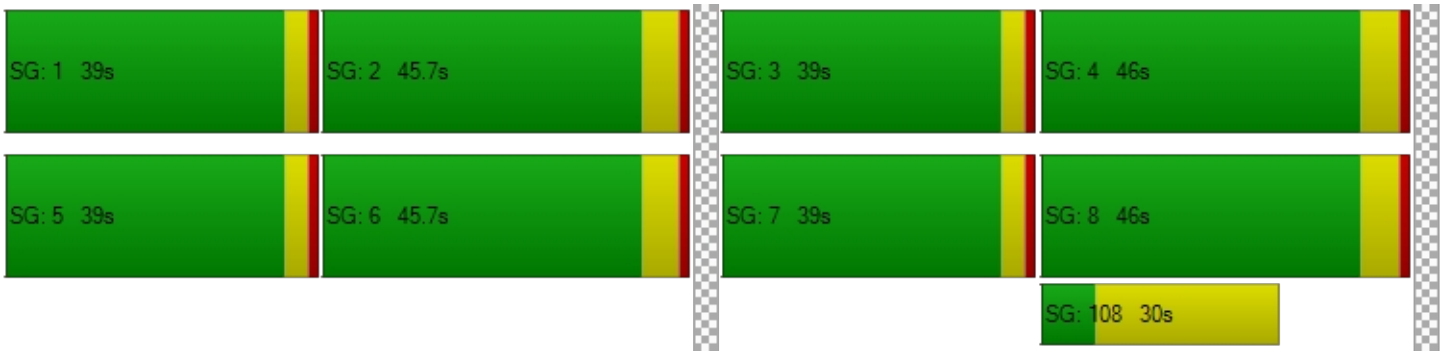
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 90.01 | 277.08 | 34.70 | 60.81 | 160.49 | 41.37 | 36.47 | 127.64 | 120.24 | 41.15 | 65.38 | 60.17 |
| Stops [stops/h] | 147.99 | 412.19 | 35.64 | 97.42 | 198.82 | 44.52 | 60.31 | 200.48 | 190.46 | 129.30 | 174.34 | 161.76 |
| Fuel consumption [US gal/h] | 6.20 | 17.65 | 1.87 | 4.13 | 9.35 | 2.28 | 2.41 | 8.08 | 7.65 | 4.50 | 6.20 | 5.74 |
| CO [g/h] | 433.28 | 1233.48 | 130.86 | 288.54 | 653.87 | 159.04 | 168.75 | 565.11 | 534.57 | 314.87 | 433.49 | 401.17 |
| NOx [g/h] | 84.30 | 239.99 | 25.46 | 56.14 | 127.22 | 30.94 | 32.83 | 109.95 | 104.01 | 61.26 | 84.34 | 78.05 |
| VOC [g/h] | 100.42 | 285.87 | 30.33 | 66.87 | 151.54 | 36.86 | 39.11 | 130.97 | 123.89 | 72.97 | 100.47 | 92.97 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.74 | 30.37 | 30.10 | 30.10 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.780 | 2.593 | 2.603 | 2.693 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1054 | 1054 | 1054 | 1054 |
| d_b, Bicycle Delay [s] | 8.49 | 8.49 | 8.49 | 8.49 |
| l_b,int, Bicycle LOS Score for Intersection | 2.878 | 2.429 | 2.036 | 2.084 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.359 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 9 | 737 | 0 | 19 | 552 | 7 | 3 | 3 | 5 | 3 | 18 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 737 | 0 | 19 | 552 | 7 | 3 | 3 | 5 | 3 | 18 | 30 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 192 | 0 | 5 | 144 | 2 | 1 | 1 | 1 | 1 | 5 | 8 |
| Total Analysis Volume [veh/h] | 9 | 768 | 0 | 20 | 575 | 7 | 3 | 3 | 5 | 3 | 19 | 31 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 14 | 14 | 2 | 15 | 15 | 0 | 6 | 6 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.03 | 0.36 | 0.36 | 0.06 | 0.39 | 0.39 | 0.01 | 0.15 | 0.15 | 0.01 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.21 | 0.00 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 |
| s, saturation flow rate [veh/h] | 1729 | 3600 | 1615 | 1691 | 3603 | 1615 | 1810 | 1900 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 47 | 1309 | 587 | 96 | 1417 | 635 | 17 | 288 | 245 | 17 | 288 | 245 |
| d1, Uniform Delay [s] | 18.18 | 9.84 | 0.00 | 17.21 | 8.38 | 7.07 | 18.78 | 13.77 | 13.80 | 18.78 | 13.89 | 14.02 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.73 | 0.46 | 0.00 | 0.40 | 0.27 | 0.01 | 1.79 | 0.02 | 0.05 | 1.79 | 0.16 | 0.38 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.59 | 0.00 | 0.21 | 0.41 | 0.01 | 0.18 | 0.01 | 0.02 | 0.18 | 0.07 | 0.13 |
| d, Delay for Lane Group [s/veh] | 18.91 | 10.30 | 0.00 | 17.61 | 8.64 | 7.08 | 20.57 | 13.80 | 13.85 | 20.57 | 14.05 | 14.40 |
| Lane Group LOS | B | B | A | B | A | A | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.08 | 1.96 | 0.00 | 0.15 | 1.26 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.13 | 0.22 |
| 50th-Percentile Queue Length [ft/ln] | 1.91 | 49.05 | 0.00 | 3.85 | 31.58 | 0.67 | 0.78 | 0.50 | 0.85 | 0.78 | 3.24 | 5.45 |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 3.53 | 0.00 | 0.28 | 2.27 | 0.05 | 0.06 | 0.04 | 0.06 | 0.06 | 0.23 | 0.39 |
| 95th-Percentile Queue Length [ft/ln] | 3.44 | 88.29 | 0.00 | 6.94 | 56.85 | 1.20 | 1.41 | 0.90 | 1.53 | 1.41 | 5.82 | 9.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 18.91 | 10.30 | 0.00 | 17.61 | 8.64 | 7.08 | 20.57 | 13.80 | 13.85 | 20.57 | 14.05 | 14.40 |
| Movement LOS | B | B | A | B | A | A | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 10.40 | | | 8.92 | | | 15.67 | | | 14.62 | | |
| Approach LOS | B | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.98 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.359 | | | | | | | | | | | |

**Emissions**

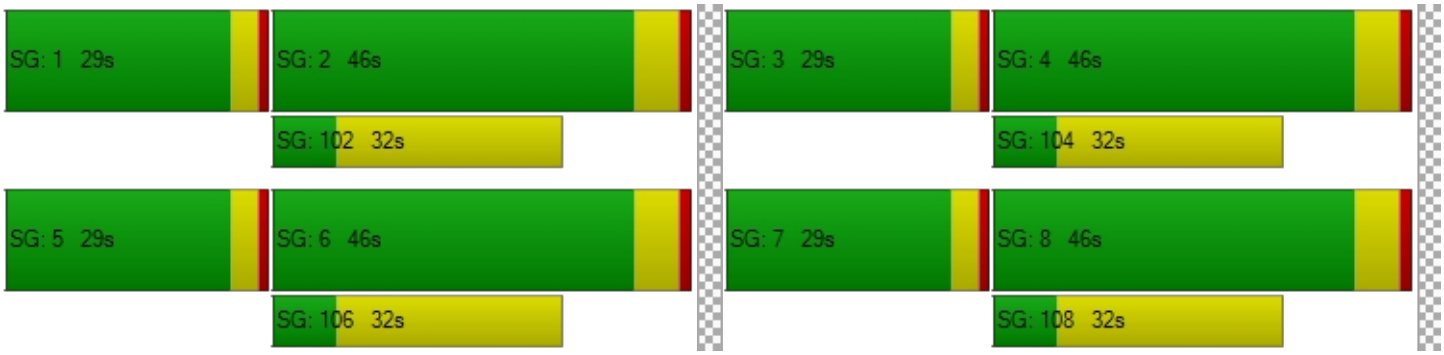
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.51 | 384.64 | 0.00 | 10.06 | 289.15 | 3.52 | 0.38 | 0.38 | 0.63 | 0.32 | 2.03 | 3.31 |
| Stops [stops/h] | 7.23 | 371.24 | 0.00 | 14.58 | 239.05 | 2.52 | 2.96 | 1.90 | 3.21 | 2.96 | 12.24 | 20.64 |
| Fuel consumption [US gal/h] | 0.26 | 19.49 | 0.00 | 0.57 | 14.24 | 0.17 | 0.04 | 0.03 | 0.06 | 0.04 | 0.21 | 0.34 |
| CO [g/h] | 18.19 | 1362.68 | 0.00 | 39.58 | 995.07 | 11.81 | 3.11 | 2.41 | 4.04 | 2.94 | 14.36 | 23.83 |
| NOx [g/h] | 3.54 | 265.13 | 0.00 | 7.70 | 193.60 | 2.30 | 0.61 | 0.47 | 0.79 | 0.57 | 2.79 | 4.64 |
| VOC [g/h] | 4.21 | 315.81 | 0.00 | 9.17 | 230.62 | 2.74 | 0.72 | 0.56 | 0.94 | 0.68 | 3.33 | 5.52 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.62 | 9.62 | 9.62 | 9.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.731 | 2.629 | 2.090 | 2.098 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2102 | 2102 | 2102 | 2102 |
| d_b, Bicycle Delay [s] | 0.05 | 0.05 | 0.05 | 0.05 |
| l_b,int, Bicycle LOS Score for Intersection | 2.201 | 2.056 | 1.578 | 1.647 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.574 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 212 | 496 | 127 | 37 | 439 | 76 | 52 | 406 | 114 | 67 | 372 | 77 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 212 | 496 | 127 | 37 | 439 | 76 | 52 | 406 | 114 | 67 | 372 | 77 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 58 | 135 | 35 | 10 | 119 | 21 | 14 | 110 | 31 | 18 | 101 | 21 |
| Total Analysis Volume [veh/h] | 230 | 539 | 138 | 40 | 477 | 83 | 57 | 441 | 124 | 73 | 404 | 84 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 17 | 17 | 2 | 11 | 11 | 2 | 8 | 8 | 2 | 9 | 9 |
| g / C, Green / Cycle | 0.16 | 0.37 | 0.37 | 0.04 | 0.25 | 0.25 | 0.05 | 0.18 | 0.18 | 0.05 | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.15 | 0.09 | 0.02 | 0.13 | 0.05 | 0.03 | 0.12 | 0.08 | 0.04 | 0.11 | 0.05 |
| s, saturation flow rate [veh/h] | 1810 | 3583 | 1595 | 1810 | 3606 | 1584 | 1810 | 3618 | 1591 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 296 | 1341 | 597 | 64 | 887 | 390 | 83 | 666 | 293 | 97 | 694 | 310 |
| d1, Uniform Delay [s] | 18.18 | 10.45 | 9.71 | 21.59 | 14.87 | 13.61 | 21.33 | 17.21 | 16.37 | 21.17 | 16.68 | 15.63 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.66 | 0.28 | 0.28 | 3.66 | 0.72 | 0.38 | 3.75 | 0.85 | 0.72 | 4.33 | 0.58 | 0.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.40 | 0.23 | 0.62 | 0.54 | 0.21 | 0.69 | 0.66 | 0.42 | 0.75 | 0.58 | 0.27 |
| d, Delay for Lane Group [s/veh] | 19.84 | 10.73 | 9.99 | 25.25 | 15.59 | 13.99 | 25.08 | 18.06 | 17.09 | 25.50 | 17.26 | 15.98 |
| Lane Group LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.97 | 1.42 | 0.70 | 0.44 | 1.90 | 0.62 | 0.58 | 1.76 | 0.96 | 0.75 | 1.55 | 0.61 |
| 50th-Percentile Queue Length [ft/ln] | 49.18 | 35.41 | 17.39 | 11.07 | 47.53 | 15.46 | 14.55 | 43.97 | 23.94 | 18.75 | 38.87 | 15.35 |
| 95th-Percentile Queue Length [veh/ln] | 3.54 | 2.55 | 1.25 | 0.80 | 3.42 | 1.11 | 1.05 | 3.17 | 1.72 | 1.35 | 2.80 | 1.11 |
| 95th-Percentile Queue Length [ft/ln] | 88.53 | 63.74 | 31.30 | 19.93 | 85.55 | 27.84 | 26.20 | 79.14 | 43.09 | 33.76 | 69.96 | 27.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.84 | 10.73 | 9.99 | 25.25 | 15.59 | 13.99 | 25.08 | 18.06 | 17.09 | 25.50 | 17.26 | 15.98 |
| Movement LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 12.93 | | | 16.01 | | | 18.51 | | | 18.14 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.99 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.574 | | | | | | | | | | | |

**Emissions**

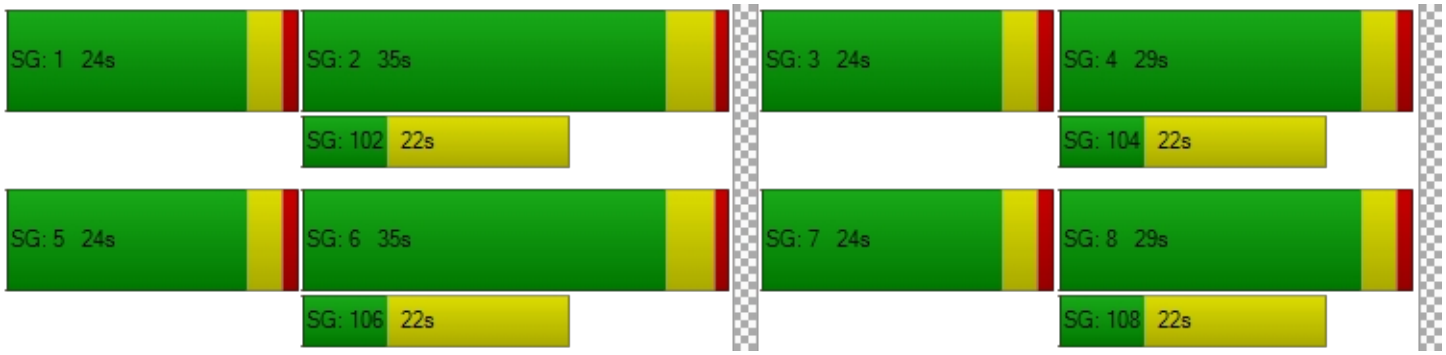
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 114.73 | 268.86 | 68.84 | 20.03 | 238.90 | 41.57 | 28.43 | 219.96 | 61.85 | 73.12 | 404.66 | 84.14 |
| Stops [stops/h] | 156.58 | 225.48 | 55.36 | 35.26 | 302.61 | 49.23 | 46.34 | 279.95 | 76.21 | 59.70 | 247.48 | 48.86 |
| Fuel consumption [US gal/h] | 6.81 | 13.20 | 3.33 | 1.23 | 13.02 | 2.22 | 1.84 | 12.64 | 3.50 | 3.63 | 18.37 | 3.76 |
| CO [g/h] | 475.87 | 922.45 | 232.65 | 85.63 | 910.11 | 155.15 | 128.73 | 883.61 | 244.57 | 253.56 | 1283.84 | 263.15 |
| NOx [g/h] | 92.59 | 179.47 | 45.27 | 16.66 | 177.07 | 30.19 | 25.05 | 171.92 | 47.59 | 49.33 | 249.79 | 51.20 |
| VOC [g/h] | 110.29 | 213.79 | 53.92 | 19.85 | 210.93 | 35.96 | 29.83 | 204.79 | 56.68 | 58.76 | 297.54 | 60.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.95 | 12.95 | 12.95 | 12.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.798 | 2.621 | 2.739 | 2.800 |
| Crosswalk LOS | C | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1327 | 1327 | 1105 | 1105 |
| d_b, Bicycle Delay [s] | 2.57 | 2.57 | 4.53 | 4.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.308 | 2.055 | 2.073 | 2.022 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.682 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 73 | 870 | 94 | 21 | 579 | 49 | 44 | 453 | 72 | 93 | 286 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 73 | 870 | 94 | 21 | 579 | 49 | 44 | 453 | 72 | 93 | 286 | 24 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 227 | 24 | 5 | 151 | 13 | 11 | 118 | 19 | 24 | 74 | 6 |
| Total Analysis Volume [veh/h] | 76 | 906 | 98 | 22 | 603 | 51 | 46 | 472 | 75 | 97 | 298 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 23 | 23 | 3 | 19 | 19 | 5 | 22 | 22 | 8 | 24 | 24 |
| g / C, Green / Cycle | 0.10 | 0.32 | 0.32 | 0.04 | 0.27 | 0.27 | 0.08 | 0.30 | 0.30 | 0.11 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.25 | 0.06 | 0.01 | 0.17 | 0.03 | 0.03 | 0.25 | 0.05 | 0.05 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1607 | 1810 | 3595 | 1594 | 1810 | 1888 | 1598 | 1810 | 1900 | 1593 |
| c, Capacity [veh/h] | 176 | 1160 | 518 | 81 | 967 | 429 | 137 | 570 | 482 | 195 | 634 | 532 |
| d1, Uniform Delay [s] | 30.46 | 22.02 | 17.54 | 33.13 | 23.04 | 19.80 | 31.44 | 23.32 | 18.35 | 30.19 | 18.89 | 16.18 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.67 | 1.18 | 0.17 | 1.76 | 0.66 | 0.12 | 1.42 | 3.77 | 0.15 | 1.96 | 0.54 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.78 | 0.19 | 0.27 | 0.62 | 0.12 | 0.33 | 0.83 | 0.16 | 0.50 | 0.47 | 0.05 |
| d, Delay for Lane Group [s/veh] | 32.13 | 23.20 | 17.71 | 34.88 | 23.70 | 19.92 | 32.86 | 27.09 | 18.50 | 32.14 | 19.44 | 16.22 |
| Lane Group LOS | C | C | B | C | C | B | C | C | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.22 | 6.19 | 1.06 | 0.40 | 4.31 | 0.63 | 0.78 | 7.52 | 0.89 | 1.56 | 3.52 | 0.25 |
| 50th-Percentile Queue Length [ft/ln] | 30.52 | 154.73 | 26.47 | 9.96 | 107.76 | 15.70 | 19.62 | 187.96 | 22.14 | 38.95 | 87.94 | 6.28 |
| 95th-Percentile Queue Length [veh/ln] | 2.20 | 10.27 | 1.91 | 0.72 | 7.72 | 1.13 | 1.41 | 12.02 | 1.59 | 2.80 | 6.33 | 0.45 |
| 95th-Percentile Queue Length [ft/ln] | 54.94 | 256.73 | 47.65 | 17.92 | 192.88 | 28.27 | 35.32 | 300.38 | 39.84 | 70.11 | 158.29 | 11.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.13 | 23.20 | 17.71 | 34.88 | 23.70 | 19.92 | 32.86 | 27.09 | 18.50 | 32.14 | 19.44 | 16.22 |
| Movement LOS | C | C | B | C | C | B | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 23.33 | | | 23.78 | | | 26.45 | | | 22.18 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.93 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.682 | | | | | | | | | | | |

**Emissions**

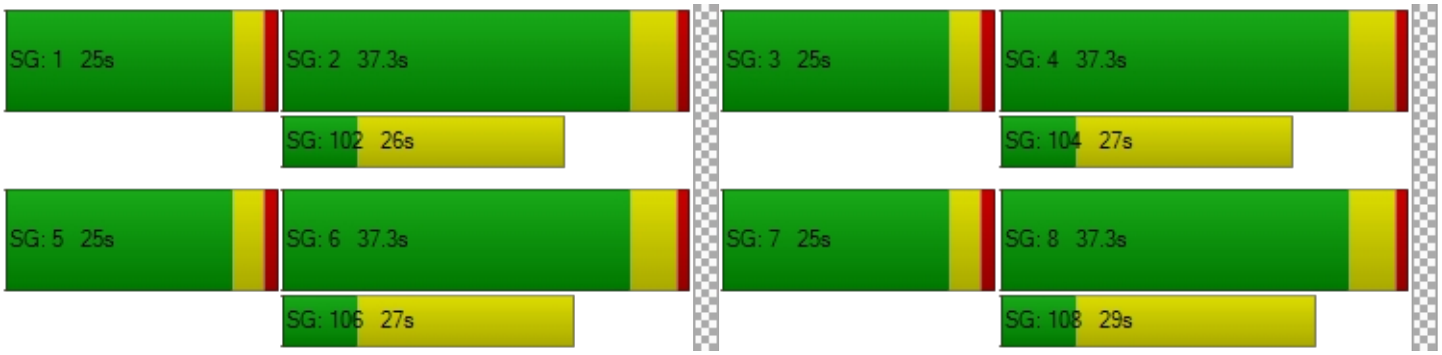
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.19 | 181.10 | 19.59 | 10.97 | 300.78 | 25.44 | 22.67 | 232.59 | 36.96 | 10.01 | 30.77 | 2.58 |
| Stops [stops/h] | 61.42 | 622.80 | 53.27 | 20.04 | 433.72 | 31.61 | 39.49 | 378.28 | 44.55 | 78.39 | 176.98 | 12.64 |
| Fuel consumption [US gal/h] | 1.78 | 18.23 | 1.69 | 0.72 | 17.69 | 1.43 | 1.46 | 14.27 | 2.05 | 1.95 | 4.43 | 0.33 |
| CO [g/h] | 124.51 | 1274.23 | 117.93 | 50.23 | 1236.31 | 99.86 | 101.98 | 997.24 | 143.29 | 136.48 | 309.93 | 22.94 |
| NOx [g/h] | 24.23 | 247.92 | 22.95 | 9.77 | 240.54 | 19.43 | 19.84 | 194.03 | 27.88 | 26.55 | 60.30 | 4.46 |
| VOC [g/h] | 28.86 | 295.31 | 27.33 | 11.64 | 286.53 | 23.14 | 23.63 | 231.12 | 33.21 | 31.63 | 71.83 | 5.32 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.62 | 25.62 | 25.62 | 25.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.892 | 2.812 | 2.486 | 2.488 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 894 | 894 | 894 | 894 |
| d_b, Bicycle Delay [s] | 10.93 | 10.94 | 10.93 | 10.94 |
| l_b,int, Bicycle LOS Score for Intersection | 2.451 | 2.117 | 2.538 | 2.253 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.503 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 325 | 1066 | 0 | 0 | 381 | 348 | 0 | 0 | 0 | 119 | 0 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 325 | 1066 | 0 | 0 | 381 | 348 | 0 | 0 | 0 | 119 | 0 | 2 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 86 | 284 | 0 | 0 | 101 | 93 | 0 | 0 | 0 | 32 | 0 | 1 |
| Total Analysis Volume [veh/h] | 346 | 1134 | 0 | 0 | 405 | 370 | 0 | 0 | 0 | 127 | 0 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 51 | 51 | 51 | 51 | | 51 | 51 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 7 | 31 | 18 | 18 | | 7 | 7 |
| g / C, Green / Cycle | 0.14 | 0.61 | 0.35 | 0.35 | | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.32 | 0.21 | 0.24 | | 0.07 | 0.00 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 1883 | 1591 | | 1787 | 1615 |
| c, Capacity [veh/h] | 505 | 2194 | 666 | 563 | | 237 | 214 |
| d1, Uniform Delay [s] | 20.68 | 5.65 | 13.39 | 14.06 | | 20.63 | 19.19 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.62 | 0.35 | 1.50 | 2.79 | | 3.99 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.52 | 0.58 | 0.69 | | 0.54 | 0.01 |
| d, Delay for Lane Group [s/veh] | 21.30 | 6.00 | 14.89 | 16.85 | | 24.62 | 19.22 |
| Lane Group LOS | C | A | B | B | | C | B |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.68 | 1.72 | 2.99 | 3.29 | | 1.39 | 0.02 |
| 50th-Percentile Queue Length [ft/ln] | 41.96 | 42.93 | 74.79 | 82.15 | | 34.68 | 0.47 |
| 95th-Percentile Queue Length [veh/ln] | 3.02 | 3.09 | 5.38 | 5.91 | | 2.50 | 0.03 |
| 95th-Percentile Queue Length [ft/ln] | 75.53 | 77.27 | 134.62 | 147.87 | | 62.43 | 0.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.30 | 6.00 | 0.00 | 0.00 | 14.97 | 16.85 | 0.00 | 0.00 | 0.00 | 24.62 | 0.00 | 19.22 |
| Movement LOS | C | A | | | B | B | | | | C | | B |
| d_A, Approach Delay [s/veh] | 9.58 | | | 15.87 | | | 0.00 | | | 24.54 | | |
| Approach LOS | A | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 12.43 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.503 | | | | | | | | | | | |

**Emissions**

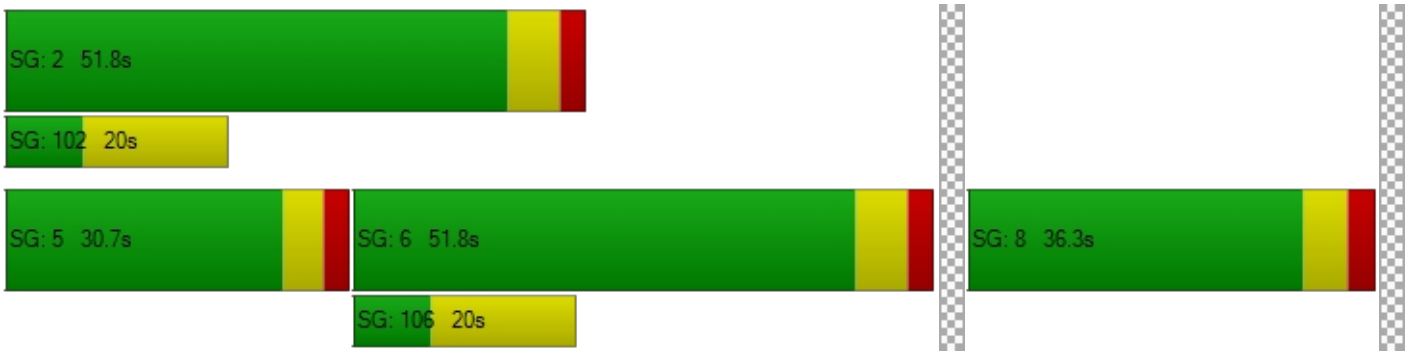
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.40 | 122.58 | 77.46 | 77.46 | | 10.91 | 0.17 |
| Stops [stops/h] | 237.80 | 243.29 | 211.93 | 232.79 | | 98.27 | 1.32 |
| Fuel consumption [US gal/h] | 5.74 | 8.61 | 6.46 | 6.88 | | 2.83 | 0.04 |
| CO [g/h] | 401.13 | 602.00 | 451.86 | 480.80 | | 197.60 | 2.66 |
| NOx [g/h] | 78.05 | 117.13 | 87.92 | 93.55 | | 38.45 | 0.52 |
| VOC [g/h] | 92.97 | 139.52 | 104.72 | 111.43 | | 45.80 | 0.62 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.78 | 22.78 | 15.60 | 15.60 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.926 | 2.812 | 2.031 | 1.798 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1771 | 1771 | 0 | 1181 |
| d_b, Bicycle Delay [s] | 0.33 | 0.33 | 25.41 | 4.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.781 | 2.199 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.817 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1104 | 309 | 17 | 486 | 0 | 544 | 0 | 483 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1104 | 309 | 17 | 486 | 0 | 544 | 0 | 483 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 288 | 80 | 4 | 127 | 0 | 142 | 0 | 126 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1150 | 322 | 18 | 506 | 0 | 567 | 0 | 503 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 2 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.02 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.39 | 0.42 | 0.01 | 0.14 | 0.16 | 0.31 | |
| s, saturation flow rate [veh/h] | 1889 | 1754 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 928 | 861 | 43 | 2040 | 1037 | 478 | |
| d1, Uniform Delay [s] | 21.20 | 22.29 | 48.03 | 10.63 | 29.39 | 35.06 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.46 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 6.93 | 10.57 | 2.42 | 0.29 | 0.96 | 53.96 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.85 | 0.42 | 0.25 | 0.55 | 1.05 | |
| d, Delay for Lane Group [s/veh] | 28.12 | 32.86 | 50.45 | 10.92 | 30.35 | 89.02 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 14.79 | 16.21 | 0.46 | 2.53 | 5.37 | 17.69 | |
| 50th-Percentile Queue Length [ft/ln] | 369.80 | 405.21 | 11.42 | 63.32 | 134.32 | 442.16 | |
| 95th-Percentile Queue Length [veh/ln] | 21.10 | 22.81 | 0.82 | 4.56 | 9.17 | 25.38 | |
| 95th-Percentile Queue Length [ft/ln] | 527.49 | 570.28 | 20.55 | 113.97 | 229.36 | 634.60 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 29.83 | 32.86 | 50.45 | 10.92 | 0.00 | 30.35 | 0.00 | 89.02 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 30.49 | | | 12.28 | | | 57.93 | | | 0.00 | | |
| Approach LOS | C | | | B | | | E | | | A | | |
| d_I, Intersection Delay [s/veh] | 36.96 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.817 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.84 | 48.84 | 1.95 | 54.70 | 67.39 | 59.78 | |
| Stops [stops/h] | 532.75 | 583.77 | 16.45 | 182.44 | 387.03 | 637.00 | |
| Fuel consumption [US gal/h] | 11.20 | 12.41 | 0.46 | 5.27 | 12.95 | 22.94 | |
| CO [g/h] | 782.54 | 867.16 | 31.88 | 368.25 | 904.88 | 1603.68 | |
| NOx [g/h] | 152.25 | 168.72 | 6.20 | 71.65 | 176.06 | 312.02 | |
| VOC [g/h] | 181.36 | 200.97 | 7.39 | 85.35 | 209.72 | 371.67 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.923 | 2.941 | 2.583 | 1.885 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.774 | 1.992 | 1.560 | 4.132 |
| Bicycle LOS | C | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.017 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 454 | 4 | 2 | 415 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 454 | 4 | 2 | 415 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 123 | 1 | 1 | 113 |
| Total Analysis Volume [veh/h] | 5 | 4 | 493 | 4 | 2 | 451 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 17.84 | 11.54 | 0.00 | 0.00 | 8.39 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.08 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.88 | 1.88 | 0.00 | 0.00 | 0.08 | 0.08 |
| d_A, Approach Delay [s/veh] | 15.04 | | 0.00 | | 0.04 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.16 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.008 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 2 | 14 | 19 | 428 | 632 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 14 | 19 | 428 | 632 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 4 | 5 | 116 | 172 | 1 |
| Total Analysis Volume [veh/h] | 2 | 15 | 21 | 465 | 687 | 3 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.02 | 0.02 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 19.55 | 10.69 | 9.09 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.07 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.38 | 2.38 | 1.79 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.73 | | 0.39 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.33 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.055 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 18 | 12 | 407 | 62 | 5 | 608 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 18 | 12 | 407 | 62 | 5 | 608 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 3 | 107 | 16 | 1 | 160 |
| Total Analysis Volume [veh/h] | 19 | 13 | 428 | 65 | 5 | 640 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 16.03 | 10.13 | 0.00 | 0.00 | 8.35 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.23 | 0.23 | 0.00 | 0.00 | 0.01 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 5.73 | 5.73 | 0.00 | 0.00 | 0.35 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.63 | | 0.00 | | 0.06 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.41 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.630 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 233 | 262 | 129 | 30 | 245 | 117 | 102 | 245 | 51 | 155 | 424 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 233 | 262 | 129 | 30 | 245 | 117 | 102 | 245 | 51 | 155 | 424 | 33 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 69 | 34 | 8 | 64 | 31 | 27 | 64 | 13 | 41 | 112 | 9 |
| Total Analysis Volume [veh/h] | 245 | 276 | 136 | 32 | 258 | 123 | 107 | 258 | 54 | 163 | 446 | 35 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 17 | 17 | 17 | 24 | 24 | 8 | 16 | 16 | 11 | 18 | 18 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.21 | 0.28 | 0.28 | 0.10 | 0.19 | 0.19 | 0.13 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.15 | 0.08 | 0.02 | 0.21 | 0.06 | 0.07 | 0.03 | 0.10 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1800 | 1900 | 1615 | 1810 | 1798 | 1810 | 3600 | 1589 | 1659 | 3606 | 1615 |
| c, Capacity [veh/h] | 373 | 394 | 335 | 511 | 508 | 180 | 679 | 300 | 218 | 794 | 356 |
| d1, Uniform Delay [s] | 30.56 | 30.89 | 28.83 | 22.02 | 27.45 | 36.20 | 29.80 | 28.62 | 35.16 | 29.15 | 26.11 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.23 | 0.26 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.74 | 0.85 | 0.29 | 0.11 | 5.33 | 1.16 | 0.75 | 0.61 | 1.94 | 1.33 | 0.26 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.66 | 0.70 | 0.41 | 0.06 | 0.75 | 0.59 | 0.38 | 0.18 | 0.75 | 0.56 | 0.10 |
| d, Delay for Lane Group [s/veh] | 31.30 | 31.74 | 29.12 | 22.13 | 32.78 | 37.37 | 30.55 | 29.23 | 37.09 | 30.48 | 26.36 |
| Lane Group LOS | C | C | C | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.49 | 5.12 | 2.34 | 0.47 | 7.43 | 2.01 | 2.17 | 0.89 | 3.09 | 3.80 | 0.54 |
| 50th-Percentile Queue Length [ft/ln] | 112.31 | 128.02 | 58.49 | 11.64 | 185.86 | 50.24 | 54.16 | 22.34 | 77.18 | 95.00 | 13.47 |
| 95th-Percentile Queue Length [veh/ln] | 7.97 | 8.83 | 4.21 | 0.84 | 11.91 | 3.62 | 3.90 | 1.61 | 5.56 | 6.84 | 0.97 |
| 95th-Percentile Queue Length [ft/ln] | 199.21 | 220.81 | 105.28 | 20.96 | 297.65 | 90.43 | 97.50 | 40.20 | 138.92 | 171.00 | 24.25 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.30 | 31.74 | 29.12 | 22.13 | 32.78 | 32.78 | 37.37 | 30.55 | 29.23 | 37.09 | 30.48 | 26.36 |
| Movement LOS | C | C | C | C | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 31.03 | | | 31.96 | | | 32.12 | | | 31.93 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.70 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.630 | | | | | | | | | | | |

**Emissions**

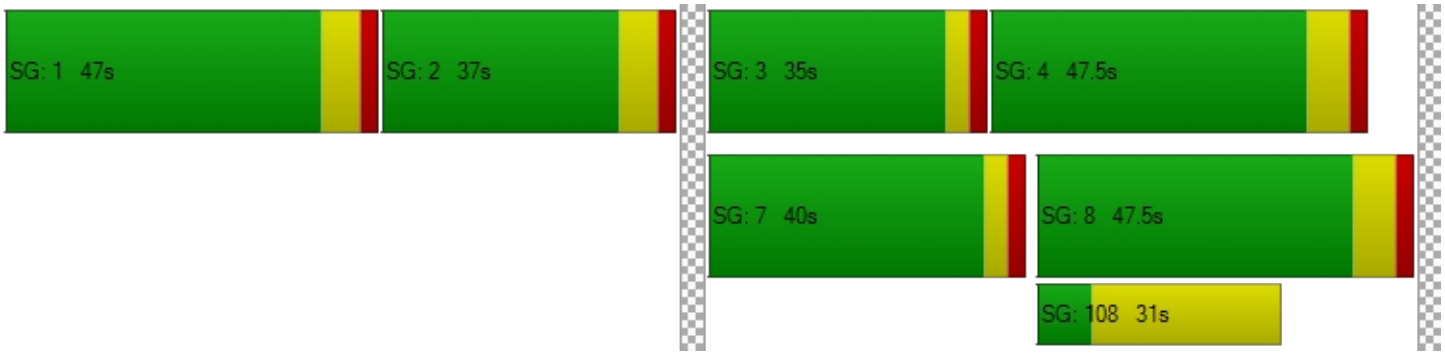
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 244.13 | 275.02 | 135.52 | 0.90 | 10.72 | 39.46 | 95.14 | 19.91 | 82.35 | 225.33 | 17.68 |
| Stops [stops/h] | 193.03 | 220.05 | 100.54 | 20.01 | 319.45 | 86.35 | 186.20 | 38.39 | 132.65 | 326.58 | 23.15 |
| Fuel consumption [US gal/h] | 12.68 | 14.32 | 6.94 | 0.29 | 4.75 | 3.46 | 7.65 | 1.58 | 6.02 | 15.33 | 1.14 |
| CO [g/h] | 886.10 | 1000.95 | 485.11 | 20.39 | 331.89 | 241.89 | 534.59 | 110.25 | 421.10 | 1071.23 | 79.36 |
| NOx [g/h] | 172.40 | 194.75 | 94.39 | 3.97 | 64.57 | 47.06 | 104.01 | 21.45 | 81.93 | 208.42 | 15.44 |
| VOC [g/h] | 205.36 | 231.98 | 112.43 | 4.73 | 76.92 | 56.06 | 123.90 | 25.55 | 97.59 | 248.27 | 18.39 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.61 | 35.64 | 35.18 | 35.18 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.516 | 2.211 | 2.880 | 2.743 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 955 | 716 | 955 | 955 |
| d_b, Bicycle Delay [s] | 11.44 | 17.26 | 11.45 | 11.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.644 | 2.241 | 1.905 | 2.091 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.495 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 7 | 615 | 13 | 14 | 478 | 78 | 181 | 201 | 120 | 1 | 240 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 615 | 13 | 14 | 478 | 78 | 181 | 201 | 120 | 1 | 240 | 5 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 167 | 4 | 4 | 130 | 21 | 49 | 55 | 33 | 0 | 65 | 1 |
| Total Analysis Volume [veh/h] | 8 | 668 | 14 | 15 | 520 | 85 | 197 | 218 | 130 | 1 | 261 | 5 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 15 | 15 | 2 | 16 | 16 | 8 | 17 | 17 | 0 | 9 | 9 |
| g / C, Green / Cycle | 0.02 | 0.30 | 0.30 | 0.03 | 0.31 | 0.31 | 0.17 | 0.35 | 0.35 | 0.00 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.18 | 0.01 | 0.01 | 0.14 | 0.05 | 0.11 | 0.06 | 0.08 | 0.00 | 0.07 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 3578 | 1604 | 1810 | 3555 | 1615 |
| c, Capacity [veh/h] | 35 | 1081 | 480 | 63 | 1129 | 508 | 301 | 1239 | 555 | 5 | 643 | 292 |
| d1, Uniform Delay [s] | 24.36 | 15.20 | 12.50 | 23.71 | 13.87 | 12.52 | 19.63 | 11.48 | 11.74 | 25.11 | 18.26 | 16.98 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.21 | 0.77 | 0.03 | 0.72 | 0.39 | 0.21 | 0.91 | 0.08 | 0.27 | 7.23 | 0.51 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.62 | 0.03 | 0.24 | 0.46 | 0.17 | 0.65 | 0.18 | 0.23 | 0.20 | 0.41 | 0.02 |
| d, Delay for Lane Group [s/veh] | 25.57 | 15.97 | 12.53 | 24.43 | 14.26 | 12.72 | 20.53 | 11.57 | 12.00 | 32.33 | 18.78 | 17.01 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.09 | 2.58 | 0.09 | 0.16 | 1.83 | 0.55 | 2.01 | 0.74 | 0.93 | 0.02 | 1.16 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 2.29 | 64.50 | 2.23 | 3.99 | 45.64 | 13.74 | 50.31 | 18.51 | 23.15 | 0.51 | 28.91 | 1.05 |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 4.64 | 0.16 | 0.29 | 3.29 | 0.99 | 3.62 | 1.33 | 1.67 | 0.04 | 2.08 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 4.12 | 116.11 | 4.02 | 7.18 | 82.15 | 24.73 | 90.57 | 33.31 | 41.66 | 0.91 | 52.03 | 1.88 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.57 | 15.97 | 12.53 | 24.43 | 14.26 | 12.72 | 20.53 | 11.57 | 12.00 | 32.33 | 18.78 | 17.01 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 16.01 | | | 14.29 | | | 14.91 | | | 18.80 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.58 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.495 | | | | | | | | | | | |

**Emissions**

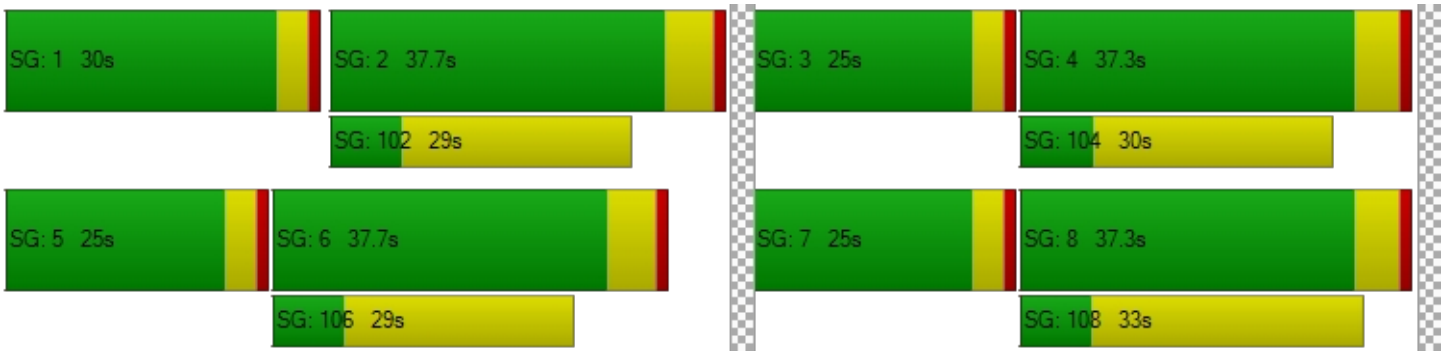
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.66 | 305.78 | 6.41 | 14.95 | 518.15 | 84.70 | 197.32 | 218.35 | 130.21 | 0.50 | 130.92 | 2.51 |
| Stops [stops/h] | 6.54 | 369.05 | 6.38 | 11.40 | 261.12 | 39.31 | 143.93 | 105.88 | 66.21 | 1.45 | 165.39 | 3.00 |
| Fuel consumption [US gal/h] | 0.26 | 18.08 | 0.35 | 0.75 | 22.87 | 3.66 | 9.74 | 10.09 | 6.04 | 0.04 | 7.54 | 0.14 |
| CO [g/h] | 18.50 | 1263.53 | 24.35 | 52.44 | 1598.54 | 255.82 | 680.92 | 705.08 | 422.45 | 2.93 | 527.14 | 9.82 |
| NOx [g/h] | 3.60 | 245.84 | 4.74 | 10.20 | 311.02 | 49.77 | 132.48 | 137.18 | 82.19 | 0.57 | 102.56 | 1.91 |
| VOC [g/h] | 4.29 | 292.83 | 5.64 | 12.15 | 370.48 | 59.29 | 157.81 | 163.41 | 97.91 | 0.68 | 122.17 | 2.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.37 | 15.37 | 15.37 | 15.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.783 | 2.823 | 2.566 | 2.668 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1271 | 1271 | 1271 | 1271 |
| d_b, Bicycle Delay [s] | 3.34 | 3.34 | 3.34 | 3.34 |
| l_b,int, Bicycle LOS Score for Intersection | 2.129 | 2.071 | 2.009 | 1.780 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 12.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 132 | 534 | 593 | 66 | 421 | 35 | 46 | 203 | 248 | 390 | 119 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 534 | 593 | 66 | 421 | 35 | 46 | 203 | 248 | 390 | 119 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 144 | 159 | 18 | 113 | 9 | 12 | 55 | 67 | 105 | 32 | 23 |
| Total Analysis Volume [veh/h] | 142 | 574 | 638 | 71 | 453 | 38 | 49 | 218 | 267 | 419 | 128 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 349 | | | 712 | | | 971 | | | 770 | | |
| Exiting Flow Rate [veh/h] | 1170 | | | 721 | | | 313 | | | 953 | | |
| Demand Flow Rate [veh/h] | 132 | 534 | 593 | 66 | 421 | 35 | 46 | 203 | 248 | 390 | 119 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 142 | 574 | 638 | 71 | 453 | 38 | 49 | 218 | 267 | 419 | 128 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.98 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.96 |
| Entry Flow Rate [veh/h] | 640 | 730 | 270 | 303 | 276 | 273 | 354 | 312 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1034 | 1034 | 701 | 776 | 553 | 623 | 665 | 738 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1028 | 1017 | 689 | 764 | 537 | 611 | 638 | 711 |
| X, volume / capacity | 0.62 | 0.71 | 0.38 | 0.39 | 0.50 | 0.44 | 0.53 | 0.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | B | C | B | A | C | B | B | B |
| 95th-Percentile Queue Length [veh] | 4.47 | 6.18 | 1.81 | 1.86 | 2.75 | 2.22 | 3.14 | 2.11 |
| 95th-Percentile Queue Length [ft] | 111.86 | 154.57 | 45.17 | 46.47 | 68.81 | 55.50 | 78.50 | 52.74 |
| Approach Delay [s/veh] | 13.70 | | 9.99 | | 14.14 | | 12.80 | |
| Approach LOS | B | | A | | B | | B | |
| Intersection Delay [s/veh] | 12.91 | | | | | | | |
| Intersection LOS | B | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.435 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1163 | 650 | 0 | 656 | 368 | 0 | 0 | 0 | 37 | 0 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1163 | 650 | 0 | 656 | 368 | 0 | 0 | 0 | 37 | 0 | 22 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 316 | 177 | 0 | 178 | 100 | 0 | 0 | 0 | 10 | 0 | 6 |
| Total Analysis Volume [veh/h] | 0 | 1264 | 707 | 0 | 713 | 400 | 0 | 0 | 0 | 40 | 0 | 24 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 43 | 43 | 43 | | 43 | 43 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 26 | 26 | 26 | | 4 | 4 |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.60 | | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.35 | 0.20 | 0.25 | | 0.02 | 0.01 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 2165 | 2158 | 966 | | 181 | 164 |
| d1, Uniform Delay [s] | 5.23 | 4.24 | 4.52 | | 17.71 | 17.57 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.17 | 0.53 | | 1.30 | 0.87 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.33 | 0.41 | | 0.22 | 0.15 |
| d, Delay for Lane Group [s/veh] | 5.70 | 4.40 | 5.05 | | 19.01 | 18.44 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.27 | 0.57 | 0.76 | | 0.34 | 0.20 |
| 50th-Percentile Queue Length [ft/ln] | 31.81 | 14.16 | 19.01 | | 8.45 | 5.04 |
| 95th-Percentile Queue Length [veh/ln] | 2.29 | 1.02 | 1.37 | | 0.61 | 0.36 |
| 95th-Percentile Queue Length [ft/ln] | 57.26 | 25.48 | 34.22 | | 15.21 | 9.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.70 | 0.00 | 0.00 | 4.40 | 5.05 | 0.00 | 0.00 | 0.00 | 19.01 | 0.00 | 18.44 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.77 | | | 4.63 | | | 0.00 | | | 18.79 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.56 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.435 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 144.59 | 70.34 | 39.46 | | 2.83 | 1.70 |
| Stops [stops/h] | 214.23 | 95.34 | 64.02 | | 28.45 | 16.99 |
| Fuel consumption [US gal/h] | 9.09 | 4.24 | 2.56 | | 0.78 | 0.46 |
| CO [g/h] | 635.14 | 296.04 | 178.91 | | 54.37 | 32.32 |
| NOx [g/h] | 123.58 | 57.60 | 34.81 | | 10.58 | 6.29 |
| VOC [g/h] | 147.20 | 68.61 | 41.46 | | 12.60 | 7.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.40 | 18.40 | 11.80 | 11.80 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.864 | 2.976 | 1.866 | 1.935 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1637 | 1637 | 0 | 935 |
| d_b, Bicycle Delay [s] | 0.71 | 0.71 | 21.38 | 6.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.602 | 2.478 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 65.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.967 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1229 | 83 | 23 | 687 | 0 | 557 | 0 | 718 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1229 | 83 | 23 | 687 | 0 | 557 | 0 | 718 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 334 | 23 | 6 | 187 | 0 | 151 | 0 | 195 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1336 | 90 | 25 | 747 | 0 | 605 | 0 | 780 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | 3.70 | |
| g_i, Effective Green Time [s] | 44 | 44 | 3 | 53 | 40 | 40 | |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.03 | 0.50 | 0.38 | 0.38 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.38 | 0.39 | 0.01 | 0.21 | 0.34 | 0.49 | |
| s, saturation flow rate [veh/h] | 1892 | 1851 | 1810 | 3595 | 1801 | 1607 | |
| c, Capacity [veh/h] | 789 | 772 | 55 | 1803 | 684 | 610 | |
| d1, Uniform Delay [s] | 28.73 | 29.13 | 50.19 | 16.51 | 30.52 | 32.67 | |
| k, delay calibration | 0.38 | 0.39 | 0.04 | 0.19 | 0.40 | 0.50 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 12.47 | 15.16 | 2.13 | 0.27 | 12.88 | 137.46 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.90 | 0.92 | 0.45 | 0.41 | 0.88 | 1.28 | |
| d, Delay for Lane Group [s/veh] | 41.20 | 44.28 | 52.32 | 16.79 | 43.40 | 170.13 | |
| Lane Group LOS | D | D | D | B | D | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 18.16 | 18.88 | 0.66 | 5.26 | 15.29 | 37.18 | |
| 50th-Percentile Queue Length [ft/ln] | 453.91 | 472.10 | 16.53 | 131.58 | 382.28 | 929.39 | |
| 95th-Percentile Queue Length [veh/ln] | 25.14 | 26.01 | 1.19 | 9.03 | 21.70 | 54.96 | |
| 95th-Percentile Queue Length [ft/ln] | 628.61 | 650.26 | 29.75 | 225.64 | 542.60 | 1374.02 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 42.64 | 44.28 | 52.32 | 16.79 | 0.00 | 43.40 | 0.00 | 170.13 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | D | D | D | B | | D | | F | | | |
| d_A, Approach Delay [s/veh] | 42.74 | | | 17.94 | | | 114.77 | | | 0.00 | | |
| Approach LOS | D | | | B | | | F | | | A | | |
| d_I, Intersection Delay [s/veh] | 65.24 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.967 | | | | | | | | | | | |

**Emissions**

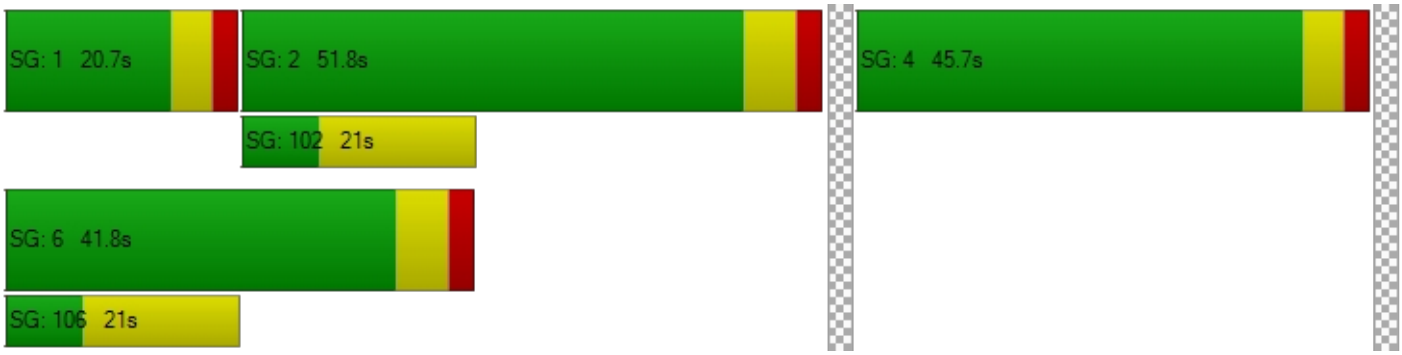
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 57.75 | 57.75 | 2.86 | 85.45 | 47.31 | 61.00 | |
| Stops [stops/h] | 621.13 | 646.02 | 22.62 | 360.10 | 523.11 | 1271.78 | |
| Fuel consumption [US gal/h] | 15.68 | 16.44 | 0.65 | 9.96 | 16.64 | 52.66 | |
| CO [g/h] | 1096.06 | 1148.92 | 45.11 | 696.07 | 1163.26 | 3681.17 | |
| NOx [g/h] | 213.25 | 223.54 | 8.78 | 135.43 | 226.33 | 716.22 | |
| VOC [g/h] | 254.02 | 266.27 | 10.46 | 161.32 | 269.60 | 853.15 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.3 | 3.3 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.37 | 49.37 | 42.19 | 42.19 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.224 | 3.128 | 2.960 | 1.778 |
| Crosswalk LOS | C | C | C | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 855 | 665 | 760 | 0 |
| d_b, Bicycle Delay [s] | 17.24 | 23.44 | 20.22 | 52.62 |
| l_b,int, Bicycle LOS Score for Intersection | 2.736 | 2.197 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.659 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 260 | 0 | 14 | 149 | 50 | 10 | 215 | 242 | 25 | 7 | 387 | 143 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 260 | 0 | 14 | 149 | 50 | 10 | 215 | 242 | 25 | 7 | 387 | 143 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 71 | 0 | 4 | 40 | 14 | 3 | 58 | 66 | 7 | 2 | 105 | 39 |
| Total Analysis Volume [veh/h] | 283 | 0 | 15 | 162 | 54 | 11 | 234 | 263 | 27 | 8 | 421 | 155 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 10 | 10 | 12 | 11 | 23 | 23 | 1 | 13 | 13 |
| g / C, Green / Cycle | 0.40 | 0.17 | 0.17 | 0.20 | 0.18 | 0.38 | 0.38 | 0.02 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.01 | 0.11 | 0.04 | 0.13 | 0.07 | 0.02 | 0.00 | 0.12 | 0.10 |
| s, saturation flow rate [veh/h] | 1376 | 1615 | 1440 | 1845 | 1810 | 3603 | 1611 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 493 | 267 | 119 | 375 | 323 | 1361 | 608 | 43 | 807 | 360 |
| d1, Uniform Delay [s] | 18.22 | 21.38 | 22.91 | 19.98 | 23.55 | 12.69 | 11.97 | 29.09 | 20.76 | 20.29 |
| k, delay calibration | 0.15 | 0.12 | 0.04 | 0.04 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.50 | 0.09 | 169.08 | 0.08 | 1.16 | 0.10 | 0.05 | 0.77 | 0.80 | 1.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.57 | 0.06 | 1.37 | 0.17 | 0.72 | 0.19 | 0.04 | 0.19 | 0.52 | 0.43 |
| d, Delay for Lane Group [s/veh] | 19.72 | 21.48 | 191.99 | 20.06 | 24.71 | 12.80 | 12.01 | 29.85 | 21.56 | 21.54 |
| Lane Group LOS | B | C | F | C | C | B | B | C | C | C |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.10 | 0.17 | 7.01 | 0.72 | 2.80 | 0.97 | 0.19 | 0.11 | 2.31 | 1.72 |
| 50th-Percentile Queue Length [ft/ln] | 77.50 | 4.15 | 175.26 | 17.95 | 70.09 | 24.23 | 4.79 | 2.77 | 57.65 | 42.98 |
| 95th-Percentile Queue Length [veh/ln] | 5.58 | 0.30 | 12.62 | 1.29 | 5.05 | 1.74 | 0.34 | 0.20 | 4.15 | 3.09 |
| 95th-Percentile Queue Length [ft/ln] | 139.50 | 7.46 | 315.47 | 32.31 | 126.15 | 43.61 | 8.61 | 4.99 | 103.78 | 77.37 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.72 | 19.72 | 21.48 | 191.99 | 20.06 | 20.06 | 24.71 | 12.80 | 12.01 | 29.85 | 21.56 | 21.54 |
| Movement LOS | B | B | C | F | C | C | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 19.81 | | | 142.76 | | | 18.08 | | | 21.67 | | |
| Approach LOS | B | | | F | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 37.01 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.659 | | | | | | | | | | | |

**Emissions**

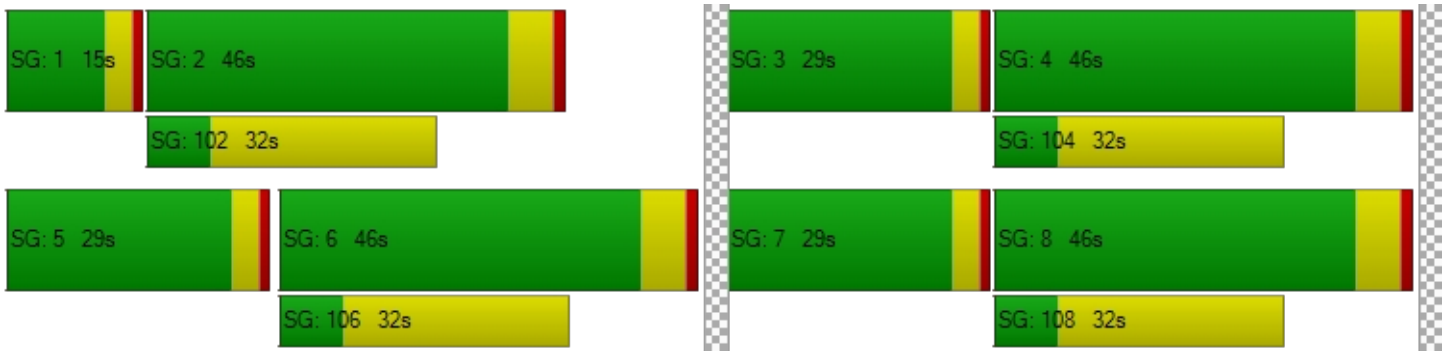
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 14.73 | 0.78 | 4.05 | 1.62 | 118.22 | 132.87 | 13.64 | 4.00 | 210.64 | 77.55 |
| Stops [stops/h] | 184.08 | 9.85 | 416.28 | 42.64 | 166.47 | 115.08 | 11.37 | 6.58 | 273.88 | 102.10 |
| Fuel consumption [US gal/h] | 3.93 | 0.21 | 8.79 | 0.57 | 7.69 | 6.90 | 0.70 | 0.28 | 13.11 | 4.84 |
| CO [g/h] | 274.68 | 15.01 | 614.75 | 39.69 | 537.62 | 482.39 | 48.74 | 19.83 | 916.07 | 338.56 |
| NOx [g/h] | 53.44 | 2.92 | 119.61 | 7.72 | 104.60 | 93.86 | 9.48 | 3.86 | 178.23 | 65.87 |
| VOC [g/h] | 63.66 | 3.48 | 142.47 | 9.20 | 124.60 | 111.80 | 11.30 | 4.60 | 212.31 | 78.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.31 | 20.31 | 20.31 | 20.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.107 | 2.118 | 3.103 | 2.939 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2276 | 1320 | 1320 | 1320 |
| d_b, Bicycle Delay [s] | 0.58 | 3.51 | 3.51 | 3.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.051 | 1.934 | 1.992 | 2.041 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.518 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 498 | 0 | 11 | 132 | 81 | 168 | 69 | 0 | 2 | 16 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 498 | 0 | 11 | 132 | 81 | 168 | 69 | 0 | 2 | 16 | 9 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 135 | 0 | 3 | 36 | 22 | 46 | 19 | 0 | 1 | 4 | 2 |
| Total Analysis Volume [veh/h] | 0 | 541 | 0 | 12 | 143 | 88 | 183 | 75 | 0 | 2 | 17 | 10 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 19 | 2 | 21 | 21 | 10 | 15 | 15 | 0 | 5 | 5 |
| g / C, Green / Cycle | 0.00 | 0.37 | 0.03 | 0.40 | 0.40 | 0.20 | 0.28 | 0.28 | 0.01 | 0.09 | 0.09 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.28 | 0.01 | 0.06 | 0.07 | 0.10 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| s, saturation flow rate [veh/h] | 1810 | 1900 | 1810 | 1900 | 1669 | 1804 | 3618 | 1615 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 0 | 704 | 62 | 768 | 675 | 353 | 1028 | 459 | 11 | 343 | 153 |
| d1, Uniform Delay [s] | 0.00 | 14.54 | 24.63 | 9.92 | 9.97 | 18.88 | 13.72 | 0.00 | 25.93 | 21.59 | 21.63 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 1.96 | 0.56 | 0.13 | 0.16 | 0.44 | 0.05 | 0.00 | 2.80 | 0.10 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.77 | 0.19 | 0.15 | 0.17 | 0.52 | 0.07 | 0.00 | 0.18 | 0.05 | 0.07 |
| d, Delay for Lane Group [s/veh] | 0.00 | 16.50 | 25.19 | 10.05 | 10.13 | 19.32 | 13.76 | 0.00 | 28.73 | 21.69 | 21.92 |
| Lane Group LOS | A | B | C | B | B | B | B | A | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 4.61 | 0.14 | 0.68 | 0.64 | 1.84 | 0.29 | 0.00 | 0.03 | 0.09 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 115.37 | 3.41 | 16.88 | 16.09 | 45.90 | 7.36 | 0.00 | 0.76 | 2.17 | 2.73 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 8.14 | 0.25 | 1.22 | 1.16 | 3.31 | 0.53 | 0.00 | 0.05 | 0.16 | 0.20 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 203.44 | 6.13 | 30.38 | 28.97 | 82.63 | 13.25 | 0.00 | 1.37 | 3.90 | 4.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 16.50 | 16.50 | 25.19 | 10.07 | 10.13 | 19.32 | 13.76 | 0.00 | 28.73 | 21.69 | 21.92 |
| Movement LOS | A | B | B | C | B | B | B | B | A | C | C | C |
| d_A, Approach Delay [s/veh] | 16.50 | | | 10.84 | | | 17.70 | | | 22.26 | | |
| Approach LOS | B | | | B | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 15.66 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.518 | | | | | | | | | | | |

**Emissions**

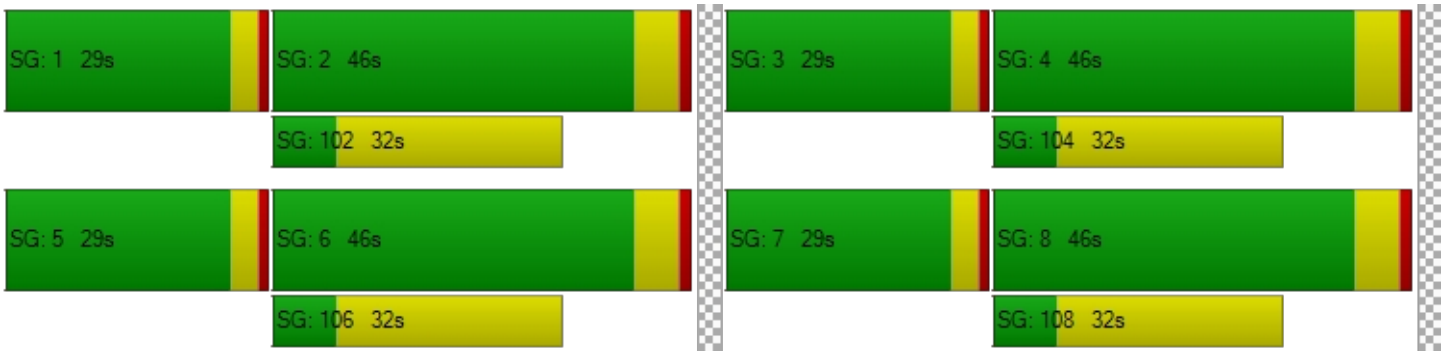
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 151.79 | 0.51 | 5.10 | 4.81 | 91.79 | 37.62 | 0.00 | 0.11 | 0.97 | 0.57 |
| Stops [stops/h] | 0.00 | 317.47 | 9.37 | 46.45 | 44.29 | 126.32 | 40.51 | 0.00 | 2.10 | 11.92 | 7.50 |
| Fuel consumption [US gal/h] | 0.00 | 10.97 | 0.20 | 1.00 | 0.95 | 5.20 | 1.98 | 0.00 | 0.04 | 0.26 | 0.16 |
| CO [g/h] | 0.00 | 766.57 | 13.68 | 69.59 | 66.17 | 363.21 | 138.58 | 0.00 | 2.91 | 17.93 | 11.01 |
| NOx [g/h] | 0.00 | 149.15 | 2.66 | 13.54 | 12.87 | 70.67 | 26.96 | 0.00 | 0.57 | 3.49 | 2.14 |
| VOC [g/h] | 0.00 | 177.66 | 3.17 | 16.13 | 15.34 | 84.18 | 32.12 | 0.00 | 0.68 | 4.16 | 2.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 16.32 | 16.32 | 16.32 | 16.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.351 | 2.458 | 2.614 | 2.450 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1529 | 1529 | 1529 | 1529 |
| d_b, Bicycle Delay [s] | 1.45 | 1.45 | 1.45 | 1.45 |
| l_b,int, Bicycle LOS Score for Intersection | 2.452 | 1.760 | 1.772 | 1.584 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.517 |

**Intersection Setup**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 132 | 498 | 17 | 27 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 132 | 498 | 17 | 27 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 36 | 135 | 5 | 7 | 0 |
| Total Analysis Volume [veh/h] | 0 | 143 | 541 | 18 | 29 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 3 | 0 | 1 | 6 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 25 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 11 | 0 | 11 | 8 | 8 | 0 |
| Vehicle Extension [s] | 4.0 | 0.0 | 4.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | Yes | Yes | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 41 | 41 | 41 | 41 | 41 | 41 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 15 | 24 | 4 | 4 |
| g / C, Green / Cycle | 0.22 | 0.22 | 0.38 | 0.58 | 0.11 | 0.11 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.09 | 0.30 | 0.01 | 0.01 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 1589 | 1781 | 3560 | 3560 | 1589 |
| c, Capacity [veh/h] | 389 | 347 | 678 | 2082 | 375 | 167 |
| d1, Uniform Delay [s] | 0.00 | 13.64 | 11.18 | 3.52 | 16.40 | 0.00 |
| k, delay calibration | 0.15 | 0.15 | 0.15 | 0.04 | 0.04 | 0.04 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 1.11 | 3.11 | 0.00 | 0.03 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.41 | 0.80 | 0.01 | 0.08 | 0.00 |
| d, Delay for Lane Group [s/veh] | 0.00 | 14.75 | 14.29 | 3.52 | 16.43 | 0.00 |
| Lane Group LOS | A | B | B | A | B | A |
| Critical Lane Group | No | Yes | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 1.04 | 3.76 | 0.02 | 0.11 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 25.90 | 94.07 | 0.41 | 2.67 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.87 | 6.77 | 0.03 | 0.19 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 46.63 | 169.33 | 0.74 | 4.80 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 14.75 | 14.29 | 3.52 | 16.43 | 0.00 |
| Movement LOS | A | B | B | A | B | A |
| d_A, Approach Delay [s/veh] | 14.75 | | 13.95 | | 16.43 | |
| Approach LOS | B | | B | | B | |
| d_I, Intersection Delay [s/veh] | 14.20 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.517 | | | | | |

**Emissions**

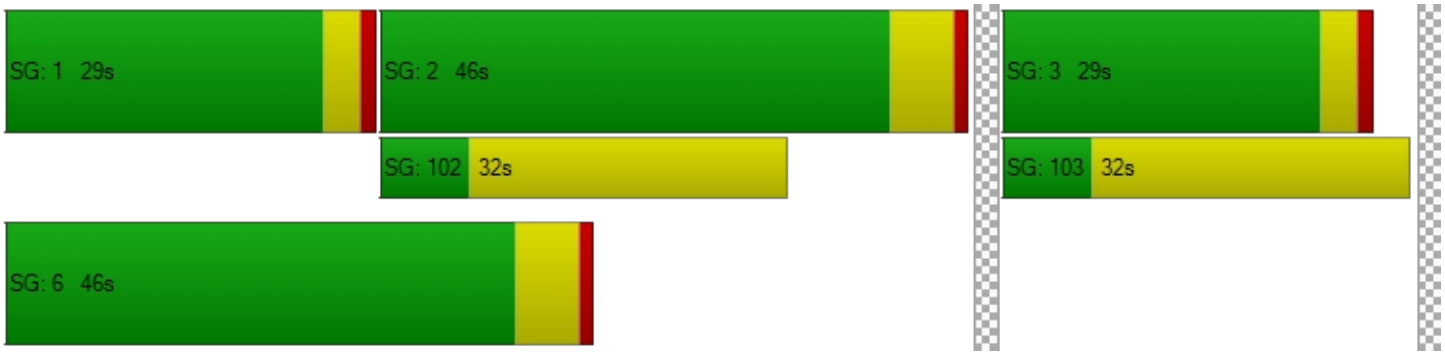
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 40.12 | 56.56 | 1.88 | 0.69 | 0.00 |
| Stops [stops/h] | 0.00 | 92.09 | 334.41 | 2.92 | 18.97 | 0.00 |
| Fuel consumption [US gal/h] | 0.00 | 2.59 | 5.75 | 0.11 | 0.23 | 0.00 |
| CO [g/h] | 0.00 | 181.03 | 401.91 | 7.44 | 16.09 | 0.00 |
| NOx [g/h] | 0.00 | 35.22 | 78.20 | 1.45 | 3.13 | 0.00 |
| VOC [g/h] | 0.00 | 41.95 | 93.15 | 1.73 | 3.73 | 0.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.75 | 10.75 | 10.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.115 | 2.395 | 2.262 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1234 | 1975 | 1975 |
| d_b, Bicycle Delay [s] | 2.97 | 0.00 | 0.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 2.021 | 1.584 |
| Bicycle LOS | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.333 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 223 | 3 | 0 | 200 | 115 | 2 | 328 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 223 | 3 | 0 | 200 | 115 | 2 | 328 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 1 | 0 | 54 | 31 | 1 | 89 |
| Total Analysis Volume [veh/h] | 242 | 3 | 0 | 217 | 125 | 2 | 357 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.00 | 0.32 | 0.32 | 0.01 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.00 | 0.06 | 0.08 | 0.00 | 0.10 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 3580 |
| c, Capacity [veh/h] | 504 | 450 | 2 | 1156 | 511 | 12 | 1164 |
| d1, Uniform Delay [s] | 9.13 | 7.92 | 0.00 | 7.49 | 7.63 | 15.01 | 7.69 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.00 | 0.00 | 0.11 | 0.34 | 2.22 | 0.20 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.48 | 0.01 | 0.00 | 0.19 | 0.24 | 0.16 | 0.31 |
| d, Delay for Lane Group [s/veh] | 9.39 | 7.92 | 0.00 | 7.59 | 7.97 | 17.22 | 7.89 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.92 | 0.01 | 0.00 | 0.24 | 0.31 | 0.02 | 0.58 |
| 50th-Percentile Queue Length [ft/ln] | 23.08 | 0.25 | 0.00 | 5.96 | 7.70 | 0.46 | 14.62 |
| 95th-Percentile Queue Length [veh/ln] | 1.66 | 0.02 | 0.00 | 0.43 | 0.55 | 0.03 | 1.05 |
| 95th-Percentile Queue Length [ft/ln] | 41.55 | 0.44 | 0.00 | 10.73 | 13.86 | 0.84 | 26.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.39 | 7.92 | 0.00 | 7.59 | 7.97 | 17.22 | 7.89 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.37 | | 7.73 | | | 7.94 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.24 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.333 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 181.11 | 2.25 | 0.00 | 108.57 | 62.54 | 2.47 | 441.03 |
| Stops [stops/h] | 110.11 | 1.17 | 0.00 | 56.86 | 36.74 | 2.21 | 139.45 |
| Fuel consumption [US gal/h] | 8.53 | 0.10 | 0.00 | 4.84 | 2.86 | 0.12 | 19.50 |
| CO [g/h] | 596.00 | 7.25 | 0.00 | 338.59 | 199.99 | 8.46 | 1363.01 |
| NOx [g/h] | 115.96 | 1.41 | 0.00 | 65.88 | 38.91 | 1.65 | 265.19 |
| VOC [g/h] | 138.13 | 1.68 | 0.00 | 78.47 | 46.35 | 1.96 | 315.89 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.10 | 11.62 | 11.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.152 | 2.663 | 2.368 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1458 | 2120 | 2120 |
| d_b, Bicycle Delay [s] | 1.11 | 0.05 | 0.05 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.842 | 1.856 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 5.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 226 | 46 | 61 | 62 | 45 | 538 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 226 | 46 | 61 | 62 | 45 | 538 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 60 | 12 | 16 | 16 | 12 | 143 |
| Total Analysis Volume [veh/h] | 240 | 49 | 65 | 66 | 48 | 572 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 49 | | 240 | | 65 | |
| Exiting Flow Rate [veh/h] | 638 | | 98 | | 310 | |
| Demand Flow Rate [veh/h] | 226 | 46 | 61 | 62 | 45 | 538 |
| Adjusted Demand Flow Rate [veh/h] | 240 | 49 | 65 | 66 | 48 | 572 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 1.00 | 1.00 | 0.97 | 0.94 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 240 | 49 | 68 | 71 | 50 | 575 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1291 | 1362 | 1142 | 1142 | 1339 | 1339 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1291 | 1362 | 1106 | 1070 | 1301 | 1334 |
| X, volume / capacity | 0.19 | 0.04 | 0.06 | 0.06 | 0.04 | 0.43 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.68 | 0.11 | 0.19 | 0.20 | 0.11 | 2.20 |
| 95th-Percentile Queue Length [ft] | 17.05 | 2.80 | 4.68 | 4.92 | 2.87 | 55.09 |
| Approach Delay [s/veh] | 4.11 | | 3.83 | | 6.57 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 5.54 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.483 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 75 | 12 | 12 | 43 | 197 | 472 | 505 | 102 | 3 | 319 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 77 | 75 | 12 | 12 | 43 | 197 | 472 | 505 | 102 | 3 | 319 | 2 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 20 | 3 | 3 | 11 | 52 | 126 | 134 | 27 | 1 | 85 | 1 |
| Total Analysis Volume [veh/h] | 82 | 80 | 13 | 13 | 46 | 210 | 502 | 537 | 109 | 3 | 339 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 9 | 24 | 24 | 3 | 18 | 18 | 14 | 28 | 28 | 1 | 14 | 14 |
| g / C, Green / Cycle | 0.10 | 0.28 | 0.28 | 0.03 | 0.21 | 0.21 | 0.17 | 0.33 | 0.33 | 0.01 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.02 | 0.01 | 0.01 | 0.03 | 0.13 | 0.14 | 0.15 | 0.07 | 0.00 | 0.10 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 183 | 965 | 454 | 57 | 386 | 340 | 586 | 1165 | 514 | 15 | 599 | 272 |
| d1, Uniform Delay [s] | 35.92 | 22.46 | 22.12 | 40.09 | 27.07 | 30.36 | 34.39 | 22.67 | 20.69 | 41.81 | 32.46 | 29.40 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.31 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.71 | 0.10 | 0.07 | 1.97 | 0.40 | 5.25 | 3.76 | 1.82 | 1.30 | 6.07 | 5.28 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 0.08 | 0.03 | 0.23 | 0.12 | 0.62 | 0.86 | 0.46 | 0.21 | 0.20 | 0.57 | 0.01 |
| d, Delay for Lane Group [s/veh] | 37.63 | 22.56 | 22.18 | 42.07 | 27.47 | 35.61 | 38.15 | 24.48 | 21.99 | 47.88 | 37.74 | 29.47 |
| Lane Group LOS | D | C | C | D | C | D | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.66 | 0.59 | 0.19 | 0.29 | 0.78 | 4.28 | 5.21 | 4.40 | 1.71 | 0.09 | 3.57 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 41.44 | 14.69 | 4.81 | 7.31 | 19.56 | 107.09 | 130.26 | 109.97 | 42.67 | 2.18 | 89.26 | 0.97 |
| 95th-Percentile Queue Length [veh/ln] | 2.98 | 1.06 | 0.35 | 0.53 | 1.41 | 7.68 | 8.95 | 7.84 | 3.07 | 0.16 | 6.43 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 74.59 | 26.45 | 8.65 | 13.16 | 35.21 | 191.94 | 223.84 | 195.97 | 76.81 | 3.93 | 160.68 | 1.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.63 | 22.56 | 22.18 | 42.07 | 27.47 | 35.61 | 38.15 | 24.48 | 21.99 | 47.88 | 37.74 | 29.47 |
| Movement LOS | D | C | C | D | C | D | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 29.59 | | | 34.53 | | | 30.22 | | | 37.78 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 32.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.483 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 6.44 | 6.28 | 1.02 | 0.89 | 3.15 | 14.39 | 69.38 | 74.21 | 15.06 | 3.74 | 422.81 | 2.49 |
| Stops [stops/h] | 70.38 | 49.90 | 8.16 | 12.41 | 33.22 | 181.87 | 442.44 | 373.54 | 72.47 | 3.71 | 303.20 | 1.64 |
| Fuel consumption [US gal/h] | 1.28 | 0.90 | 0.15 | 0.22 | 0.57 | 3.12 | 9.20 | 7.79 | 1.51 | 0.20 | 21.68 | 0.12 |
| CO [g/h] | 89.59 | 63.01 | 10.19 | 15.14 | 39.87 | 218.01 | 642.92 | 544.83 | 105.43 | 14.24 | 1515.71 | 8.65 |
| NOx [g/h] | 17.43 | 12.26 | 1.98 | 2.94 | 7.76 | 42.42 | 125.09 | 106.00 | 20.51 | 2.77 | 294.90 | 1.68 |
| VOC [g/h] | 20.76 | 14.60 | 2.36 | 3.51 | 9.24 | 50.53 | 149.00 | 126.27 | 24.43 | 3.30 | 351.28 | 2.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.11 | 32.11 | 32.11 | 32.11 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.503 | 2.588 | 2.838 | 2.944 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 472 | 472 | 944 | 944 |
| d_b, Bicycle Delay [s] | 24.75 | 24.75 | 11.83 | 11.83 |
| l_b,int, Bicycle LOS Score for Intersection | 1.704 | 2.003 | 2.507 | 1.843 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.321 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 231 | 2 | 53 | 69 | 52 | 144 | 363 | 31 | 0 | 224 | 62 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 231 | 2 | 53 | 69 | 52 | 144 | 363 | 31 | 0 | 224 | 62 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 63 | 1 | 14 | 19 | 14 | 39 | 99 | 8 | 0 | 61 | 17 |
| Total Analysis Volume [veh/h] | 18 | 251 | 2 | 58 | 75 | 57 | 157 | 395 | 34 | 0 | 243 | 67 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 18 | 7 | 22 | 22 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.24 | 0.10 | 0.29 | 0.29 | 0.13 | 0.26 | 0.26 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.14 | 0.02 | 0.04 | 0.04 | 0.04 | 0.11 | 0.02 | 0.00 | 0.07 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1821 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 438 | 337 | 556 | 473 | 457 | 932 | 421 | 3 | 480 | 390 |
| d1, Uniform Delay [s] | 34.41 | 24.96 | 30.98 | 19.42 | 19.33 | 29.54 | 22.91 | 20.81 | 0.00 | 29.87 | 28.47 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 4.08 | 0.09 | 0.62 | 0.65 | 0.17 | 0.65 | 0.17 | 0.00 | 1.76 | 0.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.58 | 0.17 | 0.13 | 0.12 | 0.34 | 0.42 | 0.08 | 0.00 | 0.51 | 0.17 |
| d, Delay for Lane Group [s/veh] | 34.93 | 29.04 | 31.06 | 20.04 | 19.98 | 29.71 | 23.56 | 20.99 | 0.00 | 31.63 | 28.92 |
| Lane Group LOS | C | C | C | C | B | C | C | C | A | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.32 | 4.25 | 0.44 | 0.94 | 0.72 | 1.25 | 2.83 | 0.45 | 0.00 | 1.86 | 0.48 |
| 50th-Percentile Queue Length [ft/ln] | 7.96 | 106.31 | 11.08 | 23.49 | 18.07 | 31.24 | 70.84 | 11.26 | 0.00 | 46.56 | 12.07 |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 7.63 | 0.80 | 1.69 | 1.30 | 2.25 | 5.10 | 0.81 | 0.00 | 3.35 | 0.87 |
| 95th-Percentile Queue Length [ft/ln] | 14.33 | 190.85 | 19.94 | 42.28 | 32.52 | 56.24 | 127.52 | 20.27 | 0.00 | 83.81 | 21.72 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.93 | 29.04 | 29.04 | 31.06 | 20.04 | 19.98 | 29.71 | 23.56 | 20.99 | 0.00 | 31.63 | 28.92 |
| Movement LOS | C | C | C | C | C | B | C | C | C | A | C | C |
| d_A, Approach Delay [s/veh] | 29.43 | | | 23.39 | | | 25.06 | | | 31.04 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.06 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.321 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.01 | 14.19 | 3.61 | 4.67 | 3.55 | 195.81 | 492.65 | 42.41 | 0.00 | 42.03 | 11.59 |
| Stops [stops/h] | 15.42 | 205.97 | 42.93 | 45.50 | 35.01 | 121.07 | 274.52 | 21.81 | 0.00 | 180.43 | 46.75 |
| Fuel consumption [US gal/h] | 0.25 | 3.22 | 1.15 | 1.16 | 0.89 | 9.68 | 23.69 | 2.01 | 0.00 | 7.74 | 2.02 |
| CO [g/h] | 17.81 | 224.86 | 80.15 | 81.15 | 62.08 | 676.55 | 1656.01 | 140.60 | 0.00 | 541.24 | 141.21 |
| NOx [g/h] | 3.46 | 43.75 | 15.59 | 15.79 | 12.08 | 131.63 | 322.20 | 27.36 | 0.00 | 105.30 | 27.47 |
| VOC [g/h] | 4.13 | 52.11 | 18.58 | 18.81 | 14.39 | 156.80 | 383.80 | 32.58 | 0.00 | 125.44 | 32.73 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.98 | 26.98 | 26.98 | 26.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.213 | 2.622 | 2.937 | 2.814 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 538 | 538 | 807 | 807 |
| d_b, Bicycle Delay [s] | 19.85 | 19.85 | 13.22 | 13.22 |
| l_b,int, Bicycle LOS Score for Intersection | 2.007 | 1.873 | 2.043 | 1.815 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shepherd Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.170 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 116 | 101 | 321 | 474 | 361 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 116 | 101 | 321 | 474 | 361 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 32 | 27 | 87 | 129 | 98 |
| Total Analysis Volume [veh/h] | 0 | 126 | 110 | 349 | 515 | 392 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.17 | 0.15 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 10.85 | 10.66 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.61 | 0.52 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 15.23 | 12.89 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.85 | | 2.55 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.70 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.055 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 46 | 0 | 0 | 167 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 46 | 0 | 0 | 167 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 0 | 0 | 45 | 0 | 0 |
| Total Analysis Volume [veh/h] | 50 | 0 | 0 | 182 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.19 | 8.95 | 0.00 | 0.00 | 7.58 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.17 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.36 | 4.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.19 | | 0.00 | | 3.79 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.98 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 4101: Owens Mountain Parkway & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 3.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.278 |

**Intersection Setup**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 547 | 0 | 0 | 55 | 197 | 0 | 0 | 0 | 3 | 0 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 77 | 547 | 0 | 0 | 55 | 197 | 0 | 0 | 0 | 3 | 0 | 2 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 149 | 0 | 0 | 15 | 54 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total Analysis Volume [veh/h] | 84 | 595 | 0 | 0 | 60 | 214 | 0 | 0 | 0 | 3 | 0 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 25 | 0 | 25 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 25 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 14 | 0 | 14 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lag | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 11 | 0 | 11 |
| Vehicle Extension [s] | 4.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 18 | 9 | 9 | | 0 | 0 |
| g / C, Green / Cycle | 0.19 | 0.68 | 0.34 | 0.34 | | 0.02 | 0.02 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.17 | 0.03 | 0.13 | | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1589 | | 1781 | 1589 |
| c, Capacity [veh/h] | 348 | 2435 | 633 | 538 | | 28 | 25 |
| d1, Uniform Delay [s] | 9.05 | 1.60 | 6.03 | 6.74 | | 12.93 | 12.92 |
| k, delay calibration | 0.15 | 0.04 | 0.04 | 0.04 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.51 | 0.02 | 0.02 | 0.18 | | 2.30 | 1.87 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.24 | 0.24 | 0.09 | 0.40 | | 0.11 | 0.08 |
| d, Delay for Lane Group [s/veh] | 9.56 | 1.62 | 6.05 | 6.92 | | 15.23 | 14.80 |
| Lane Group LOS | A | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.32 | 0.01 | 0.13 | 0.52 | | 0.03 | 0.02 |
| 50th-Percentile Queue Length [ft/ln] | 7.97 | 0.16 | 3.20 | 12.99 | | 0.78 | 0.55 |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 0.01 | 0.23 | 0.94 | | 0.06 | 0.04 |
| 95th-Percentile Queue Length [ft/ln] | 14.34 | 0.29 | 5.75 | 23.39 | | 1.41 | 0.99 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.56 | 1.62 | 0.00 | 0.00 | 6.05 | 6.92 | 0.00 | 0.00 | 0.00 | 15.23 | 0.00 | 14.80 |
| Movement LOS | A | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 2.60 | | | 6.73 | | | 0.00 | | | 15.06 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 3.85 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.278 | | | | | | | | | | | |

**Emissions**

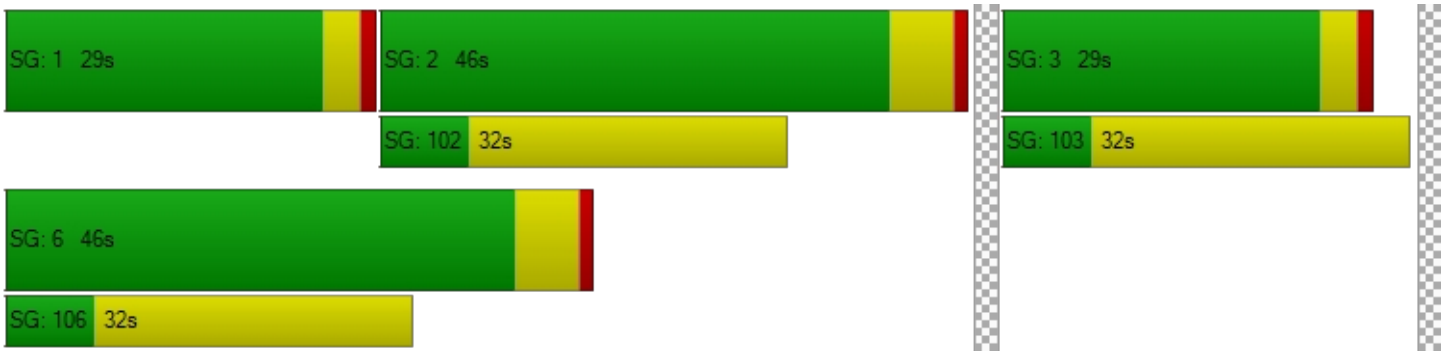
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.75 | 40.76 | 12.34 | 44.02 | | 0.31 | 0.20 |
| Stops [stops/h] | 43.20 | 1.76 | 17.34 | 70.48 | | 4.24 | 2.97 |
| Fuel consumption [US gal/h] | 0.64 | 1.88 | 0.68 | 2.50 | | 0.05 | 0.03 |
| CO [g/h] | 44.67 | 131.65 | 47.38 | 174.96 | | 3.17 | 2.16 |
| NOx [g/h] | 8.69 | 25.61 | 9.22 | 34.04 | | 0.62 | 0.42 |
| VOC [g/h] | 10.35 | 30.51 | 10.98 | 40.55 | | 0.73 | 0.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.55 | 4.55 | 4.55 | 4.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.492 | 2.261 | 1.632 | 1.860 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3013 | 3013 | 0 | 1883 |
| d_b, Bicycle Delay [s] | 3.41 | 3.41 | 13.27 | 0.05 |
| l_b,int, Bicycle LOS Score for Intersection | 2.120 | 1.786 | 4.132 | 1.560 |
| Bicycle LOS | B | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4102: Owens Mountain Parkway & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.196 |

**Intersection Setup**

| Name | Tollhouse | | | Tollhouse | | | SR 168 Ramps | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Tollhouse | | | SR 168 Ramps | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 152 | 12 | 12 | 46 | 0 | 472 | 0 | 102 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 152 | 12 | 12 | 46 | 0 | 472 | 0 | 102 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 41 | 3 | 3 | 13 | 0 | 128 | 0 | 28 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 165 | 13 | 13 | 50 | 0 | 513 | 0 | 111 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | R | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 25 | 25 | 25 | 25 | 25 | |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 4.00 | 6.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.00 | 4.00 | 2.00 | 4.00 | 2.00 | |
| g_i, Effective Green Time [s] | 6 | 6 | 1 | 11 | 4 | |
| g / C, Green / Cycle | 0.23 | 0.23 | 0.04 | 0.43 | 0.17 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.05 | 0.01 | 0.01 | 0.07 | |
| s, saturation flow rate [veh/h] | 1870 | 1823 | 1781 | 3560 | 1589 | |
| c, Capacity [veh/h] | 431 | 420 | 71 | 1525 | 280 | |
| d1, Uniform Delay [s] | 7.86 | 7.87 | 11.74 | 4.19 | 9.23 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.33 | 0.35 | 0.46 | 0.01 | 1.30 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.21 | 0.18 | 0.03 | 0.40 | |
| d, Delay for Lane Group [s/veh] | 8.20 | 8.23 | 12.19 | 4.20 | 10.52 | |
| Lane Group LOS | A | A | B | A | B | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 0.27 | 0.28 | 0.06 | 0.03 | 0.44 | |
| 50th-Percentile Queue Length [ft/ln] | 6.84 | 6.88 | 1.48 | 0.77 | 11.11 | |
| 95th-Percentile Queue Length [veh/ln] | 0.49 | 0.50 | 0.11 | 0.06 | 0.80 | |
| 95th-Percentile Queue Length [ft/ln] | 12.31 | 12.38 | 2.66 | 1.39 | 20.00 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 8.21 | 8.23 | 12.19 | 4.20 | 0.00 | 0.00 | 0.00 | 10.52 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | | | B | | | |
| d_A, Approach Delay [s/veh] | 8.21 | | | 5.85 | | | 10.52 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.52 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.196 | | | | | | | | | | | |

**Emissions**

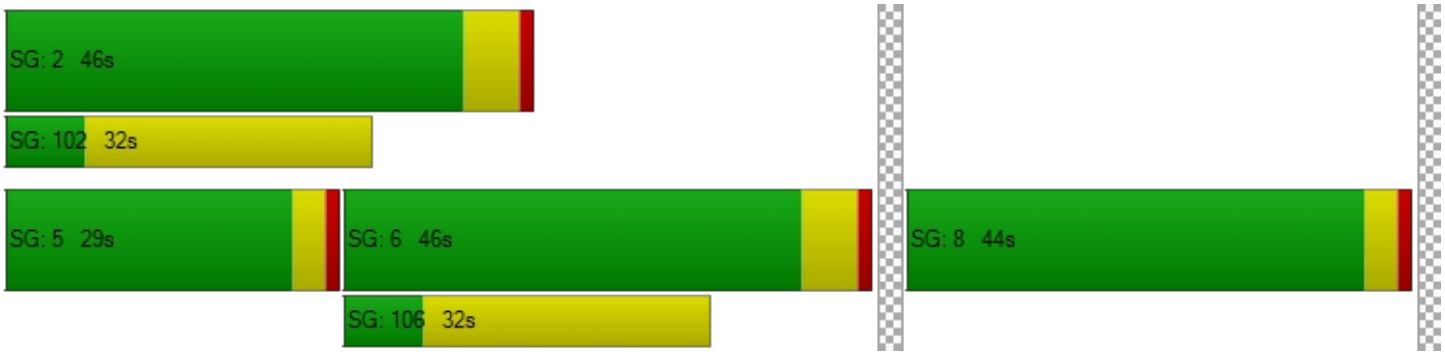
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.92 | 4.92 | 1.02 | 3.93 | 8.86 | |
| Stops [stops/h] | 39.16 | 39.39 | 8.46 | 8.83 | 63.63 | |
| Fuel consumption [US gal/h] | 0.57 | 0.57 | 0.12 | 0.25 | 0.95 | |
| CO [g/h] | 39.65 | 39.78 | 8.46 | 17.69 | 66.68 | |
| NOx [g/h] | 7.72 | 7.74 | 1.65 | 3.44 | 12.97 | |
| VOC [g/h] | 9.19 | 9.22 | 1.96 | 4.10 | 15.45 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.57 | 12.57 | 3.98 | 3.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.173 | 2.584 | 1.889 | 1.361 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3182 | 3182 | 0 | 0 |
| d_b, Bicycle Delay [s] | 4.39 | 4.39 | 12.57 | 12.57 |
| l_b,int, Bicycle LOS Score for Intersection | 1.706 | 1.612 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4201: Shepherd Avenue & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 5.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.228 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off-Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off-Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 375 | 0 | 0 | 122 | 52 | 0 | 0 | 0 | 0 | 0 | 62 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 375 | 0 | 0 | 122 | 52 | 0 | 0 | 0 | 0 | 0 | 62 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 102 | 0 | 0 | 33 | 14 | 0 | 0 | 0 | 0 | 0 | 17 |
| Total Analysis Volume [veh/h] | 18 | 408 | 0 | 0 | 133 | 57 | 0 | 0 | 0 | 0 | 0 | 67 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 0 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 14 | 14 | 8 | 8 | | 5 | 5 |
| g / C, Green / Cycle | 0.05 | 0.51 | 0.51 | 0.30 | 0.30 | | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.11 | 0.11 | 0.05 | 0.06 | | 0.00 | 0.04 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1870 | 1870 | 1691 | | 1781 | 1589 |
| c, Capacity [veh/h] | 96 | 947 | 947 | 568 | 514 | | 348 | 311 |
| d1, Uniform Delay [s] | 12.15 | 3.67 | 3.67 | 6.85 | 6.89 | | 0.00 | 9.07 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | 0.15 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.35 | 0.16 | 0.16 | 0.20 | 0.24 | | 0.00 | 0.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.22 | 0.22 | 0.17 | 0.18 | | 0.00 | 0.22 |
| d, Delay for Lane Group [s/veh] | 12.50 | 3.83 | 3.83 | 7.05 | 7.13 | | 0.00 | 9.56 |
| Lane Group LOS | B | A | A | A | A | | A | A |
| Critical Lane Group | No | Yes | No | No | No | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.08 | 0.22 | 0.22 | 0.17 | 0.17 | | 0.00 | 0.26 |
| 50th-Percentile Queue Length [ft/ln] | 2.12 | 5.53 | 5.53 | 4.21 | 4.33 | | 0.00 | 6.47 |
| 95th-Percentile Queue Length [veh/ln] | 0.15 | 0.40 | 0.40 | 0.30 | 0.31 | | 0.00 | 0.47 |
| 95th-Percentile Queue Length [ft/ln] | 3.81 | 9.95 | 9.95 | 7.59 | 7.80 | | 0.00 | 11.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.50 | 3.83 | 3.83 | 0.00 | 7.07 | 7.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.56 |
| Movement LOS | B | A | A | | A | A | | | | A | | A |
| d_A, Approach Delay [s/veh] | 4.19 | | | 7.09 | | | 0.00 | | | 9.56 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 5.53 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.228 | | | | | | | | | | | |

**Emissions**

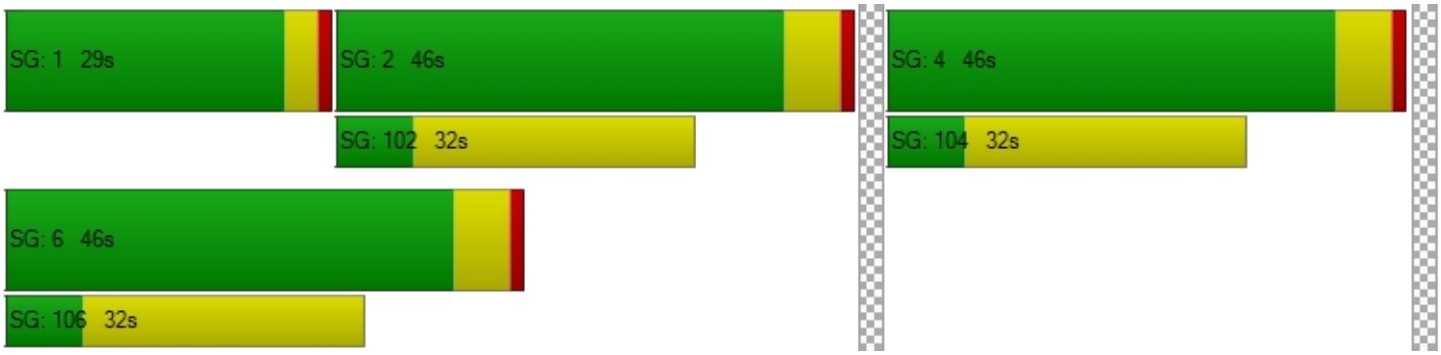
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.12 | 12.71 | 12.71 | 117.36 | 117.36 | | 0.00 | 4.72 |
| Stops [stops/h] | 11.41 | 29.80 | 29.80 | 22.72 | 23.36 | | 0.00 | 34.86 |
| Fuel consumption [US gal/h] | 0.15 | 0.85 | 0.85 | 4.42 | 4.43 | | 0.00 | 0.52 |
| CO [g/h] | 10.83 | 59.19 | 59.19 | 308.62 | 309.43 | | 0.00 | 36.16 |
| NOx [g/h] | 2.11 | 11.52 | 11.52 | 60.05 | 60.20 | | 0.00 | 7.04 |
| VOC [g/h] | 2.51 | 13.72 | 13.72 | 71.52 | 71.71 | | 0.00 | 8.38 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.62 | 4.62 | 4.62 | 4.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.590 | 2.320 | 1.415 | 1.881 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2994 | 2994 | 0 | 2994 |
| d_b, Bicycle Delay [s] | 3.30 | 3.30 | 13.36 | 3.30 |
| l_b,int, Bicycle LOS Score for Intersection | 1.911 | 1.716 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4202: Shepherd Avenue & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.260 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 248 | 2 | 53 | 69 | 0 | 144 | 0 | 31 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 248 | 2 | 53 | 69 | 0 | 144 | 0 | 31 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 67 | 1 | 14 | 19 | 0 | 39 | 0 | 8 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 270 | 2 | 58 | 75 | 0 | 157 | 0 | 34 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Split | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 35 | 35 | 35 | 35 | 35 | 35 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 9 | 9 | 5 | 18 | 9 | 9 | |
| g / C, Green / Cycle | 0.27 | 0.27 | 0.14 | 0.52 | 0.25 | 0.25 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.07 | 0.03 | 0.02 | 0.09 | 0.02 | |
| s, saturation flow rate [veh/h] | 1870 | 1865 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 504 | 503 | 248 | 1859 | 448 | 400 | |
| d1, Uniform Delay [s] | 10.16 | 10.16 | 13.52 | 4.12 | 10.85 | 10.11 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.41 | 0.41 | 0.18 | 0.01 | 0.67 | 0.13 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.27 | 0.23 | 0.04 | 0.35 | 0.09 | |
| d, Delay for Lane Group [s/veh] | 10.56 | 10.57 | 13.70 | 4.13 | 11.52 | 10.24 | |
| Lane Group LOS | B | B | B | A | B | B | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.68 | 0.68 | 0.34 | 0.07 | 0.85 | 0.17 | |
| 50th-Percentile Queue Length [ft/ln] | 16.99 | 16.99 | 8.60 | 1.79 | 21.14 | 4.20 | |
| 95th-Percentile Queue Length [veh/ln] | 1.22 | 1.22 | 0.62 | 0.13 | 1.52 | 0.30 | |
| 95th-Percentile Queue Length [ft/ln] | 30.58 | 30.59 | 15.48 | 3.23 | 38.05 | 7.57 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 10.56 | 10.57 | 13.70 | 4.13 | 0.00 | 11.52 | 0.00 | 10.24 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | B | A | | B | | B | | | |
| d_A, Approach Delay [s/veh] | 10.56 | | | 8.30 | | | 11.29 | | | 0.00 | | |
| Approach LOS | B | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 10.29 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.260 | | | | | | | | | | | |

**Emissions**

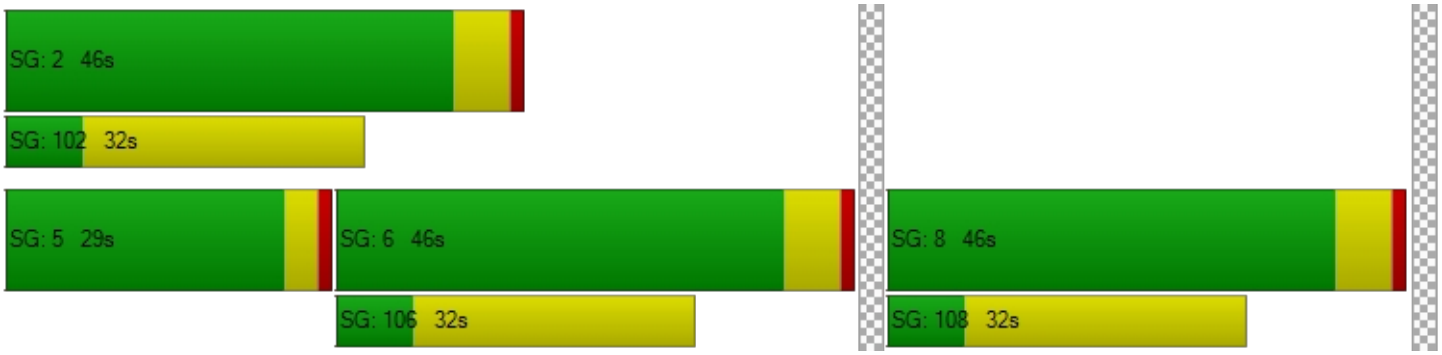
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.45 | 2.45 | 3.25 | 4.21 | 16.25 | 3.52 | |
| Stops [stops/h] | 69.59 | 69.62 | 35.24 | 14.70 | 86.59 | 17.22 | |
| Fuel consumption [US gal/h] | 0.78 | 0.78 | 0.49 | 0.32 | 1.52 | 0.31 | |
| CO [g/h] | 54.35 | 54.38 | 34.27 | 22.19 | 105.94 | 21.73 | |
| NOx [g/h] | 10.58 | 10.58 | 6.67 | 4.32 | 20.61 | 4.23 | |
| VOC [g/h] | 12.60 | 12.60 | 7.94 | 5.14 | 24.55 | 5.04 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 8.30 | 8.30 | 8.30 | 8.30 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.166 | 2.351 | 1.944 | 1.424 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2276 | 2276 | 2276 | 0 |
| d_b, Bicycle Delay [s] | 0.33 | 0.33 | 0.33 | 17.57 |
| l_b,int, Bicycle LOS Score for Intersection | 1.784 | 1.669 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4219: New Intersection**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name | International | International |
|---|---|---|
| Approach | Eastbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 |
| Speed [mph] | 30.00 | 30.00 |
| Grade [%] | 0.00 | 0.00 |
| Curb Present | No | No |
| Crosswalk | Yes | Yes |

**Volumes**

| Name | International | International |
|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | |
| Growth Factor | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 |
| Presence of On-Street Parking | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_di, Inbound Pedestrian Volume crossing m | 0 | 0 |
| v_co, Outbound Pedestrian Volume crossing | 0 | 0 |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | 0 |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | 0 |
| Bicycle Volume [bicycles/h] | 0 | 0 |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permissive | Permissive |
|---|---|---|
| Signal Group | 0 | 0 |
| Auxiliary Signal Groups | | |
| Maximum Green [s] | 0 | 0 |
| Amber [s] | 0.0 | 0.0 |
| All red [s] | 0.0 | 0.0 |
| Walk [s] | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 |
| Rest In Walk | | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | |
|---|---|---|
| Split [s] | 0 | 0 |
| Lead / Lag | - | - |
| Minimum Green [s] | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 |
| Minimum Recall | | |
| Maximum Recall | | |
| Pedestrian Recall | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

**Lane Group Results**

**Movement, Approach, & Intersection Results**

| | | |
|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | | |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | 0.00 | |
| Intersection LOS | A | |
| Intersection V/C | 0.000 | |

**Emissions**

**Other Modes**

| | | |
|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 45.00 | 45.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 1.950 | 1.725 |
| Crosswalk LOS | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 |
| d_b, Bicycle Delay [s] | 45.00 | 45.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.560 |
| Bicycle LOS | A | A |

Vista Ranch Clovis EIR

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Report File: \...\Cumulative Plus Proj Improved AM.pdf

Scenario 7 Cumulative AM Plus Proj Improved
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.557 | 26.1 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.544 | 28.5 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.557 | 29.7 | C |
| 4 | Minnewawa Ave & International Ave | Roundabout | HCM 7th Edition | SB Thru | | 4.1 | A |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.571 | 21.7 | C |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.809 | 40.4 | D |
| 7 | Clovis Ave & International Ave | Signalized | HCM 7th Edition | NB Left | 0.395 | 9.8 | A |
| 8 | Clovis Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.631 | 15.1 | B |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.490 | 28.6 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.624 | 25.9 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.659 | 27.7 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.811 | 42.2 | D |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.529 | 19.9 | B |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | EB Right | 0.934 | 28.4 | C |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.488 | 21.7 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | NB Left | 0.746 | 35.8 | D |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | WB Thru | 0.846 | 45.5 | D |
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | SB Left | 0.632 | 33.4 | C |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.844 | 86.3 | F |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 1.049 | 100.3 | F |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.772 | 34.6 | C |
| 23 | Fowler Ave & Teague Ave | Signalized | HCM 7th Edition | NB Left | 0.391 | 10.0 | A |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | EB Left | 0.587 | 17.4 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | NB Left | 0.867 | 45.4 | D |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | SB Right | 0.831 | 30.0 | C |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.713 | 26.1 | C |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.031 | 14.6 | B |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.053 | 27.6 | D |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.178 | 24.2 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.578 | 26.7 | C |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | SB Left | 0.501 | 17.2 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | SB Left | | 20.7 | C |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.613 | 7.3 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.646 | 17.0 | B |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 1.641 | 30.9 | C |
| 37 | Locan Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.315 | 13.6 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Signalized | HCM 7th Edition | WB Thru | 0.517 | 12.4 | B |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.293 | 7.8 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | SB Left | | 6.9 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | SB Left | 0.560 | 38.6 | D |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.287 | 26.4 | C |
| 43 | Shephed Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.507 | 16.0 | C |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.075 | 8.9 | A |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Right | 0.608 | 12.3 | B |
| 4102 | Owens Mountain Parkway and SR 168 EB Ramp Ramps | Signalized | HCM 7th Edition | SB Left | 0.217 | 7.1 | A |
| 4201 | Shepherd Avenue & SR 168 WB Ramps | Signalized | HCM 7th Edition | NB Left | 0.332 | 8.8 | A |
| 4202 | Shepherd Avenue & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.167 | 7.5 | A |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.557 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 250.00 | 100.00 | 250.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 74.61 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 428 | 456 | 28 | 58 | 768 | 92 | 18 | 80 | 220 | 41 | 217 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 2.00 | 0.00 | 3.50 | 2.70 | 3.30 | 0.00 | 1.50 | 0.80 | 0.00 | 0.40 | 3.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 428 | 456 | 28 | 58 | 768 | 92 | 18 | 80 | 220 | 41 | 217 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 124 | 8 | 16 | 209 | 25 | 5 | 22 | 60 | 11 | 59 | 1 |
| Total Analysis Volume [veh/h] | 465 | 496 | 30 | 63 | 835 | 100 | 20 | 87 | 239 | 45 | 236 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 13 | 32 | 32 | 6 | 24 | 24 | 3 | 15 | 15 | 5 | 17 | 17 |
| g / C, Green / Cycle | 0.16 | 0.40 | 0.40 | 0.08 | 0.30 | 0.30 | 0.04 | 0.20 | 0.20 | 0.06 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.10 | 0.02 | 0.02 | 0.16 | 0.06 | 0.01 | 0.02 | 0.15 | 0.02 | 0.04 | 0.04 |
| s, saturation flow rate [veh/h] | 3475 | 5094 | 1615 | 3417 | 5065 | 1573 | 3514 | 3575 | 1602 | 1810 | 3606 | 1882 |
| c, Capacity [veh/h] | 562 | 2050 | 650 | 260 | 1541 | 479 | 127 | 698 | 313 | 115 | 777 | 405 |
| d1, Uniform Delay [s] | 32.17 | 15.68 | 14.43 | 34.48 | 22.98 | 20.50 | 37.04 | 26.31 | 30.16 | 35.64 | 25.52 | 25.52 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.22 | 0.20 | 0.09 | 0.18 | 0.97 | 0.70 | 0.21 | 0.19 | 8.75 | 0.80 | 0.22 | 0.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.24 | 0.05 | 0.24 | 0.54 | 0.21 | 0.16 | 0.12 | 0.76 | 0.39 | 0.20 | 0.20 |
| d, Delay for Lane Group [s/veh] | 33.39 | 15.88 | 14.52 | 34.66 | 23.95 | 21.19 | 37.25 | 26.50 | 38.91 | 36.43 | 25.74 | 25.94 |
| Lane Group LOS | C | B | B | C | C | C | D | C | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.03 | 1.75 | 0.30 | 0.54 | 3.97 | 1.32 | 0.18 | 0.65 | 4.73 | 0.84 | 1.20 | 1.28 |
| 50th-Percentile Queue Length [ft/ln] | 100.64 | 43.75 | 7.57 | 13.42 | 99.30 | 33.03 | 4.53 | 16.20 | 118.22 | 21.06 | 30.04 | 32.05 |
| 95th-Percentile Queue Length [veh/ln] | 7.25 | 3.15 | 0.55 | 0.97 | 7.15 | 2.38 | 0.33 | 1.17 | 8.30 | 1.52 | 2.16 | 2.31 |
| 95th-Percentile Queue Length [ft/ln] | 181.16 | 78.74 | 13.63 | 24.15 | 178.74 | 59.45 | 8.15 | 29.17 | 207.38 | 37.91 | 54.07 | 57.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.39 | 15.88 | 14.52 | 34.66 | 23.95 | 21.19 | 37.25 | 26.50 | 38.91 | 36.43 | 25.81 | 25.94 |
| Movement LOS | C | B | B | C | C | C | D | C | D | D | C | C |
| d_A, Approach Delay [s/veh] | 24.06 | | | 24.35 | | | 35.69 | | | 27.49 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.08 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.557 | | | | | | | | | | | |

**Emissions**

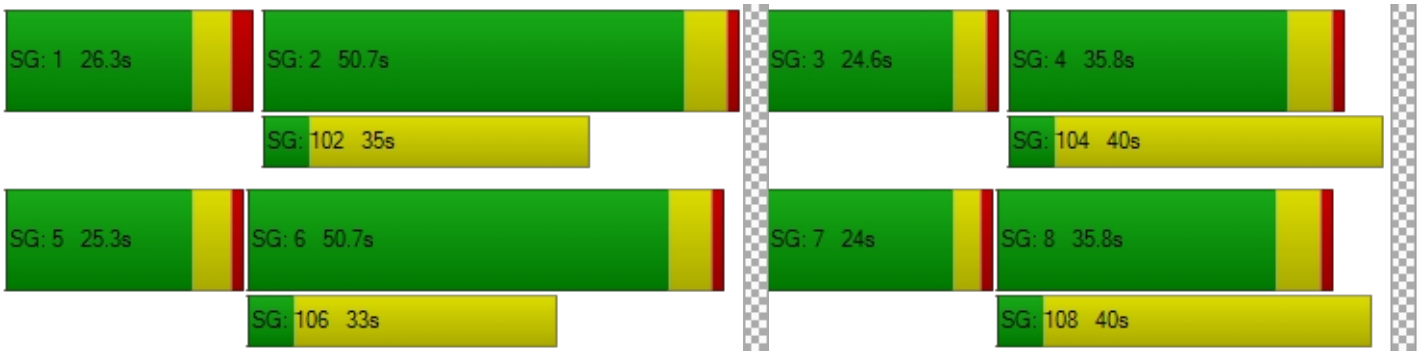
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 234.73 | 250.38 | 15.14 | 6.21 | 82.25 | 9.85 | 1.99 | 8.67 | 23.81 | 46.69 | 162.71 | 85.26 |
| Stops [stops/h] | 366.21 | 238.76 | 13.77 | 48.82 | 541.98 | 60.09 | 16.47 | 58.96 | 215.08 | 38.31 | 109.30 | 58.31 |
| Fuel consumption [US gal/h] | 16.64 | 13.65 | 0.81 | 1.40 | 15.14 | 1.68 | 0.42 | 1.50 | 5.38 | 2.47 | 8.12 | 4.27 |
| CO [g/h] | 1163.25 | 954.35 | 56.42 | 97.97 | 1058.51 | 117.68 | 29.68 | 104.80 | 376.25 | 172.47 | 567.82 | 298.19 |
| NOx [g/h] | 226.33 | 185.68 | 10.98 | 19.06 | 205.95 | 22.90 | 5.77 | 20.39 | 73.20 | 33.56 | 110.48 | 58.02 |
| VOC [g/h] | 269.60 | 221.18 | 13.08 | 22.70 | 245.32 | 27.27 | 6.88 | 24.29 | 87.20 | 39.97 | 131.60 | 69.11 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.09 | 31.09 | 31.09 | 31.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.304 | 3.118 | 2.930 | 2.654 |
| Crosswalk LOS | C | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1137 | 1137 | 758 | 758 |
| d_b, Bicycle Delay [s] | 7.37 | 7.37 | 15.26 | 15.26 |
| l_b,int, Bicycle LOS Score for Intersection | 2.105 | 2.109 | 1.845 | 1.716 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.544 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 121 | 627 | 61 | 88 | 888 | 90 | 77 | 139 | 244 | 223 | 303 | 238 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.40 | 1.20 | 3.80 | 6.90 | 2.10 | 0.00 | 2.60 | 0.80 | 3.00 | 3.60 | 1.30 | 1.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 121 | 627 | 61 | 88 | 888 | 90 | 77 | 139 | 244 | 223 | 303 | 238 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 170 | 17 | 24 | 241 | 24 | 21 | 38 | 66 | 61 | 82 | 65 |
| Total Analysis Volume [veh/h] | 132 | 682 | 66 | 96 | 965 | 98 | 84 | 151 | 265 | 242 | 329 | 259 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 | 4.50 |
| g_i, Effective Green Time [s] | 8 | 29 | 29 | 7 | 29 | 29 | 7 | 19 | 19 | 8 | 19 | 19 |
| g / C, Green / Cycle | 0.09 | 0.34 | 0.34 | 0.08 | 0.33 | 0.33 | 0.08 | 0.22 | 0.22 | 0.10 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.13 | 0.04 | 0.03 | 0.19 | 0.06 | 0.02 | 0.04 | 0.17 | 0.07 | 0.09 | 0.16 |
| s, saturation flow rate [veh/h] | 3392 | 5127 | 1567 | 3323 | 5090 | 1615 | 3442 | 3595 | 1577 | 3414 | 3580 | 1597 |
| c, Capacity [veh/h] | 305 | 1742 | 532 | 281 | 1703 | 540 | 280 | 795 | 349 | 329 | 778 | 347 |
| d1, Uniform Delay [s] | 36.87 | 21.50 | 19.46 | 36.92 | 23.37 | 20.17 | 37.00 | 27.08 | 31.19 | 37.60 | 28.85 | 31.27 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.36 | 0.47 | 0.34 | 0.27 | 0.97 | 0.52 | 0.22 | 0.14 | 4.11 | 1.22 | 0.82 | 6.98 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.39 | 0.12 | 0.34 | 0.57 | 0.18 | 0.30 | 0.19 | 0.76 | 0.74 | 0.42 | 0.75 |
| d, Delay for Lane Group [s/veh] | 37.23 | 21.97 | 19.80 | 37.19 | 24.34 | 20.68 | 37.22 | 27.22 | 35.30 | 38.82 | 29.67 | 38.25 |
| Lane Group LOS | D | C | B | D | C | C | D | C | D | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.24 | 3.18 | 0.87 | 0.90 | 4.91 | 1.33 | 0.80 | 1.21 | 5.22 | 2.47 | 2.93 | 5.52 |
| 50th-Percentile Queue Length [ft/ln] | 30.91 | 79.62 | 21.67 | 22.39 | 122.77 | 33.21 | 20.06 | 30.19 | 130.43 | 61.78 | 73.23 | 138.00 |
| 95th-Percentile Queue Length [veh/ln] | 2.23 | 5.73 | 1.56 | 1.61 | 8.55 | 2.39 | 1.44 | 2.17 | 8.96 | 4.45 | 5.27 | 9.37 |
| 95th-Percentile Queue Length [ft/ln] | 55.65 | 143.32 | 39.01 | 40.31 | 213.63 | 59.78 | 36.11 | 54.34 | 224.07 | 111.20 | 131.81 | 234.32 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.23 | 21.97 | 19.80 | 37.19 | 24.34 | 20.68 | 37.22 | 27.22 | 35.30 | 38.82 | 29.67 | 38.25 |
| Movement LOS | D | C | B | D | C | C | D | C | D | D | C | D |
| d_A, Approach Delay [s/veh] | 24.09 | | | 25.10 | | | 33.18 | | | 35.02 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 28.48 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.544 | | | | | | | | | | | |

**Emissions**

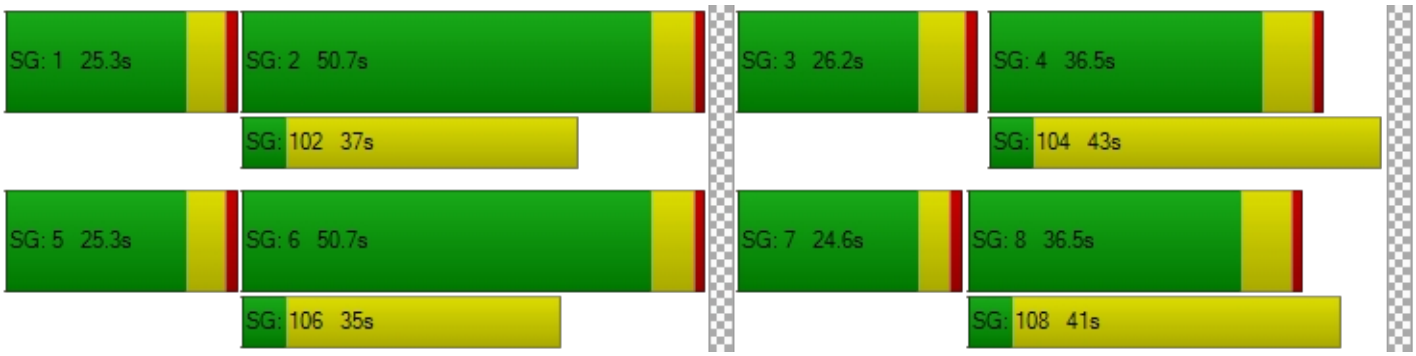
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 133.73 | 690.91 | 66.86 | 48.46 | 487.14 | 49.47 | 9.14 | 16.43 | 28.83 | 251.06 | 341.32 | 268.70 |
| Stops [stops/h] | 104.33 | 403.05 | 36.57 | 75.58 | 621.47 | 56.04 | 67.71 | 101.88 | 220.08 | 208.48 | 247.12 | 232.85 |
| Fuel consumption [US gal/h] | 7.08 | 32.37 | 3.07 | 3.51 | 30.63 | 2.93 | 1.63 | 2.43 | 5.10 | 13.40 | 17.40 | 14.36 |
| CO [g/h] | 494.88 | 2262.87 | 214.33 | 245.31 | 2141.27 | 204.77 | 113.85 | 169.57 | 356.36 | 936.56 | 1216.45 | 1004.02 |
| NOx [g/h] | 96.28 | 440.27 | 41.70 | 47.73 | 416.61 | 39.84 | 22.15 | 32.99 | 69.33 | 182.22 | 236.68 | 195.35 |
| VOC [g/h] | 114.69 | 524.44 | 49.67 | 56.85 | 496.26 | 47.46 | 26.38 | 39.30 | 82.59 | 217.06 | 281.92 | 232.69 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.14 | 34.14 | 34.14 | 34.14 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.273 | 3.320 | 2.789 | 2.752 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1055 | 1055 | 703 | 703 |
| d_b, Bicycle Delay [s] | 9.53 | 9.53 | 17.94 | 17.94 |
| l_b,int, Bicycle LOS Score for Intersection | 2.044 | 2.197 | 1.972 | 2.244 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.557 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 204 | 563 | 5 | 172 | 1181 | 182 | 97 | 325 | 77 | 165 | 441 | 178 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.10 | 1.20 | 0.00 | 3.50 | 2.00 | 4.00 | 1.70 | 3.20 | 2.00 | 0.00 | 1.70 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 204 | 563 | 5 | 172 | 1181 | 182 | 97 | 325 | 77 | 165 | 441 | 178 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 153 | 1 | 47 | 321 | 49 | 26 | 88 | 21 | 45 | 120 | 48 |
| Total Analysis Volume [veh/h] | 222 | 612 | 5 | 187 | 1284 | 198 | 105 | 353 | 84 | 179 | 479 | 193 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 8 | | | 9 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 9 | | | 8 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 3 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 8 | 33 | 33 | 8 | 33 | 33 | 7 | 14 | 14 | 8 | 16 | 16 |
| g / C, Green / Cycle | 0.09 | 0.38 | 0.38 | 0.09 | 0.38 | 0.38 | 0.08 | 0.16 | 0.16 | 0.09 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.12 | 0.00 | 0.05 | 0.25 | 0.13 | 0.03 | 0.10 | 0.05 | 0.05 | 0.13 | 0.12 |
| s, saturation flow rate [veh/h] | 3456 | 5127 | 1615 | 3417 | 5094 | 1543 | 3467 | 3526 | 1561 | 3514 | 3569 | 1592 |
| c, Capacity [veh/h] | 314 | 1928 | 607 | 308 | 1912 | 579 | 292 | 568 | 251 | 316 | 643 | 287 |
| d1, Uniform Delay [s] | 39.03 | 19.53 | 17.25 | 38.70 | 23.05 | 19.74 | 38.20 | 34.56 | 32.83 | 38.56 | 34.30 | 33.79 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.10 | 0.30 | 0.02 | 0.72 | 1.34 | 1.13 | 0.28 | 2.62 | 1.82 | 0.60 | 2.38 | 3.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.71 | 0.32 | 0.01 | 0.61 | 0.67 | 0.34 | 0.36 | 0.62 | 0.33 | 0.57 | 0.74 | 0.67 |
| d, Delay for Lane Group [s/veh] | 40.13 | 19.83 | 17.27 | 39.42 | 24.39 | 20.87 | 38.48 | 37.18 | 34.66 | 39.16 | 36.68 | 37.54 |
| Lane Group LOS | D | B | B | D | C | C | D | D | C | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.24 | 2.72 | 0.06 | 1.86 | 6.82 | 2.79 | 1.02 | 3.50 | 1.61 | 1.77 | 4.72 | 3.88 |
| 50th-Percentile Queue Length [ft/ln] | 56.01 | 67.88 | 1.51 | 46.51 | 170.48 | 69.74 | 25.51 | 87.41 | 40.37 | 44.28 | 118.06 | 96.97 |
| 95th-Percentile Queue Length [veh/ln] | 4.03 | 4.89 | 0.11 | 3.35 | 11.10 | 5.02 | 1.84 | 6.29 | 2.91 | 3.19 | 8.29 | 6.98 |
| 95th-Percentile Queue Length [ft/ln] | 100.82 | 122.19 | 2.72 | 83.73 | 277.55 | 125.52 | 45.92 | 157.34 | 72.67 | 79.70 | 207.16 | 174.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.13 | 19.83 | 17.27 | 39.42 | 24.39 | 20.87 | 38.48 | 37.18 | 34.66 | 39.16 | 36.68 | 37.54 |
| Movement LOS | D | B | B | D | C | C | D | D | C | D | D | D |
| d_A, Approach Delay [s/veh] | 25.19 | | | 25.66 | | | 37.04 | | | 37.40 | | |
| Approach LOS | C | | | C | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 29.70 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.557 | | | | | | | | | | | |

**Emissions**

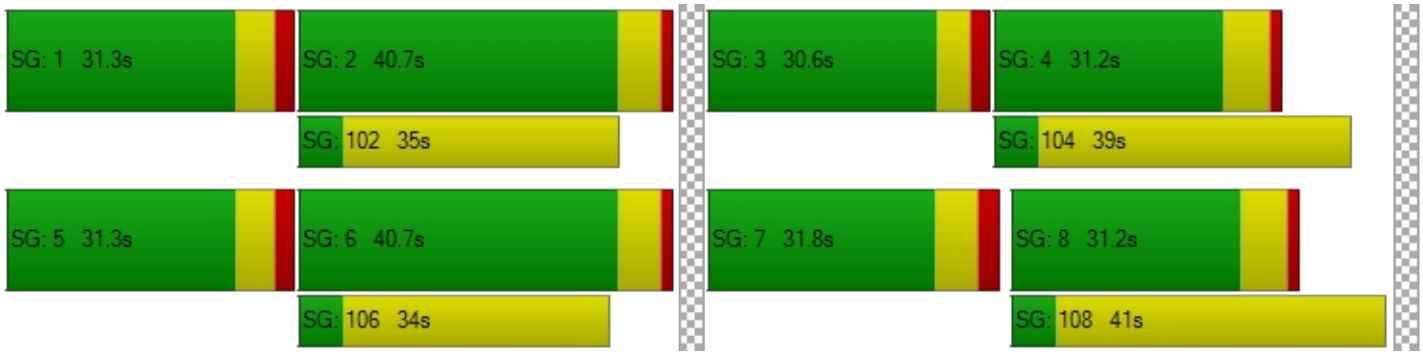
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.22 | 99.86 | 0.82 | 189.44 | 1300.78 | 200.59 | 13.72 | 46.13 | 10.98 | 185.46 | 496.28 | 199.96 |
| Stops [stops/h] | 182.92 | 332.54 | 2.47 | 151.91 | 835.17 | 113.88 | 83.32 | 285.48 | 65.93 | 144.60 | 385.57 | 158.35 |
| Fuel consumption [US gal/h] | 5.83 | 10.92 | 0.08 | 10.18 | 62.75 | 9.31 | 2.56 | 8.60 | 1.97 | 9.86 | 26.11 | 10.60 |
| CO [g/h] | 407.78 | 763.23 | 5.79 | 711.31 | 4386.51 | 650.51 | 178.99 | 600.96 | 137.84 | 688.97 | 1825.34 | 741.03 |
| NOx [g/h] | 79.34 | 148.50 | 1.13 | 138.40 | 853.46 | 126.56 | 34.82 | 116.93 | 26.82 | 134.05 | 355.15 | 144.18 |
| VOC [g/h] | 94.51 | 176.89 | 1.34 | 164.85 | 1016.62 | 150.76 | 41.48 | 139.28 | 31.95 | 159.68 | 423.04 | 171.74 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 8666.18 | 0.00 | 416.02 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.55 | 35.55 | 35.55 | 35.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.281 | 3.386 | 2.929 | 3.010 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 794 | 794 | 567 | 567 |
| d_b, Bicycle Delay [s] | 16.04 | 16.04 | 22.67 | 22.64 |
| l_b,int, Bicycle LOS Score for Intersection | 2.021 | 2.478 | 2.007 | 2.262 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 4.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 8 | 0 | 10 | 108 | 36 | 9 | 45 | 116 | 0 | 27 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 6.90 | 0.00 | 0.00 | 3.10 | 12.50 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 151 | 8 | 0 | 10 | 108 | 36 | 9 | 45 | 116 | 0 | 27 | 11 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 2 | 0 | 3 | 29 | 10 | 2 | 12 | 32 | 0 | 7 | 3 |
| Total Analysis Volume [veh/h] | 164 | 9 | 0 | 11 | 117 | 39 | 10 | 49 | 126 | 0 | 29 | 12 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 70 | | | 195 | | | 132 | | | 186 | | |
| Exiting Flow Rate [veh/h] | 252 | | | 32 | | | 239 | | | 60 | | |
| Demand Flow Rate [veh/h] | 151 | 8 | 0 | 10 | 108 | 36 | 9 | 45 | 116 | 0 | 27 | 11 |
| Adjusted Demand Flow Rate [veh/h] | 164 | 9 | 0 | 11 | 117 | 39 | 10 | 49 | 126 | 0 | 29 | 12 |

**Lanes**

| | | | | |
|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00085 | 0.00085 | 0.00085 | 0.00085 |
| HV Adjustment Factor | 0.98 | 0.95 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 176 | 176 | 190 | 41 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1338 | 1203 | 1270 | 1213 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1317 | 1147 | 1237 | 1213 |
| X, volume / capacity | 0.13 | 0.15 | 0.15 | 0.03 |

**Movement, Approach, & Intersection Results**

| | | | | |
|---|---|---|---|---|
| Lane LOS | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.45 | 0.51 | 0.53 | 0.10 |
| 95th-Percentile Queue Length [ft] | 11.32 | 12.74 | 13.14 | 2.62 |
| Approach Delay [s/veh] | 3.81 | 4.40 | 4.17 | 3.24 |
| Approach LOS | A | A | A | A |
| Intersection Delay [s/veh] | 4.06 | | | |
| Intersection LOS | A | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.571 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 89 | 39 | 19 | 148 | 141 | 89 | 22 | 178 | 87 | 18 | 459 | 248 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.30 | 5.30 | 5.30 | 4.60 | 4.10 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 | 1.70 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 89 | 39 | 19 | 148 | 141 | 89 | 22 | 178 | 87 | 18 | 459 | 248 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 10 | 5 | 39 | 38 | 24 | 6 | 47 | 23 | 5 | 122 | 66 |
| Total Analysis Volume [veh/h] | 95 | 41 | 20 | 157 | 150 | 95 | 23 | 189 | 93 | 19 | 488 | 264 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 13 | 10 | 14 | 4 | 25 | 25 | 3 | 24 | 24 |
| g / C, Green / Cycle | 0.14 | 0.19 | 0.16 | 0.21 | 0.06 | 0.37 | 0.37 | 0.05 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.04 | 0.09 | 0.14 | 0.01 | 0.10 | 0.06 | 0.01 | 0.26 | 0.17 |
| s, saturation flow rate [veh/h] | 1777 | 1721 | 1744 | 1721 | 1810 | 1856 | 1615 | 1810 | 1874 | 1600 |
| c, Capacity [veh/h] | 242 | 327 | 270 | 359 | 104 | 683 | 595 | 89 | 675 | 576 |
| d1, Uniform Delay [s] | 26.55 | 22.91 | 26.43 | 24.59 | 30.30 | 14.97 | 14.27 | 30.76 | 18.66 | 16.53 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 0.30 | 0.74 | 3.24 | 0.39 | 0.33 | 0.19 | 0.44 | 2.44 | 0.94 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.39 | 0.19 | 0.58 | 0.68 | 0.22 | 0.28 | 0.16 | 0.21 | 0.72 | 0.46 |
| d, Delay for Lane Group [s/veh] | 26.93 | 23.20 | 27.17 | 27.82 | 30.69 | 15.30 | 14.45 | 31.20 | 21.10 | 17.47 |
| Lane Group LOS | C | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.35 | 0.80 | 2.28 | 3.72 | 0.35 | 1.94 | 0.91 | 0.30 | 6.44 | 3.02 |
| 50th-Percentile Queue Length [ft/ln] | 33.87 | 20.03 | 56.98 | 93.01 | 8.85 | 48.48 | 22.76 | 7.41 | 161.04 | 75.46 |
| 95th-Percentile Queue Length [veh/ln] | 2.44 | 1.44 | 4.10 | 6.70 | 0.64 | 3.49 | 1.64 | 0.53 | 10.60 | 5.43 |
| 95th-Percentile Queue Length [ft/ln] | 60.97 | 36.06 | 102.57 | 167.41 | 15.93 | 87.27 | 40.97 | 13.33 | 265.11 | 135.83 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.93 | 23.20 | 23.20 | 27.17 | 27.82 | 27.82 | 30.69 | 15.30 | 14.45 | 31.20 | 21.10 | 17.47 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 25.48 | | | 27.57 | | | 16.20 | | | 20.11 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.73 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.571 | | | | | | | | | | | |

**Emissions**

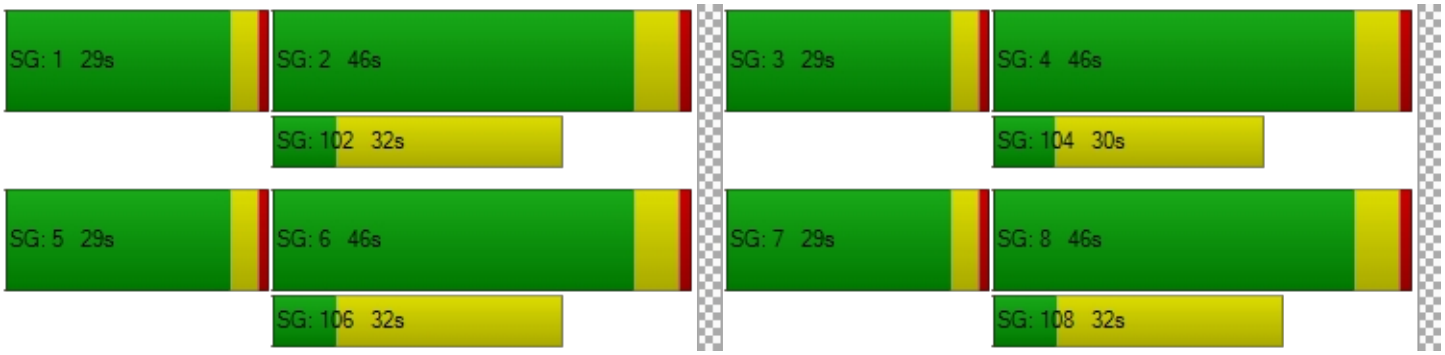
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 95.45 | 61.29 | 79.03 | 123.33 | 23.86 | 196.08 | 96.48 | 11.66 | 299.55 | 162.05 |
| Stops [stops/h] | 72.57 | 42.92 | 122.08 | 199.27 | 18.96 | 103.87 | 48.77 | 15.87 | 345.04 | 161.68 |
| Fuel consumption [US gal/h] | 4.85 | 3.05 | 4.80 | 7.57 | 1.23 | 9.23 | 4.51 | 0.69 | 16.33 | 8.50 |
| CO [g/h] | 339.08 | 213.06 | 335.24 | 528.81 | 86.02 | 645.47 | 315.58 | 48.12 | 1141.69 | 594.36 |
| NOx [g/h] | 65.97 | 41.45 | 65.23 | 102.89 | 16.74 | 125.59 | 61.40 | 9.36 | 222.13 | 115.64 |
| VOC [g/h] | 78.58 | 49.38 | 77.70 | 122.56 | 19.94 | 149.59 | 73.14 | 11.15 | 264.60 | 137.75 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.51 | 23.51 | 23.51 | 23.51 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.217 | 2.161 | 2.597 | 2.392 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1190 | 1190 | 1190 | 1190 |
| d_b, Bicycle Delay [s] | 5.51 | 5.51 | 5.51 | 5.51 |
| l_b,int, Bicycle LOS Score for Intersection | 1.817 | 2.223 | 2.063 | 2.832 |
| Bicycle LOS | A | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 40.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.809 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 204 | 44 | 93 | 31 | 408 | 121 | 40 | 459 | 195 | 213 | 518 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.50 | 3.00 | 7.70 | 1.10 | 1.60 | 0.00 | 6.90 | 3.70 | 0.80 | 0.00 | 1.40 | 3.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 204 | 44 | 93 | 31 | 408 | 121 | 40 | 459 | 195 | 213 | 518 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 55 | 12 | 25 | 8 | 111 | 33 | 11 | 125 | 53 | 58 | 141 | 2 |
| Total Analysis Volume [veh/h] | 222 | 48 | 101 | 34 | 443 | 132 | 43 | 499 | 212 | 232 | 563 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 15 | 44 | 44 | 7 | 36 | 8 | 20 | 20 | 15 | 28 | 28 |
| g / C, Green / Cycle | 0.15 | 0.43 | 0.43 | 0.07 | 0.35 | 0.08 | 0.20 | 0.20 | 0.15 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.01 | 0.07 | 0.02 | 0.32 | 0.03 | 0.14 | 0.13 | 0.13 | 0.16 | 0.01 |
| s, saturation flow rate [veh/h] | 1774 | 3532 | 1517 | 1794 | 1803 | 1711 | 3512 | 1597 | 1810 | 3578 | 1568 |
| c, Capacity [veh/h] | 258 | 1528 | 656 | 120 | 638 | 130 | 690 | 314 | 269 | 963 | 422 |
| d1, Uniform Delay [s] | 42.92 | 16.77 | 17.73 | 45.66 | 31.51 | 45.05 | 38.69 | 38.25 | 42.76 | 32.59 | 27.60 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.33 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.24 | 0.01 | 0.11 | 1.29 | 13.06 | 1.48 | 1.45 | 2.54 | 8.07 | 0.57 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.86 | 0.03 | 0.15 | 0.28 | 0.90 | 0.33 | 0.72 | 0.68 | 0.86 | 0.58 | 0.02 |
| d, Delay for Lane Group [s/veh] | 51.16 | 16.78 | 17.83 | 46.94 | 44.57 | 46.52 | 40.15 | 40.79 | 50.83 | 33.16 | 27.62 |
| Lane Group LOS | D | B | B | D | D | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.87 | 0.31 | 1.39 | 0.84 | 14.86 | 1.05 | 5.70 | 4.89 | 6.06 | 5.77 | 0.14 |
| 50th-Percentile Queue Length [ft/ln] | 146.78 | 7.72 | 34.63 | 21.04 | 371.61 | 26.22 | 142.54 | 122.33 | 151.41 | 144.33 | 3.48 |
| 95th-Percentile Queue Length [veh/ln] | 9.85 | 0.56 | 2.49 | 1.52 | 21.19 | 1.89 | 9.62 | 8.52 | 10.09 | 9.71 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 246.13 | 13.90 | 62.33 | 37.88 | 529.68 | 47.19 | 240.44 | 213.02 | 252.31 | 242.84 | 6.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.16 | 16.78 | 17.83 | 46.94 | 44.57 | 44.57 | 46.52 | 40.15 | 40.79 | 50.83 | 33.16 | 27.62 |
| Movement LOS | D | B | B | D | D | D | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 37.64 | | | 44.70 | | | 40.69 | | | 38.21 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 40.42 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.809 | | | | | | | | | | | |

**Emissions**

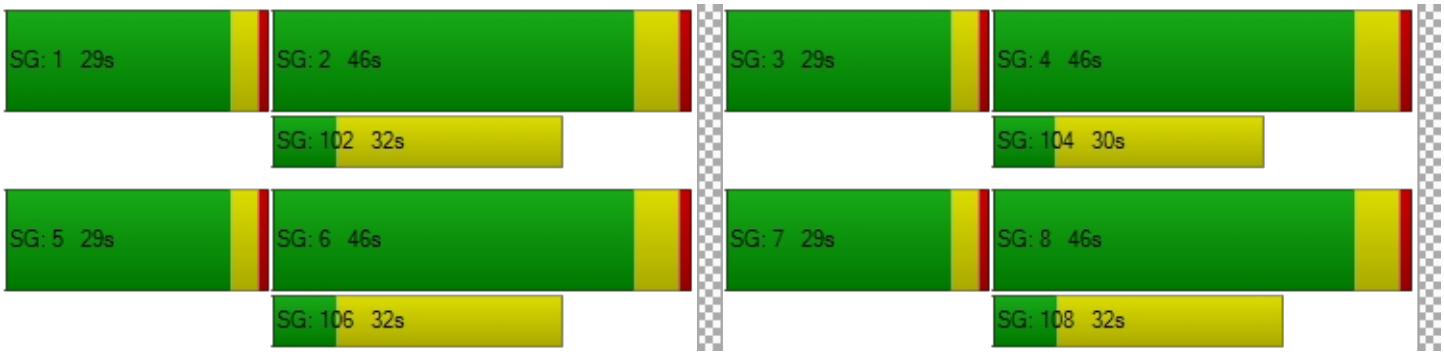
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 26.58 | 5.75 | 12.09 | 34.16 | 577.71 | 44.55 | 517.00 | 219.65 | 116.18 | 281.94 | 4.01 |
| Stops [stops/h] | 205.85 | 21.65 | 48.56 | 29.51 | 521.14 | 36.77 | 399.80 | 171.55 | 212.34 | 404.82 | 4.88 |
| Fuel consumption [US gal/h] | 5.78 | 0.63 | 1.38 | 1.86 | 31.50 | 2.46 | 27.53 | 11.75 | 9.55 | 19.45 | 0.25 |
| CO [g/h] | 404.13 | 44.05 | 96.80 | 130.20 | 2201.64 | 172.19 | 1924.14 | 821.22 | 667.52 | 1359.85 | 17.76 |
| NOx [g/h] | 78.63 | 8.57 | 18.83 | 25.33 | 428.36 | 33.50 | 374.37 | 159.78 | 129.88 | 264.58 | 3.46 |
| VOC [g/h] | 93.66 | 10.21 | 22.43 | 30.18 | 510.25 | 39.91 | 445.94 | 190.33 | 154.71 | 315.16 | 4.12 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 2808.82 | 0.00 | 7912.57 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.93 | 40.93 | 40.93 | 40.93 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.674 | 2.396 | 2.912 | 2.848 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 779 | 779 | 779 | 779 |
| d_b, Bicycle Delay [s] | 19.13 | 19.13 | 19.13 | 19.13 |
| l_b,int, Bicycle LOS Score for Intersection | 1.866 | 2.564 | 2.182 | 2.222 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.395 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 286 | 0 | 48 | 792 | 0 | 0 | 5 | 35 | 0 | 9 | 18 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 286 | 0 | 48 | 792 | 0 | 0 | 5 | 35 | 0 | 9 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 78 | 0 | 13 | 215 | 0 | 0 | 1 | 10 | 0 | 2 | 5 |
| Total Analysis Volume [veh/h] | 18 | 311 | 0 | 52 | 861 | 0 | 0 | 5 | 38 | 0 | 10 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 13 | 13 | 5 | 17 | 17 | 0 | 5 | 5 | 0 | 5 | 5 |
| g / C, Green / Cycle | 0.02 | 0.34 | 0.34 | 0.12 | 0.44 | 0.44 | 0.00 | 0.14 | 0.14 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.09 | 0.00 | 0.03 | 0.24 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 42 | 1201 | 536 | 219 | 1556 | 695 | 0 | 257 | 219 | 0 | 257 | 219 |
| d1, Uniform Delay [s] | 19.18 | 9.58 | 0.00 | 15.77 | 8.32 | 0.00 | 0.00 | 14.84 | 15.17 | 0.00 | 14.88 | 14.99 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.63 | 0.12 | 0.00 | 0.20 | 0.44 | 0.00 | 0.00 | 0.05 | 0.57 | 0.00 | 0.10 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.26 | 0.00 | 0.24 | 0.55 | 0.00 | 0.00 | 0.02 | 0.17 | 0.00 | 0.04 | 0.09 |
| d, Delay for Lane Group [s/veh] | 21.81 | 9.70 | 0.00 | 15.97 | 8.76 | 0.00 | 0.00 | 14.89 | 15.74 | 0.00 | 14.98 | 15.29 |
| Lane Group LOS | C | A | A | B | A | A | A | B | B | A | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.17 | 0.77 | 0.00 | 0.38 | 1.98 | 0.00 | 0.00 | 0.04 | 0.29 | 0.00 | 0.07 | 0.15 |
| 50th-Percentile Queue Length [ft/ln] | 4.34 | 19.34 | 0.00 | 9.40 | 49.61 | 0.00 | 0.00 | 0.91 | 7.32 | 0.00 | 1.85 | 3.80 |
| 95th-Percentile Queue Length [veh/ln] | 0.31 | 1.39 | 0.00 | 0.68 | 3.57 | 0.00 | 0.00 | 0.07 | 0.53 | 0.00 | 0.13 | 0.27 |
| 95th-Percentile Queue Length [ft/ln] | 7.82 | 34.82 | 0.00 | 16.93 | 89.29 | 0.00 | 0.00 | 1.64 | 13.17 | 0.00 | 3.32 | 6.85 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.81 | 9.70 | 0.00 | 15.97 | 8.76 | 0.00 | 0.00 | 14.89 | 15.74 | 0.00 | 14.98 | 15.29 |
| Movement LOS | C | A | A | B | A | A | A | B | B | A | B | B |
| d_A, Approach Delay [s/veh] | 10.37 | | | 9.17 | | | 15.64 | | | 15.19 | | |
| Approach LOS | B | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.82 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.395 | | | | | | | | | | | |

**Emissions**

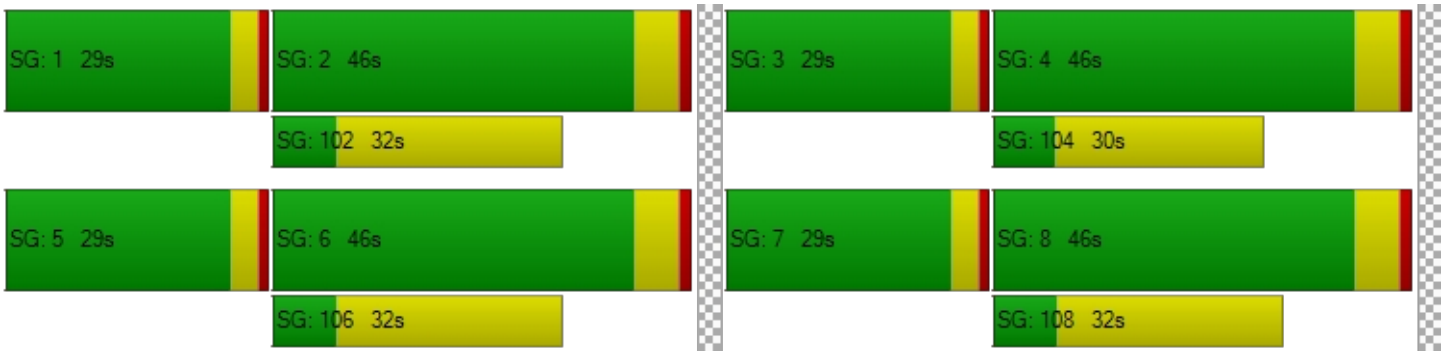
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.41 | 162.54 | 0.00 | 1.23 | 20.34 | 0.00 | 0.00 | 3.77 | 28.66 | 0.00 | 0.24 | 0.47 |
| Stops [stops/h] | 15.76 | 140.40 | 0.00 | 34.13 | 360.03 | 0.00 | 0.00 | 3.31 | 26.55 | 0.00 | 6.70 | 13.80 |
| Fuel consumption [US gal/h] | 0.55 | 8.08 | 0.00 | 0.41 | 4.36 | 0.00 | 0.00 | 0.19 | 1.45 | 0.00 | 0.08 | 0.16 |
| CO [g/h] | 38.74 | 564.87 | 0.00 | 28.53 | 304.91 | 0.00 | 0.00 | 13.19 | 101.24 | 0.00 | 5.40 | 11.05 |
| NOx [g/h] | 7.54 | 109.90 | 0.00 | 5.55 | 59.32 | 0.00 | 0.00 | 2.57 | 19.70 | 0.00 | 1.05 | 2.15 |
| VOC [g/h] | 8.98 | 130.91 | 0.00 | 6.61 | 70.67 | 0.00 | 0.00 | 3.06 | 23.46 | 0.00 | 1.25 | 2.56 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.37 | 10.37 | 10.37 | 10.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.716 | 2.606 | 2.099 | 2.103 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2016 | 2016 | 2016 | 2016 |
| d_b, Bicycle Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.831 | 2.313 | 1.631 | 1.609 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.631 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 80 | 341 | 0 | 16 | 1126 | 4 | 0 | 11 | 37 | 2 | 205 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 80 | 341 | 0 | 16 | 1126 | 4 | 0 | 11 | 37 | 2 | 205 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 93 | 0 | 4 | 306 | 1 | 0 | 3 | 10 | 1 | 56 | 1 |
| Total Analysis Volume [veh/h] | 87 | 371 | 0 | 17 | 1224 | 4 | 0 | 12 | 40 | 2 | 223 | 3 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 33 | 33 | 3 | 31 | 31 | 0 | 12 | 12 | 0 | 12 | 12 |
| g / C, Green / Cycle | 0.06 | 0.51 | 0.51 | 0.05 | 0.49 | 0.49 | 0.00 | 0.18 | 0.18 | 0.01 | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.10 | 0.00 | 0.01 | 0.34 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.12 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 115 | 1826 | 815 | 81 | 1758 | 785 | 0 | 346 | 294 | 11 | 357 | 304 |
| d1, Uniform Delay [s] | 29.35 | 8.45 | 0.00 | 29.34 | 12.46 | 8.20 | 0.00 | 21.33 | 21.74 | 31.54 | 23.70 | 20.92 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.82 | 0.06 | 0.00 | 0.47 | 0.72 | 0.00 | 0.00 | 0.06 | 0.32 | 2.94 | 2.94 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.20 | 0.00 | 0.21 | 0.70 | 0.01 | 0.00 | 0.03 | 0.14 | 0.18 | 0.62 | 0.01 |
| d, Delay for Lane Group [s/veh] | 33.17 | 8.51 | 0.00 | 29.82 | 13.18 | 8.20 | 0.00 | 21.39 | 22.06 | 34.48 | 26.64 | 20.94 |
| Lane Group LOS | C | A | A | C | B | A | A | C | C | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.37 | 1.20 | 0.00 | 0.25 | 5.83 | 0.03 | 0.00 | 0.14 | 0.47 | 0.04 | 3.18 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 34.27 | 30.04 | 0.00 | 6.27 | 145.78 | 0.63 | 0.00 | 3.42 | 11.78 | 0.96 | 79.57 | 0.90 |
| 95th-Percentile Queue Length [veh/ln] | 2.47 | 2.16 | 0.00 | 0.45 | 9.79 | 0.05 | 0.00 | 0.25 | 0.85 | 0.07 | 5.73 | 0.06 |
| 95th-Percentile Queue Length [ft/ln] | 61.68 | 54.08 | 0.00 | 11.29 | 244.79 | 1.13 | 0.00 | 6.16 | 21.20 | 1.72 | 143.22 | 1.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.17 | 8.51 | 0.00 | 29.82 | 13.18 | 8.20 | 0.00 | 21.39 | 22.06 | 34.48 | 26.64 | 20.94 |
| Movement LOS | C | A | A | C | B | A | A | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 13.20 | | | 13.39 | | | 21.90 | | | 26.63 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 15.09 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.631 | | | | | | | | | | | |

**Emissions**

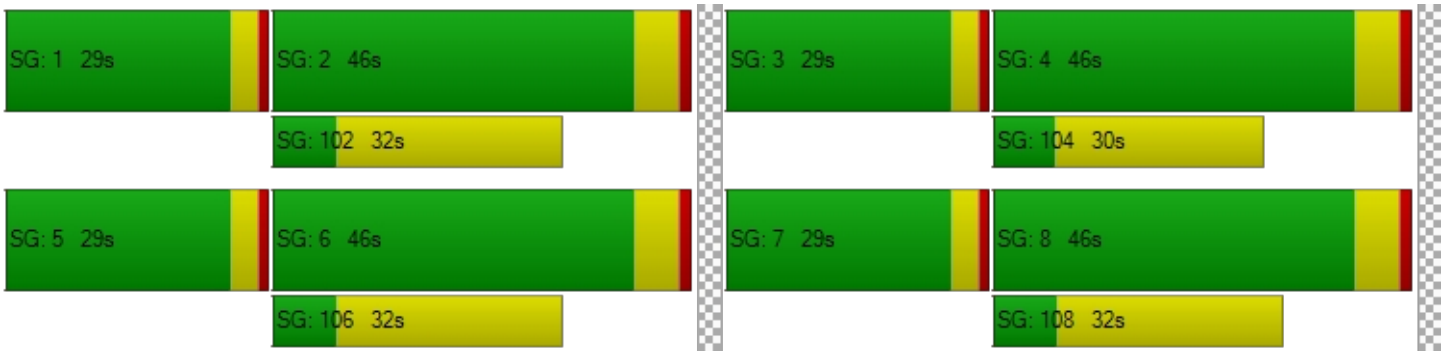
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 89.93 | 383.49 | 0.00 | 8.88 | 639.72 | 2.09 | 0.00 | 7.37 | 24.55 | 0.78 | 87.15 | 1.17 |
| Stops [stops/h] | 77.56 | 135.98 | 0.00 | 14.19 | 659.87 | 1.42 | 0.00 | 7.75 | 26.65 | 2.17 | 180.07 | 2.04 |
| Fuel consumption [US gal/h] | 4.72 | 17.18 | 0.00 | 0.55 | 33.26 | 0.10 | 0.00 | 0.40 | 1.35 | 0.06 | 5.79 | 0.07 |
| CO [g/h] | 329.77 | 1200.95 | 0.00 | 38.26 | 2325.07 | 7.03 | 0.00 | 28.03 | 94.54 | 4.07 | 404.82 | 5.06 |
| NOx [g/h] | 64.16 | 233.66 | 0.00 | 7.44 | 452.37 | 1.37 | 0.00 | 5.45 | 18.39 | 0.79 | 78.76 | 0.98 |
| VOC [g/h] | 76.43 | 278.33 | 0.00 | 8.87 | 538.86 | 1.63 | 0.00 | 6.50 | 21.91 | 0.94 | 93.82 | 1.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.76 | 21.76 | 21.76 | 21.76 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.714 | 2.697 | 2.246 | 2.175 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1257 | 1257 | 1257 | 1257 |
| d_b, Bicycle Delay [s] | 4.39 | 4.39 | 4.39 | 4.39 |
| l_b,int, Bicycle LOS Score for Intersection | 1.937 | 2.587 | 1.645 | 1.936 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.490 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 66 | 198 | 87 | 221 | 575 | 217 | 39 | 475 | 209 | 59 | 524 | 325 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.50 | 13.00 | 0.00 | 0.00 | 0.00 | 2.10 | 3.10 | 0.00 | 2.20 | 0.00 | 3.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 66 | 198 | 87 | 221 | 575 | 217 | 39 | 475 | 209 | 59 | 524 | 325 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 54 | 24 | 60 | 156 | 59 | 11 | 129 | 57 | 16 | 142 | 88 |
| Total Analysis Volume [veh/h] | 72 | 215 | 95 | 240 | 625 | 236 | 42 | 516 | 227 | 64 | 570 | 353 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 27 | 27 | 12 | 29 | 29 | 8 | 26 | 26 | 10 | 27 | 27 |
| g / C, Green / Cycle | 0.11 | 0.30 | 0.30 | 0.13 | 0.32 | 0.32 | 0.09 | 0.29 | 0.29 | 0.11 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.07 | 0.06 | 0.07 | 0.17 | 0.15 | 0.01 | 0.14 | 0.14 | 0.02 | 0.16 | 0.22 |
| s, saturation flow rate [veh/h] | 3472 | 3246 | 1615 | 3514 | 3618 | 1584 | 3428 | 3618 | 1587 | 3514 | 3509 | 1612 |
| c, Capacity [veh/h] | 385 | 975 | 485 | 452 | 1150 | 504 | 310 | 1037 | 455 | 375 | 1063 | 488 |
| d1, Uniform Delay [s] | 36.36 | 23.62 | 23.43 | 36.70 | 25.33 | 24.61 | 37.72 | 26.73 | 26.74 | 36.59 | 26.12 | 27.99 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.09 | 0.25 | 0.44 | 0.36 | 2.04 | 3.44 | 0.07 | 0.55 | 1.25 | 0.08 | 0.62 | 2.99 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.22 | 0.20 | 0.53 | 0.54 | 0.47 | 0.14 | 0.50 | 0.50 | 0.17 | 0.54 | 0.72 |
| d, Delay for Lane Group [s/veh] | 36.44 | 23.87 | 23.87 | 37.07 | 27.37 | 28.05 | 37.79 | 27.27 | 27.99 | 36.67 | 26.74 | 30.98 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.69 | 1.64 | 1.46 | 2.45 | 5.67 | 4.40 | 0.41 | 4.30 | 3.87 | 0.64 | 5.03 | 6.97 |
| 50th-Percentile Queue Length [ft/ln] | 17.24 | 40.91 | 36.59 | 61.33 | 141.76 | 110.07 | 10.14 | 107.50 | 96.84 | 15.93 | 125.86 | 174.19 |
| 95th-Percentile Queue Length [veh/ln] | 1.24 | 2.95 | 2.63 | 4.42 | 9.58 | 7.84 | 0.73 | 7.70 | 6.97 | 1.15 | 8.71 | 11.30 |
| 95th-Percentile Queue Length [ft/ln] | 31.04 | 73.63 | 65.86 | 110.39 | 239.40 | 196.10 | 18.24 | 192.52 | 174.31 | 28.67 | 217.86 | 282.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.44 | 23.87 | 23.87 | 37.07 | 27.37 | 28.05 | 37.79 | 27.27 | 27.99 | 36.67 | 26.74 | 30.98 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 26.24 | | | 29.63 | | | 28.04 | | | 28.90 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.63 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.490 | | | | | | | | | | | |

**Emissions**

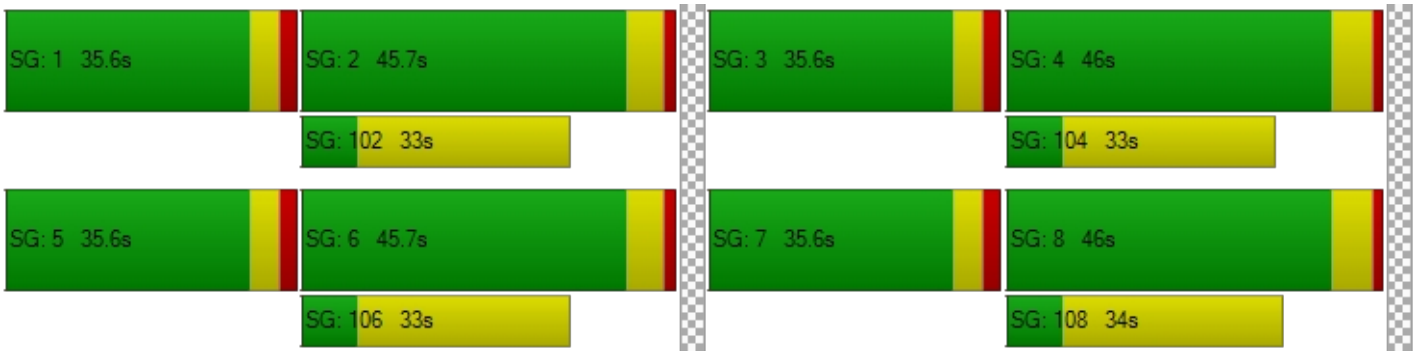
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 73.31 | 218.90 | 96.72 | 248.08 | 646.04 | 243.95 | 21.03 | 258.40 | 113.68 | 32.08 | 285.75 | 176.96 |
| Stops [stops/h] | 55.24 | 131.05 | 58.61 | 196.48 | 454.16 | 176.31 | 32.47 | 344.39 | 155.12 | 51.02 | 403.23 | 279.02 |
| Fuel consumption [US gal/h] | 3.73 | 10.18 | 4.51 | 13.11 | 32.59 | 12.36 | 1.53 | 16.80 | 7.48 | 2.08 | 17.09 | 11.05 |
| CO [g/h] | 260.98 | 711.38 | 314.94 | 916.27 | 2277.70 | 864.21 | 106.65 | 1174.57 | 522.91 | 145.41 | 1194.76 | 772.54 |
| NOx [g/h] | 50.78 | 138.41 | 61.28 | 178.27 | 443.16 | 168.14 | 20.75 | 228.53 | 101.74 | 28.29 | 232.46 | 150.31 |
| VOC [g/h] | 60.48 | 164.87 | 72.99 | 212.35 | 527.88 | 200.29 | 24.72 | 272.22 | 121.19 | 33.70 | 276.90 | 179.04 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 3630.67 | 2835.20 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.62 | 34.62 | 34.62 | 34.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.962 | 2.933 | 3.063 | 2.949 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 890 | 890 | 890 | 890 |
| d_b, Bicycle Delay [s] | 13.85 | 13.85 | 13.85 | 13.85 |
| l_b,int, Bicycle LOS Score for Intersection | 1.875 | 2.468 | 2.207 | 2.374 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 25.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.624 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 424 | 21 | 200 | 932 | 81 | 35 | 452 | 124 | 21 | 684 | 148 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 4.70 | 10.50 | 6.00 | 1.70 | 2.20 | 0.00 | 2.80 | 1.70 | 0.00 | 0.90 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 424 | 21 | 200 | 932 | 81 | 35 | 452 | 124 | 21 | 684 | 148 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 115 | 6 | 54 | 253 | 22 | 10 | 123 | 34 | 6 | 186 | 40 |
| Total Analysis Volume [veh/h] | 40 | 461 | 23 | 217 | 1013 | 88 | 38 | 491 | 135 | 23 | 743 | 161 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 2 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 25 | 25 | 12 | 31 | 31 | 6 | 26 | 26 | 4 | 24 | 24 |
| g / C, Green / Cycle | 0.07 | 0.30 | 0.30 | 0.15 | 0.37 | 0.37 | 0.07 | 0.31 | 0.31 | 0.05 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.13 | 0.02 | 0.13 | 0.28 | 0.06 | 0.02 | 0.14 | 0.08 | 0.01 | 0.21 | 0.10 |
| s, saturation flow rate [veh/h] | 1775 | 3483 | 1478 | 1724 | 3569 | 1587 | 1810 | 3538 | 1592 | 1810 | 3592 | 1597 |
| c, Capacity [veh/h] | 129 | 1031 | 437 | 257 | 1328 | 590 | 128 | 1111 | 500 | 90 | 1054 | 469 |
| d1, Uniform Delay [s] | 36.81 | 23.92 | 21.08 | 34.68 | 23.05 | 17.48 | 36.94 | 22.87 | 21.52 | 38.27 | 26.35 | 23.24 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.50 | 0.47 | 0.08 | 2.94 | 1.42 | 0.18 | 0.48 | 0.42 | 0.44 | 0.54 | 1.29 | 0.64 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.45 | 0.05 | 0.84 | 0.76 | 0.15 | 0.30 | 0.44 | 0.27 | 0.25 | 0.71 | 0.34 |
| d, Delay for Lane Group [s/veh] | 37.31 | 24.38 | 21.16 | 37.62 | 24.47 | 17.65 | 37.41 | 23.30 | 21.96 | 38.82 | 27.64 | 23.88 |
| Lane Group LOS | D | C | C | D | C | B | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.75 | 3.46 | 0.31 | 4.23 | 8.05 | 1.05 | 0.72 | 3.59 | 1.88 | 0.44 | 6.20 | 2.38 |
| 50th-Percentile Queue Length [ft/ln] | 18.81 | 86.46 | 7.69 | 105.68 | 201.14 | 26.36 | 17.89 | 89.65 | 47.07 | 11.10 | 154.97 | 59.50 |
| 95th-Percentile Queue Length [veh/ln] | 1.35 | 6.22 | 0.55 | 7.60 | 12.70 | 1.90 | 1.29 | 6.46 | 3.39 | 0.80 | 10.28 | 4.28 |
| 95th-Percentile Queue Length [ft/ln] | 33.85 | 155.62 | 13.83 | 189.98 | 317.43 | 47.44 | 32.20 | 161.38 | 84.73 | 19.99 | 257.04 | 107.09 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.31 | 24.38 | 21.16 | 37.62 | 24.47 | 17.65 | 37.41 | 23.30 | 21.96 | 38.82 | 27.64 | 23.88 |
| Movement LOS | D | C | C | D | C | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.23 | | | 26.18 | | | 23.83 | | | 27.27 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.87 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.624 | | | | | | | | | | | |

**Emissions**

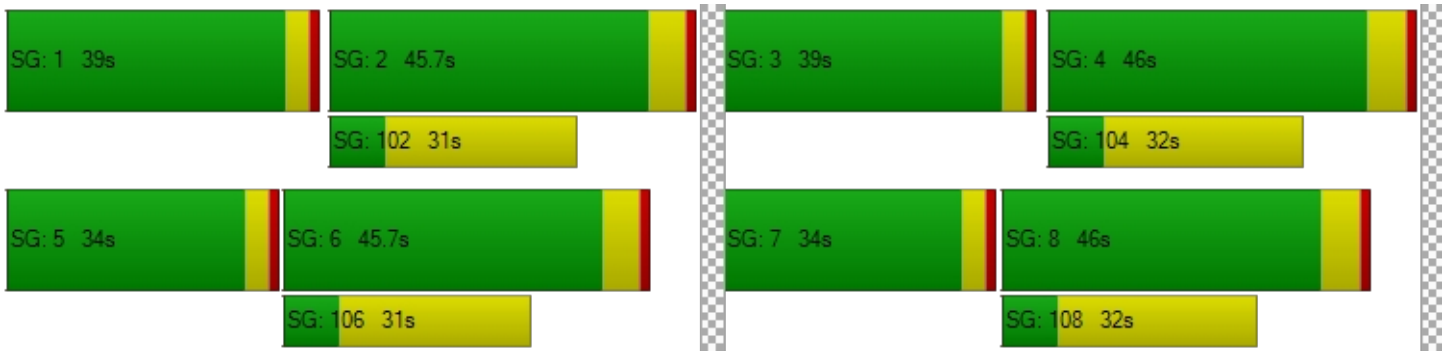
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 21.00 | 242.04 | 12.08 | 220.93 | 1031.37 | 89.60 | 3.29 | 42.47 | 11.68 | 13.84 | 447.15 | 96.89 |
| Stops [stops/h] | 32.43 | 298.16 | 13.25 | 182.22 | 693.64 | 45.45 | 30.84 | 309.18 | 81.16 | 19.14 | 534.42 | 102.59 |
| Fuel consumption [US gal/h] | 1.43 | 14.29 | 0.68 | 11.50 | 49.02 | 3.95 | 0.79 | 7.63 | 2.01 | 0.89 | 26.15 | 5.38 |
| CO [g/h] | 99.73 | 998.96 | 47.37 | 803.86 | 3426.62 | 276.27 | 54.90 | 533.17 | 140.69 | 62.50 | 1828.00 | 376.00 |
| NOx [g/h] | 19.40 | 194.36 | 9.22 | 156.40 | 666.70 | 53.75 | 10.68 | 103.73 | 27.37 | 12.16 | 355.66 | 73.16 |
| VOC [g/h] | 23.11 | 231.52 | 10.98 | 186.30 | 794.15 | 64.03 | 12.72 | 123.57 | 32.61 | 14.49 | 423.66 | 87.14 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.48 | 31.48 | 31.48 | 31.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.944 | 3.003 | 2.823 | 2.853 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 958 | 958 | 958 | 958 |
| d_b, Bicycle Delay [s] | 11.34 | 11.34 | 11.34 | 11.34 |
| l_b,int, Bicycle LOS Score for Intersection | 1.992 | 2.647 | 2.107 | 2.324 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.659 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 66 | 453 | 58 | 153 | 721 | 36 | 14 | 372 | 213 | 54 | 497 | 67 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 4.50 | 13.00 | 1.30 | 0.60 | 0.00 | 0.00 | 4.30 | 4.20 | 0.00 | 1.70 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 66 | 453 | 58 | 153 | 721 | 36 | 14 | 372 | 213 | 54 | 497 | 67 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 123 | 16 | 42 | 196 | 10 | 4 | 101 | 58 | 15 | 135 | 18 |
| Total Analysis Volume [veh/h] | 72 | 492 | 63 | 166 | 784 | 39 | 15 | 404 | 232 | 59 | 540 | 73 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 3 | | | 5 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 2 | | | 6 | | | 3 | | |
| v_co, Outbound Pedestrian Volume crossing | 4 | | | 0 | | | 1 | | | 5 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 5 | | | 1 | | | 0 | | | 4 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 19 | 19 | 12 | 21 | 21 | 3 | 23 | 23 | 7 | 27 | 27 |
| g / C, Green / Cycle | 0.12 | 0.25 | 0.25 | 0.15 | 0.28 | 0.28 | 0.04 | 0.30 | 0.30 | 0.10 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.15 | 0.16 | 0.09 | 0.22 | 0.22 | 0.01 | 0.22 | 0.15 | 0.03 | 0.29 | 0.05 |
| s, saturation flow rate [veh/h] | 1795 | 1832 | 1752 | 1791 | 1891 | 1859 | 1810 | 1835 | 1544 | 1810 | 1874 | 1601 |
| c, Capacity [veh/h] | 221 | 455 | 435 | 272 | 524 | 515 | 70 | 543 | 457 | 174 | 662 | 566 |
| d1, Uniform Delay [s] | 30.81 | 25.68 | 25.73 | 30.50 | 25.75 | 25.75 | 35.84 | 24.46 | 22.40 | 32.47 | 22.59 | 16.85 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.11 | 0.12 | 0.11 | 0.11 | 0.24 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.85 | 1.38 | 1.49 | 2.22 | 2.97 | 3.02 | 1.52 | 2.24 | 0.88 | 1.14 | 5.46 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.33 | 0.62 | 0.63 | 0.61 | 0.79 | 0.79 | 0.21 | 0.74 | 0.51 | 0.34 | 0.82 | 0.13 |
| d, Delay for Lane Group [s/veh] | 31.66 | 27.07 | 27.21 | 32.72 | 28.72 | 28.77 | 37.37 | 26.70 | 23.28 | 33.61 | 28.05 | 16.95 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.19 | 4.34 | 4.21 | 2.82 | 6.73 | 6.63 | 0.29 | 6.27 | 3.23 | 1.01 | 8.76 | 0.80 |
| 50th-Percentile Queue Length [ft/ln] | 29.68 | 108.42 | 105.14 | 70.59 | 168.31 | 165.72 | 7.14 | 156.79 | 80.81 | 25.32 | 218.99 | 19.95 |
| 95th-Percentile Queue Length [veh/ln] | 2.14 | 7.75 | 7.57 | 5.08 | 10.99 | 10.85 | 0.51 | 10.38 | 5.82 | 1.82 | 13.61 | 1.44 |
| 95th-Percentile Queue Length [ft/ln] | 53.42 | 193.81 | 189.22 | 127.05 | 274.69 | 271.28 | 12.85 | 259.46 | 145.46 | 45.58 | 340.33 | 35.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.66 | 27.13 | 27.21 | 32.72 | 28.74 | 28.77 | 37.37 | 26.70 | 23.28 | 33.61 | 28.05 | 16.95 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 27.66 | | | 29.41 | | | 25.73 | | | 27.33 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.74 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.659 | | | | | | | | | | | |

**Emissions**

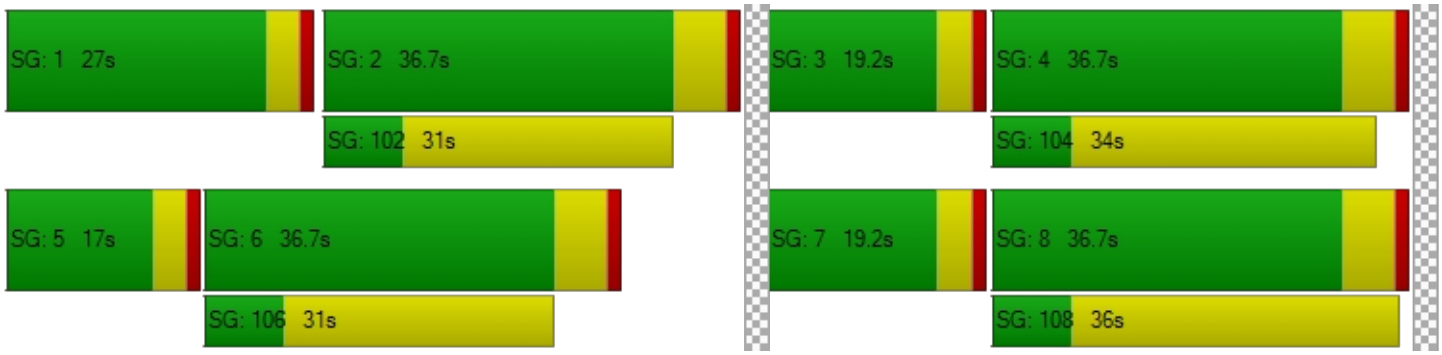
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.25 | 150.02 | 144.86 | 87.15 | 217.86 | 214.24 | 1.50 | 40.50 | 23.26 | 28.08 | 257.01 | 34.74 |
| Stops [stops/h] | 55.68 | 203.43 | 197.26 | 132.43 | 315.79 | 310.92 | 13.40 | 294.16 | 151.62 | 47.51 | 410.87 | 37.43 |
| Fuel consumption [US gal/h] | 2.47 | 9.23 | 8.93 | 5.74 | 13.82 | 13.60 | 0.33 | 7.24 | 3.78 | 1.96 | 17.00 | 1.91 |
| CO [g/h] | 172.48 | 644.95 | 624.05 | 401.19 | 965.93 | 950.56 | 23.22 | 506.13 | 264.33 | 136.78 | 1188.30 | 133.37 |
| NOx [g/h] | 33.56 | 125.48 | 121.42 | 78.06 | 187.93 | 184.94 | 4.52 | 98.48 | 51.43 | 26.61 | 231.20 | 25.95 |
| VOC [g/h] | 39.97 | 149.47 | 144.63 | 92.98 | 223.86 | 220.30 | 5.38 | 117.30 | 61.26 | 31.70 | 275.40 | 30.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.16 | 28.16 | 28.16 | 28.16 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.859 | 2.750 | 2.598 | 2.599 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 808 | 808 | 808 | 808 |
| d_b, Bicycle Delay [s] | 13.64 | 13.64 | 13.64 | 13.64 |
| l_b,int, Bicycle LOS Score for Intersection | 2.077 | 2.376 | 2.634 | 2.668 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 42.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.811 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 449.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 279 | 287 | 142 | 174 | 437 | 646 | 302 | 1144 | 279 | 216 | 1434 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.10 | 3.50 | 2.50 | 4.30 | 1.30 | 1.20 | 5.90 | 3.30 | 2.50 | 3.50 | 3.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 279 | 287 | 142 | 174 | 437 | 646 | 302 | 1144 | 279 | 216 | 1434 | 149 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 75 | 77 | 38 | 47 | 117 | 174 | 81 | 308 | 75 | 58 | 385 | 40 |
| Total Analysis Volume [veh/h] | 300 | 309 | 153 | 187 | 470 | 695 | 325 | 1230 | 300 | 232 | 1542 | 160 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 45 | 0 | 19 | 44 | 0 | 19 | 48 | 0 | 18 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 0 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 37 | 37 | 14 | 37 | 37 | 15 | 50 | 50 | 13 | 48 | 48 |
| g / C, Green / Cycle | 0.11 | 0.29 | 0.29 | 0.11 | 0.29 | 0.29 | 0.12 | 0.38 | 0.38 | 0.10 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.09 | 0.10 | 0.06 | 0.09 | 0.25 | 0.10 | 0.24 | 0.19 | 0.07 | 0.31 | 0.10 |
| s, saturation flow rate [veh/h] | 3400 | 3518 | 1545 | 3395 | 5122 | 2831 | 3350 | 5041 | 1582 | 3417 | 5053 | 1577 |
| c, Capacity [veh/h] | 370 | 1004 | 441 | 369 | 1462 | 808 | 388 | 1927 | 605 | 344 | 1856 | 579 |
| d1, Uniform Delay [s] | 56.75 | 36.45 | 36.90 | 54.77 | 36.62 | 44.08 | 56.41 | 32.88 | 30.67 | 56.50 | 37.52 | 29.02 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.65 | 0.06 | 0.17 | 0.40 | 0.14 | 3.17 | 1.88 | 1.63 | 2.89 | 0.86 | 4.49 | 1.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.31 | 0.35 | 0.51 | 0.32 | 0.86 | 0.84 | 0.64 | 0.50 | 0.67 | 0.83 | 0.28 |
| d, Delay for Lane Group [s/veh] | 58.40 | 36.52 | 37.08 | 55.17 | 36.76 | 47.25 | 58.29 | 34.51 | 33.56 | 57.36 | 42.02 | 30.20 |
| Lane Group LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.84 | 3.81 | 3.84 | 2.86 | 3.86 | 10.60 | 5.22 | 10.46 | 7.43 | 3.64 | 15.04 | 3.62 |
| 50th-Percentile Queue Length [ft/ln] | 120.98 | 95.37 | 95.92 | 71.45 | 96.42 | 265.04 | 130.41 | 261.59 | 185.72 | 91.11 | 376.04 | 90.62 |
| 95th-Percentile Queue Length [veh/ln] | 8.45 | 6.87 | 6.91 | 5.14 | 6.94 | 15.94 | 8.96 | 15.77 | 11.90 | 6.56 | 21.40 | 6.52 |
| 95th-Percentile Queue Length [ft/ln] | 211.17 | 171.67 | 172.66 | 128.62 | 173.55 | 398.54 | 224.05 | 394.22 | 297.47 | 164.01 | 535.05 | 163.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.40 | 36.52 | 37.08 | 55.17 | 36.76 | 47.25 | 58.29 | 34.51 | 33.56 | 57.36 | 42.02 | 30.20 |
| Movement LOS | E | D | D | E | D | D | E | C | C | E | D | C |
| d_A, Approach Delay [s/veh] | 45.24 | | | 44.70 | | | 38.52 | | | 42.88 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 42.23 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.811 | | | | | | | | | | | |

**Emissions**

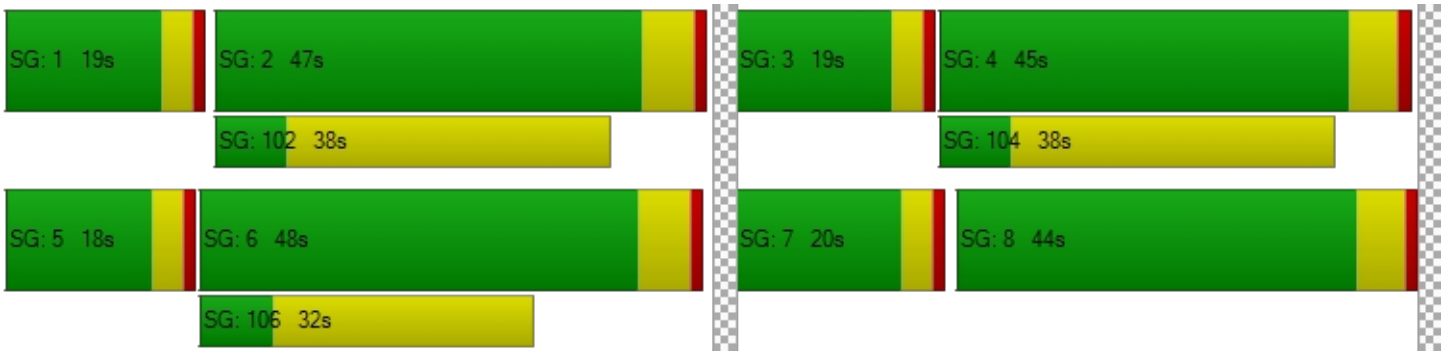
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 21.93 | 22.59 | 11.18 | 99.35 | 249.71 | 369.26 | 36.98 | 139.96 | 34.14 | 115.79 | 769.57 | 79.85 |
| Stops [stops/h] | 267.73 | 211.06 | 106.14 | 158.13 | 320.07 | 586.55 | 288.60 | 868.38 | 205.50 | 201.64 | 1248.31 | 100.28 |
| Fuel consumption [US gal/h] | 6.98 | 5.18 | 2.60 | 7.47 | 16.06 | 26.63 | 8.71 | 24.23 | 5.77 | 9.18 | 55.08 | 4.97 |
| CO [g/h] | 487.93 | 361.98 | 181.57 | 522.23 | 1122.25 | 1861.61 | 608.87 | 1693.85 | 403.61 | 641.96 | 3850.34 | 347.20 |
| NOx [g/h] | 94.93 | 70.43 | 35.33 | 101.61 | 218.35 | 362.20 | 118.46 | 329.56 | 78.53 | 124.90 | 749.14 | 67.55 |
| VOC [g/h] | 113.08 | 83.89 | 42.08 | 121.03 | 260.09 | 431.45 | 141.11 | 392.57 | 93.54 | 148.78 | 892.35 | 80.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 38.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.53 | 54.53 | 32.40 | 54.53 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.030 | 3.464 | 3.717 | 3.436 |
| Crosswalk LOS | C | C | D | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 604 | 589 | 645 | 630 |
| d_b, Bicycle Delay [s] | 31.72 | 32.40 | 29.85 | 30.53 |
| l_b,int, Bicycle LOS Score for Intersection | 1.979 | 2.303 | 2.580 | 2.623 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.529 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 457 | 0 | 585 | 0 | 0 | 0 | 0 | 1132 | 249 | 0 | 2243 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.40 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 0.40 | 2.00 | 1.90 | 1.50 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 457 | 0 | 585 | 0 | 0 | 0 | 0 | 1132 | 249 | 0 | 2243 | 69 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 122 | 0 | 156 | 0 | 0 | 0 | 0 | 301 | 66 | 0 | 597 | 18 |
| Total Analysis Volume [veh/h] | 486 | 0 | 622 | 0 | 0 | 0 | 0 | 1204 | 265 | 0 | 2386 | 73 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 87 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 130 | 130 | | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 34 | 34 | | 82 | 82 | 82 |
| g / C, Green / Cycle | 0.26 | 0.26 | | 0.63 | 0.63 | 0.63 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.22 | | 0.24 | 0.28 | 0.05 |
| s, saturation flow rate [veh/h] | 5188 | 2782 | | 5057 | 8497 | 1596 |
| c, Capacity [veh/h] | 1342 | 720 | | 3199 | 5375 | 1009 |
| d1, Uniform Delay [s] | 39.32 | 45.90 | | 11.49 | 12.18 | 9.18 |
| k, delay calibration | 0.27 | 0.27 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.41 | 7.60 | | 0.34 | 0.27 | 0.14 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.86 | | 0.38 | 0.44 | 0.07 |
| d, Delay for Lane Group [s/veh] | 39.73 | 53.51 | | 11.83 | 12.44 | 9.32 |
| Lane Group LOS | D | D | | B | B | A |
| Critical Lane Group | No | Yes | | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.11 | 9.85 | | 5.21 | 6.52 | 0.78 |
| 50th-Percentile Queue Length [ft/ln] | 102.72 | 246.35 | | 130.25 | 162.90 | 19.53 |
| 95th-Percentile Queue Length [veh/ln] | 7.40 | 15.00 | | 8.95 | 10.70 | 1.41 |
| 95th-Percentile Queue Length [ft/ln] | 184.90 | 375.06 | | 223.83 | 267.56 | 35.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 39.73 | 0.00 | 53.51 | 0.00 | 0.00 | 0.00 | 0.00 | 11.83 | 0.00 | 0.00 | 12.44 | 9.32 |
| Movement LOS | D | | D | | | | | B | | | B | A |
| d_A, Approach Delay [s/veh] | 47.46 | | | 0.00 | | | 9.80 | | | 12.35 | | |
| Approach LOS | D | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 19.86 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.529 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 63.71 | 81.53 | | 189.46 | 271.49 | 8.31 |
| Stops [stops/h] | 341.71 | 546.35 | | 433.29 | 903.20 | 21.65 |
| Fuel consumption [US gal/h] | 12.41 | 19.65 | | 14.78 | 26.58 | 0.69 |
| CO [g/h] | 867.28 | 1373.36 | | 1033.17 | 1857.79 | 48.39 |
| NOx [g/h] | 168.74 | 267.21 | | 201.02 | 361.46 | 9.42 |
| VOC [g/h] | 201.00 | 318.29 | | 239.45 | 430.56 | 11.22 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.801 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | C | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 550 | 0 | 1235 | 1235 |
| d_b, Bicycle Delay [s] | 34.14 | 64.93 | 9.50 | 9.50 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.222 | 2.371 |
| Bicycle LOS | A | D | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 28.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.934 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 64 | 0 | 766 | 0 | 1332 | 910 | 0 | 2085 | 654 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 1.40 | 2.00 | 0.30 | 2.00 | 3.20 | 5.00 | 2.00 | 2.50 | 2.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 64 | 0 | 766 | 0 | 1332 | 910 | 0 | 2085 | 654 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 17 | 0 | 199 | 0 | 347 | 237 | 0 | 543 | 170 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 67 | 0 | 798 | 0 | 1388 | 948 | 0 | 2172 | 681 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 35.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 83 | 0 | 0 | 83 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 39 | 39 | 77 | 77 | 77 |
| g / C, Green / Cycle | | 0.30 | 0.30 | 0.59 | 0.59 | 0.59 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.28 | 0.21 | 0.61 | 0.32 |
| s, saturation flow rate [veh/h] | | 3475 | 2852 | 6726 | 1551 | 6765 |
| c, Capacity [veh/h] | | 1047 | 859 | 3996 | 921 | 4018 |
| d1, Uniform Delay [s] | | 32.33 | 44.02 | 13.48 | 26.36 | 15.76 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.06 | 10.96 | 0.24 | 37.23 | 0.53 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.06 | 0.93 | 0.35 | 1.03 | 0.54 |
| d, Delay for Lane Group [s/veh] | | 32.39 | 54.98 | 13.72 | 63.59 | 16.29 |
| Lane Group LOS | | C | D | B | F | B |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 0.77 | 13.68 | 4.92 | 34.71 | 9.02 |
| 50th-Percentile Queue Length [ft/ln] | | 19.30 | 341.92 | 122.93 | 867.83 | 225.49 |
| 95th-Percentile Queue Length [veh/ln] | | 1.39 | 19.74 | 8.55 | 45.48 | 13.95 |
| 95th-Percentile Queue Length [ft/ln] | | 34.73 | 493.55 | 213.84 | 1137.00 | 348.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 32.39 | 0.00 | 54.98 | 0.00 | 13.72 | 63.59 | 0.00 | 16.29 | 0.00 |
| Movement LOS | | | | C | | D | | B | F | | B | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 53.23 | | | 33.96 | | | 12.52 | | |
| Approach LOS | A | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 28.39 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.934 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 10.32 | 122.97 | 134.40 | 91.80 | 341.78 |
| Stops [stops/h] | | 42.77 | 757.90 | 544.94 | 961.81 | 999.64 |
| Fuel consumption [US gal/h] | | 1.10 | 18.18 | 15.26 | 27.37 | 31.34 |
| CO [g/h] | | 77.09 | 1270.60 | 1066.58 | 1913.30 | 2190.91 |
| NOx [g/h] | | 15.00 | 247.21 | 207.52 | 372.26 | 426.27 |
| VOC [g/h] | | 17.87 | 294.47 | 247.19 | 443.42 | 507.76 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 54.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.195 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 619 | 1173 | 1173 |
| d_b, Bicycle Delay [s] | 64.97 | 30.98 | 11.11 | 11.11 |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.523 | 2.456 |
| Bicycle LOS | D | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.488 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 87 | 46 | 27 | 94 | 147 | 172 | 50 | 639 | 180 | 98 | 491 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 87 | 46 | 27 | 94 | 147 | 172 | 50 | 639 | 180 | 98 | 491 | 23 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 12 | 7 | 24 | 38 | 44 | 13 | 163 | 46 | 25 | 125 | 6 |
| Total Analysis Volume [veh/h] | 89 | 47 | 28 | 96 | 150 | 176 | 51 | 652 | 184 | 100 | 501 | 23 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 12 | 12 | 9 | 12 | 12 | 7 | 20 | 20 | 9 | 22 | 22 |
| g / C, Green / Cycle | 0.13 | 0.18 | 0.18 | 0.14 | 0.19 | 0.19 | 0.10 | 0.30 | 0.30 | 0.14 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.03 | 0.02 | 0.05 | 0.08 | 0.11 | 0.03 | 0.18 | 0.12 | 0.06 | 0.14 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 239 | 342 | 291 | 246 | 349 | 297 | 182 | 1060 | 473 | 250 | 1196 | 534 |
| d1, Uniform Delay [s] | 26.19 | 22.73 | 22.56 | 26.07 | 23.87 | 24.69 | 27.57 | 20.05 | 18.53 | 26.01 | 17.04 | 14.86 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.36 | 0.20 | 0.15 | 0.37 | 1.19 | 2.67 | 0.31 | 0.89 | 0.80 | 0.39 | 0.39 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.14 | 0.10 | 0.39 | 0.43 | 0.59 | 0.28 | 0.62 | 0.39 | 0.40 | 0.42 | 0.04 |
| d, Delay for Lane Group [s/veh] | 26.55 | 22.93 | 22.72 | 26.44 | 25.06 | 27.36 | 27.88 | 20.95 | 19.32 | 26.40 | 17.43 | 14.91 |
| Lane Group LOS | C | C | C | C | C | C | C | C | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.18 | 0.57 | 0.34 | 1.27 | 1.97 | 2.48 | 0.68 | 3.78 | 2.01 | 1.37 | 2.72 | 0.22 |
| 50th-Percentile Queue Length [ft/ln] | 29.56 | 14.30 | 8.49 | 31.83 | 49.37 | 61.94 | 17.11 | 94.45 | 50.15 | 34.34 | 68.01 | 5.52 |
| 95th-Percentile Queue Length [veh/ln] | 2.13 | 1.03 | 0.61 | 2.29 | 3.55 | 4.46 | 1.23 | 6.80 | 3.61 | 2.47 | 4.90 | 0.40 |
| 95th-Percentile Queue Length [ft/ln] | 53.20 | 25.73 | 15.28 | 57.30 | 88.87 | 111.49 | 30.80 | 170.01 | 90.28 | 61.82 | 122.42 | 9.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 26.55 | 22.93 | 22.72 | 26.44 | 25.06 | 27.36 | 27.88 | 20.95 | 19.32 | 26.40 | 17.43 | 14.91 |
| Movement LOS | C | C | C | C | C | C | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 24.86 | | | 26.33 | | | 21.01 | | | 18.77 | | |
| Approach LOS | C | | | C | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 21.72 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.488 | | | | | | | | | | | |

**Emissions**

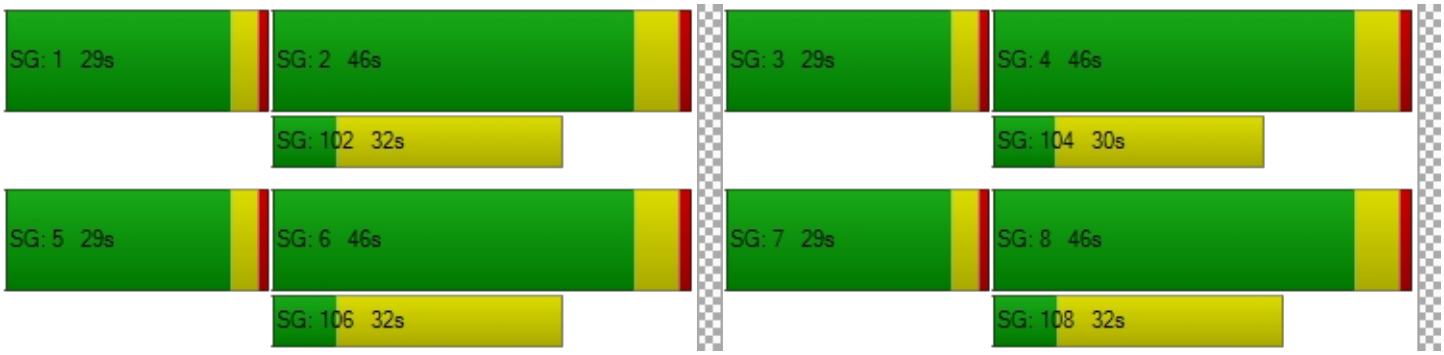
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 89.60 | 47.32 | 28.19 | 96.20 | 150.32 | 176.37 | 25.57 | 326.85 | 92.24 | 49.28 | 246.90 | 11.33 |
| Stops [stops/h] | 64.24 | 31.07 | 18.45 | 69.19 | 107.31 | 134.62 | 37.19 | 410.57 | 109.01 | 74.65 | 295.64 | 11.99 |
| Fuel consumption [US gal/h] | 4.35 | 2.23 | 1.33 | 4.67 | 7.25 | 8.70 | 1.72 | 20.03 | 5.49 | 2.98 | 13.41 | 0.59 |
| CO [g/h] | 304.14 | 155.71 | 92.63 | 326.75 | 506.90 | 608.10 | 119.98 | 1399.90 | 383.46 | 208.10 | 937.48 | 41.38 |
| NOx [g/h] | 59.17 | 30.30 | 18.02 | 63.57 | 98.62 | 118.31 | 23.34 | 272.37 | 74.61 | 40.49 | 182.40 | 8.05 |
| VOC [g/h] | 70.49 | 36.09 | 21.47 | 75.73 | 117.48 | 140.93 | 27.81 | 324.44 | 88.87 | 48.23 | 217.27 | 9.59 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 23.04 | 23.04 | 23.04 | 23.04 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.333 | 2.313 | 2.884 | 2.701 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1208 | 1208 | 1208 | 1208 |
| d_b, Bicycle Delay [s] | 5.20 | 5.20 | 5.20 | 5.20 |
| l_b,int, Bicycle LOS Score for Intersection | 1.830 | 2.256 | 2.291 | 2.074 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.746 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 197 | 137 | 17 | 56 | 430 | 62 | 12 | 351 | 283 | 58 | 557 | 21 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 4.80 | 3.40 | 12.50 | 0.00 | 2.60 | 7.10 | 3.00 | 12.50 | 7.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 197 | 137 | 17 | 56 | 430 | 62 | 12 | 351 | 283 | 58 | 557 | 21 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 52 | 36 | 4 | 15 | 113 | 16 | 3 | 92 | 74 | 15 | 147 | 6 |
| Total Analysis Volume [veh/h] | 207 | 144 | 18 | 59 | 453 | 65 | 13 | 369 | 298 | 61 | 586 | 22 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 1 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 16 | 40 | 40 | 9 | 32 | 3 | 26 | 26 | 9 | 31 | 31 |
| g / C, Green / Cycle | 0.16 | 0.40 | 0.40 | 0.09 | 0.32 | 0.03 | 0.26 | 0.26 | 0.09 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.08 | 0.01 | 0.04 | 0.28 | 0.01 | 0.19 | 0.20 | 0.04 | 0.16 | 0.16 |
| s, saturation flow rate [veh/h] | 1424 | 1828 | 1572 | 1631 | 1859 | 1708 | 1855 | 1582 | 1708 | 1870 | 1846 |
| c, Capacity [veh/h] | 234 | 730 | 628 | 145 | 602 | 57 | 483 | 412 | 154 | 593 | 585 |
| d1, Uniform Delay [s] | 40.61 | 19.47 | 18.14 | 42.79 | 31.49 | 46.79 | 33.70 | 33.83 | 42.66 | 27.72 | 27.73 |
| k, delay calibration | 0.07 | 0.12 | 0.12 | 0.04 | 0.26 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.46 | 0.14 | 0.02 | 0.68 | 8.55 | 0.74 | 3.42 | 4.22 | 0.61 | 1.15 | 1.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.88 | 0.20 | 0.03 | 0.41 | 0.86 | 0.23 | 0.74 | 0.75 | 0.40 | 0.52 | 0.52 |
| d, Delay for Lane Group [s/veh] | 48.07 | 19.61 | 18.16 | 43.47 | 40.04 | 47.53 | 37.12 | 38.05 | 43.27 | 28.87 | 28.90 |
| Lane Group LOS | D | B | B | D | D | D | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.20 | 2.06 | 0.24 | 1.35 | 12.26 | 0.31 | 7.91 | 6.96 | 1.39 | 5.77 | 5.71 |
| 50th-Percentile Queue Length [ft/ln] | 130.06 | 51.54 | 6.01 | 33.66 | 306.39 | 7.85 | 197.75 | 174.05 | 34.68 | 144.21 | 142.66 |
| 95th-Percentile Queue Length [veh/ln] | 8.94 | 3.71 | 0.43 | 2.42 | 18.00 | 0.57 | 12.52 | 11.29 | 2.50 | 9.71 | 9.62 |
| 95th-Percentile Queue Length [ft/ln] | 223.58 | 92.76 | 10.81 | 60.58 | 449.92 | 14.13 | 313.06 | 282.23 | 62.42 | 242.69 | 240.60 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.07 | 19.61 | 18.16 | 43.47 | 40.04 | 40.04 | 47.53 | 37.15 | 38.05 | 43.27 | 28.88 | 28.90 |
| Movement LOS | D | B | B | D | D | D | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 35.51 | | | 40.39 | | | 37.74 | | | 30.19 | | |
| Approach LOS | D | | | D | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.85 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.746 | | | | | | | | | | | |

**Emissions**

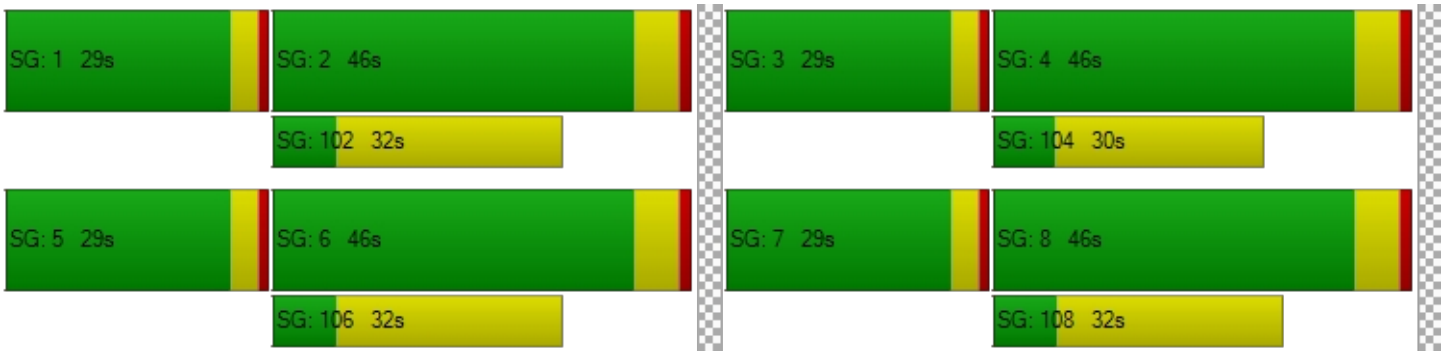
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 102.93 | 71.60 | 8.95 | 59.40 | 521.52 | 7.82 | 215.10 | 186.32 | 30.43 | 152.50 | 150.76 |
| Stops [stops/h] | 188.69 | 74.77 | 8.71 | 48.83 | 444.52 | 11.39 | 286.90 | 252.51 | 50.31 | 209.23 | 206.97 |
| Fuel consumption [US gal/h] | 7.90 | 3.96 | 0.48 | 3.17 | 27.62 | 0.54 | 13.64 | 11.92 | 2.21 | 9.63 | 9.52 |
| CO [g/h] | 552.15 | 276.71 | 33.67 | 221.24 | 1930.88 | 37.43 | 953.41 | 833.42 | 154.17 | 672.80 | 665.32 |
| NOx [g/h] | 107.43 | 53.84 | 6.55 | 43.04 | 375.68 | 7.28 | 185.50 | 162.15 | 30.00 | 130.90 | 129.45 |
| VOC [g/h] | 127.97 | 64.13 | 7.80 | 51.27 | 447.50 | 8.68 | 220.96 | 193.15 | 35.73 | 155.93 | 154.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.24 | 39.24 | 39.24 | 39.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.650 | 2.313 | 2.754 | 2.630 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 806 | 806 | 806 | 806 |
| d_b, Bicycle Delay [s] | 17.69 | 17.69 | 17.69 | 17.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.168 | 2.512 | 2.121 | 2.112 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.846 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 20 | 188 | 32 | 73 | 538 | 230 | 129 | 311 | 188 | 77 | 701 | 159 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 7.90 | 2.70 | 0.00 | 5.10 | 3.40 | 0.00 | 1.70 | 0.40 | 7.30 | 2.40 | 0.60 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 188 | 32 | 73 | 538 | 230 | 129 | 311 | 188 | 77 | 701 | 159 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 51 | 9 | 20 | 146 | 63 | 35 | 85 | 51 | 21 | 190 | 43 |
| Total Analysis Volume [veh/h] | 22 | 204 | 35 | 79 | 585 | 250 | 140 | 338 | 204 | 84 | 762 | 173 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 6 | | | 0 | | | 6 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 6 | | | 1 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 2 | | | 3 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 3 | | | 2 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 4 | 22 | 22 | 9 | 26 | 26 | 10 | 35 | 35 | 9 | 34 | 34 |
| g / C, Green / Cycle | 0.05 | 0.24 | 0.24 | 0.10 | 0.29 | 0.29 | 0.11 | 0.38 | 0.38 | 0.10 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.07 | 0.05 | 0.24 | 0.24 | 0.08 | 0.18 | 0.13 | 0.05 | 0.40 | 0.11 |
| s, saturation flow rate [veh/h] | 1697 | 1859 | 1753 | 1737 | 1849 | 1654 | 1785 | 1894 | 1521 | 1775 | 1891 | 1584 |
| c, Capacity [veh/h] | 85 | 449 | 423 | 171 | 535 | 479 | 196 | 726 | 583 | 178 | 706 | 591 |
| d1, Uniform Delay [s] | 41.28 | 27.79 | 27.86 | 38.45 | 29.88 | 29.94 | 38.79 | 20.89 | 19.82 | 38.38 | 28.29 | 19.88 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.21 | 0.21 | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.61 | 0.32 | 0.36 | 1.95 | 6.04 | 7.00 | 4.74 | 0.47 | 0.36 | 1.95 | 57.33 | 0.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.26 | 0.27 | 0.28 | 0.46 | 0.82 | 0.83 | 0.71 | 0.47 | 0.35 | 0.47 | 1.08 | 0.29 |
| d, Delay for Lane Group [s/veh] | 42.89 | 28.11 | 28.22 | 40.41 | 35.92 | 36.94 | 43.54 | 21.36 | 20.18 | 40.33 | 85.62 | 20.15 |
| Lane Group LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.49 | 2.07 | 2.03 | 1.67 | 9.11 | 8.33 | 3.10 | 4.98 | 2.85 | 1.77 | 24.89 | 2.40 |
| 50th-Percentile Queue Length [ft/ln] | 12.35 | 51.70 | 50.66 | 41.67 | 227.63 | 208.29 | 77.58 | 124.38 | 71.33 | 44.24 | 622.33 | 59.88 |
| 95th-Percentile Queue Length [veh/ln] | 0.89 | 3.72 | 3.65 | 3.00 | 14.05 | 13.07 | 5.59 | 8.63 | 5.14 | 3.19 | 34.86 | 4.31 |
| 95th-Percentile Queue Length [ft/ln] | 22.23 | 93.05 | 91.20 | 75.01 | 351.35 | 326.64 | 139.65 | 215.84 | 128.39 | 79.63 | 871.51 | 107.78 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 42.89 | 28.16 | 28.22 | 40.41 | 36.17 | 36.94 | 43.54 | 21.36 | 20.18 | 40.33 | 85.62 | 20.15 |
| Movement LOS | D | C | C | D | D | D | D | C | C | D | F | C |
| d_A, Approach Delay [s/veh] | 29.41 | | | 36.75 | | | 25.56 | | | 70.77 | | |
| Approach LOS | C | | | D | | | C | | | E | | |
| d_I, Intersection Delay [s/veh] | 45.48 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.846 | | | | | | | | | | | |

**Emissions**

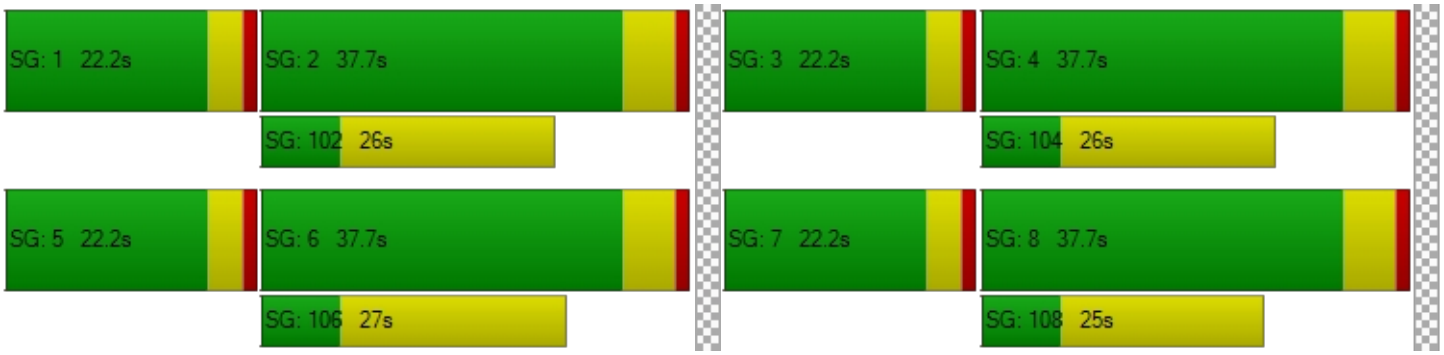
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 11.89 | 65.35 | 63.80 | 39.28 | 218.53 | 196.67 | 66.63 | 160.87 | 97.09 | 41.39 | 375.49 | 85.25 |
| Stops [stops/h] | 19.72 | 82.57 | 80.92 | 66.56 | 363.57 | 332.68 | 123.91 | 198.66 | 113.93 | 70.66 | 993.98 | 95.64 |
| Fuel consumption [US gal/h] | 0.81 | 3.84 | 3.76 | 2.82 | 15.22 | 13.85 | 5.06 | 9.45 | 5.58 | 2.99 | 38.50 | 4.82 |
| CO [g/h] | 56.73 | 268.68 | 262.70 | 197.37 | 1064.12 | 968.17 | 354.04 | 660.79 | 390.20 | 208.77 | 2691.47 | 336.96 |
| NOx [g/h] | 11.04 | 52.28 | 51.11 | 38.40 | 207.04 | 188.37 | 68.88 | 128.57 | 75.92 | 40.62 | 523.66 | 65.56 |
| VOC [g/h] | 13.15 | 62.27 | 60.88 | 45.74 | 246.62 | 224.38 | 82.05 | 153.14 | 90.43 | 48.38 | 623.77 | 78.09 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 34.75 | 34.75 | 34.75 | 34.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.594 | 2.718 | 2.758 | 2.669 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 710 | 710 | 710 | 710 |
| d_b, Bicycle Delay [s] | 18.77 | 18.76 | 18.76 | 18.76 |
| l_b,int, Bicycle LOS Score for Intersection | 1.775 | 2.314 | 2.685 | 3.241 |
| Bicycle LOS | A | B | B | C |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 171 | 138 | 78 | 198 | 384 | 241 | 71 | 825 | 442 | 159 | 1267 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 6.60 | 7.80 | 6.50 | 7.60 | 17.10 | 1.90 | 0.00 | 2.00 | 2.90 | 2.10 | 1.50 | 3.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 171 | 138 | 78 | 198 | 384 | 241 | 71 | 825 | 442 | 159 | 1267 | 26 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 37 | 21 | 53 | 103 | 65 | 19 | 222 | 119 | 43 | 341 | 7 |
| Total Analysis Volume [veh/h] | 184 | 148 | 84 | 213 | 413 | 259 | 76 | 887 | 475 | 171 | 1362 | 28 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 120 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 7.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 21 | 40 | 0 | 17 | 36 | 0 | 17 | 46 | 0 | 17 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 24 | 24 | 13 | 24 | 24 | 12 | 54 | 54 | 13 | 55 | 55 |
| g / C, Green / Cycle | 0.11 | 0.20 | 0.20 | 0.11 | 0.20 | 0.20 | 0.10 | 0.45 | 0.45 | 0.11 | 0.46 | 0.46 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.04 | 0.06 | 0.06 | 0.13 | 0.16 | 0.02 | 0.17 | 0.30 | 0.05 | 0.27 | 0.02 |
| s, saturation flow rate [veh/h] | 3331 | 3395 | 1525 | 3303 | 3129 | 1591 | 3514 | 5094 | 1577 | 3456 | 5114 | 1569 |
| c, Capacity [veh/h] | 364 | 681 | 306 | 359 | 626 | 318 | 356 | 2287 | 708 | 375 | 2333 | 716 |
| d1, Uniform Delay [s] | 50.52 | 40.19 | 40.67 | 51.07 | 44.34 | 45.97 | 49.66 | 22.12 | 26.14 | 50.29 | 24.25 | 18.12 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.40 | 0.13 | 0.38 | 0.58 | 0.96 | 4.06 | 0.11 | 0.50 | 5.02 | 0.32 | 1.08 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.51 | 0.22 | 0.27 | 0.59 | 0.66 | 0.81 | 0.21 | 0.39 | 0.67 | 0.46 | 0.58 | 0.04 |
| d, Delay for Lane Group [s/veh] | 50.92 | 40.31 | 41.05 | 51.66 | 45.30 | 50.04 | 49.77 | 22.62 | 31.15 | 50.62 | 25.33 | 18.22 |
| Lane Group LOS | D | D | D | D | D | D | D | C | C | D | C | B |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.59 | 1.82 | 2.11 | 3.09 | 5.75 | 7.73 | 1.06 | 5.64 | 11.50 | 2.37 | 9.23 | 0.43 |
| 50th-Percentile Queue Length [ft/ln] | 64.81 | 45.51 | 52.74 | 77.20 | 143.81 | 193.30 | 26.48 | 141.07 | 287.43 | 59.33 | 230.74 | 10.87 |
| 95th-Percentile Queue Length [veh/ln] | 4.67 | 3.28 | 3.80 | 5.56 | 9.69 | 12.29 | 1.91 | 9.54 | 17.06 | 4.27 | 14.21 | 0.78 |
| 95th-Percentile Queue Length [ft/ln] | 116.66 | 81.91 | 94.93 | 138.97 | 242.15 | 307.31 | 47.66 | 238.47 | 426.46 | 106.80 | 355.30 | 19.57 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.92 | 40.31 | 41.05 | 51.66 | 45.30 | 50.04 | 49.77 | 22.62 | 31.15 | 50.62 | 25.33 | 18.22 |
| Movement LOS | D | D | D | D | D | D | D | C | C | D | C | B |
| d_A, Approach Delay [s/veh] | 45.15 | | | 48.21 | | | 26.87 | | | 27.97 | | |
| Approach LOS | D | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 33.43 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.632 | | | | | | | | | | | |

**Emissions**

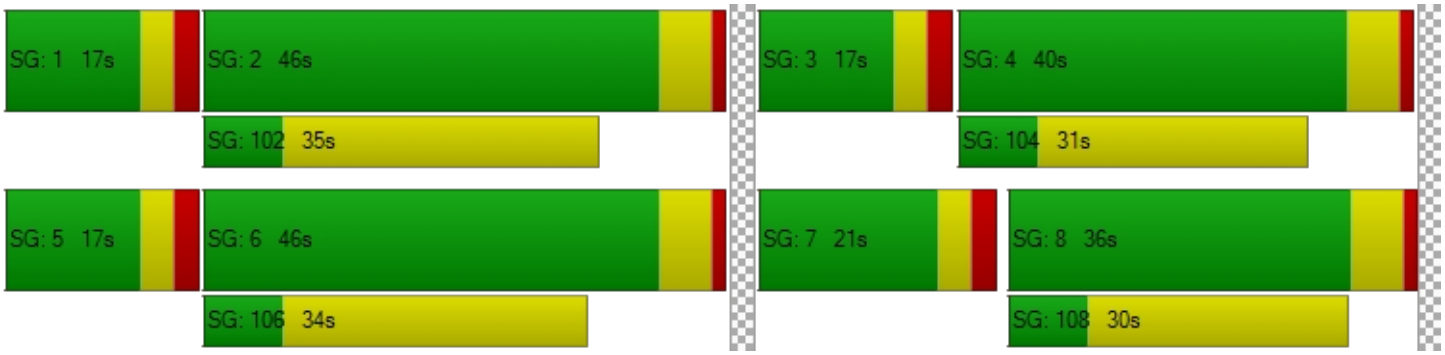
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 19.26 | 15.49 | 8.79 | 115.10 | 223.17 | 139.96 | 37.93 | 442.68 | 237.06 | 19.71 | 156.98 | 3.23 |
| Stops [stops/h] | 155.33 | 109.07 | 63.20 | 185.04 | 344.69 | 231.65 | 63.46 | 507.18 | 344.46 | 142.21 | 829.54 | 13.03 |
| Fuel consumption [US gal/h] | 4.12 | 2.84 | 1.64 | 8.00 | 14.90 | 9.68 | 2.68 | 25.11 | 14.67 | 4.20 | 22.71 | 0.38 |
| CO [g/h] | 288.14 | 198.54 | 114.46 | 559.16 | 1041.38 | 676.51 | 187.45 | 1755.09 | 1025.65 | 293.93 | 1587.76 | 26.31 |
| NOx [g/h] | 56.06 | 38.63 | 22.27 | 108.79 | 202.61 | 131.62 | 36.47 | 341.48 | 199.56 | 57.19 | 308.92 | 5.12 |
| VOC [g/h] | 66.78 | 46.01 | 26.53 | 129.59 | 241.35 | 156.79 | 43.44 | 406.76 | 237.71 | 68.12 | 367.98 | 6.10 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 49.58 | 49.58 | 49.58 | 49.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.882 | 2.766 | 3.214 | 3.309 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 504 | 671 | 671 |
| d_b, Bicycle Delay [s] | 30.68 | 33.60 | 26.54 | 26.54 |
| l_b,int, Bicycle LOS Score for Intersection | 1.903 | 2.290 | 2.351 | 2.418 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 86.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.844 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 729 | 139 | 2 | 15 | 41 | 30 | 13 | 10 | 298 | 3 | 46 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.80 | 5.60 | 0.00 | 0.00 | 3.40 | 6.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 729 | 139 | 2 | 15 | 41 | 30 | 13 | 10 | 298 | 3 | 46 | 2 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 198 | 38 | 1 | 4 | 11 | 8 | 4 | 3 | 81 | 1 | 13 | 1 |
| Total Analysis Volume [veh/h] | 792 | 151 | 2 | 16 | 45 | 33 | 14 | 11 | 324 | 3 | 50 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 30 | 3 | 8 | 3 | 19 | 1 | 17 |
| g / C, Green / Cycle | 0.36 | 0.44 | 0.04 | 0.12 | 0.04 | 0.28 | 0.01 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.44 | 0.08 | 0.01 | 0.05 | 0.01 | 0.21 | 0.00 | 0.03 |
| s, saturation flow rate [veh/h] | 1784 | 1812 | 1810 | 1721 | 1810 | 1623 | 1810 | 1887 |
| c, Capacity [veh/h] | 645 | 794 | 78 | 206 | 70 | 451 | 17 | 469 |
| d1, Uniform Delay [s] | 22.08 | 11.91 | 31.94 | 28.05 | 32.22 | 22.73 | 33.98 | 20.07 |
| k, delay calibration | 0.50 | 0.12 | 0.04 | 0.15 | 0.04 | 0.17 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 115.97 | 0.13 | 0.48 | 1.62 | 0.52 | 3.70 | 1.80 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.23 | 0.19 | 0.21 | 0.38 | 0.20 | 0.74 | 0.18 | 0.11 |
| d, Delay for Lane Group [s/veh] | 138.05 | 12.04 | 32.42 | 29.67 | 32.74 | 26.43 | 35.78 | 20.24 |
| Lane Group LOS | F | B | C | C | C | C | D | C |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 29.52 | 1.23 | 0.25 | 1.18 | 0.23 | 5.10 | 0.06 | 0.64 |
| 50th-Percentile Queue Length [ft/ln] | 737.91 | 30.70 | 6.22 | 29.51 | 5.74 | 127.39 | 1.42 | 15.96 |
| 95th-Percentile Queue Length [veh/ln] | 43.65 | 2.21 | 0.45 | 2.12 | 0.41 | 8.80 | 0.10 | 1.15 |
| 95th-Percentile Queue Length [ft/ln] | 1091.32 | 55.27 | 11.20 | 53.11 | 10.33 | 219.94 | 2.56 | 28.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 138.05 | 12.04 | 12.04 | 32.42 | 29.67 | 29.67 | 32.74 | 26.43 | 26.43 | 35.78 | 20.24 | 20.24 |
| Movement LOS | F | B | B | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 117.65 | | | 30.14 | | | 26.68 | | | 21.09 | | |
| Approach LOS | F | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 86.26 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |
| Intersection V/C | 0.844 | | | | | | | | | | | |

**Emissions**

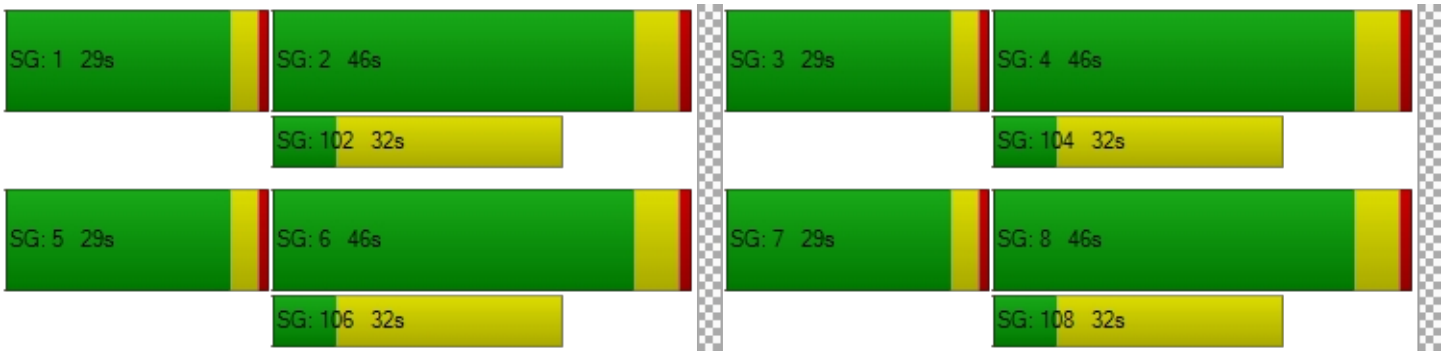
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 397.28 | 76.75 | 0.73 | 3.56 | 7.04 | 168.46 | 1.14 | 19.68 |
| Stops [stops/h] | 1540.08 | 64.08 | 12.99 | 61.59 | 11.97 | 265.87 | 2.97 | 33.32 |
| Fuel consumption [US gal/h] | 55.01 | 3.80 | 0.29 | 1.36 | 0.45 | 10.21 | 0.08 | 1.21 |
| CO [g/h] | 3845.38 | 265.79 | 20.42 | 94.99 | 31.40 | 713.36 | 5.94 | 84.48 |
| NOx [g/h] | 748.17 | 51.71 | 3.97 | 18.48 | 6.11 | 138.79 | 1.16 | 16.44 |
| VOC [g/h] | 891.20 | 61.60 | 4.73 | 22.01 | 7.28 | 165.33 | 1.38 | 19.58 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.37 | 24.37 | 24.37 | 24.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.568 | 2.053 | 2.323 | 1.953 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1159 | 1159 | 1159 | 1159 |
| d_b, Bicycle Delay [s] | 6.09 | 6.09 | 6.09 | 6.09 |
| l_b,int, Bicycle LOS Score for Intersection | 3.119 | 1.715 | 2.135 | 1.650 |
| Bicycle LOS | C | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 100.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.049 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 32 | 157 | 110 | 275 | 370 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 32 | 157 | 110 | 275 | 370 | 24 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 43 | 30 | 75 | 101 | 7 |
| Total Analysis Volume [veh/h] | 35 | 171 | 120 | 299 | 402 | 26 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.09 | 0.00 | 1.05 | 0.03 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 7.78 | 0.00 | 100.30 | 94.77 |
| Movement LOS | A | A | A | A | F | F |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.21 | 0.21 | 14.73 | 14.73 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 5.35 | 5.35 | 368.30 | 368.30 |
| d_A, Approach Delay [s/veh] | 0.00 | | 2.23 | | 99.96 | |
| Approach LOS | A | | A | | F | |
| d_I, Intersection Delay [s/veh] | 41.52 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.772 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 132 | 180 | 27 | 181 | 530 | 111 | 67 | 660 | 101 | 144 | 380 | 367 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.60 | 4.70 | 1.60 | 2.40 | 0.00 | 0.00 | 2.00 | 0.00 | 1.90 | 0.00 | 2.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 180 | 27 | 181 | 530 | 111 | 67 | 660 | 101 | 144 | 380 | 367 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 34 | 47 | 7 | 47 | 138 | 29 | 17 | 172 | 26 | 38 | 99 | 96 |
| Total Analysis Volume [veh/h] | 138 | 188 | 28 | 189 | 552 | 116 | 70 | 688 | 105 | 150 | 396 | 382 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 29 | 29 | 12 | 32 | 32 | 7 | 28 | 28 | 10 | 31 | 31 |
| g / C, Green / Cycle | 0.10 | 0.31 | 0.31 | 0.13 | 0.34 | 0.34 | 0.07 | 0.29 | 0.29 | 0.10 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.10 | 0.02 | 0.11 | 0.30 | 0.07 | 0.04 | 0.22 | 0.22 | 0.08 | 0.21 | 0.24 |
| s, saturation flow rate [veh/h] | 1810 | 1876 | 1555 | 1787 | 1864 | 1615 | 1810 | 1870 | 1785 | 1782 | 1900 | 1615 |
| c, Capacity [veh/h] | 173 | 575 | 477 | 226 | 629 | 545 | 129 | 550 | 525 | 184 | 620 | 527 |
| d1, Uniform Delay [s] | 41.92 | 25.31 | 23.19 | 40.37 | 29.50 | 22.37 | 42.47 | 30.11 | 30.11 | 41.54 | 27.13 | 28.13 |
| k, delay calibration | 0.04 | 0.11 | 0.11 | 0.04 | 0.24 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.22 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.19 | 0.33 | 0.05 | 3.09 | 8.47 | 0.19 | 1.32 | 3.59 | 3.76 | 3.28 | 2.04 | 3.85 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.33 | 0.06 | 0.83 | 0.88 | 0.21 | 0.54 | 0.74 | 0.74 | 0.81 | 0.64 | 0.72 |
| d, Delay for Lane Group [s/veh] | 45.11 | 25.64 | 23.24 | 43.45 | 37.97 | 22.57 | 43.79 | 33.70 | 33.88 | 44.82 | 29.17 | 31.98 |
| Lane Group LOS | D | C | C | D | D | C | D | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.17 | 3.11 | 0.42 | 4.28 | 12.32 | 1.76 | 1.58 | 8.41 | 8.06 | 3.40 | 7.30 | 7.51 |
| 50th-Percentile Queue Length [ft/ln] | 79.15 | 77.76 | 10.60 | 107.09 | 307.90 | 43.90 | 39.46 | 210.27 | 201.45 | 84.99 | 182.41 | 187.76 |
| 95th-Percentile Queue Length [veh/ln] | 5.70 | 5.60 | 0.76 | 7.68 | 18.07 | 3.16 | 2.84 | 13.17 | 12.71 | 6.12 | 11.73 | 12.01 |
| 95th-Percentile Queue Length [ft/ln] | 142.47 | 139.96 | 19.08 | 191.94 | 451.79 | 79.01 | 71.02 | 329.18 | 317.84 | 152.98 | 293.16 | 300.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 45.11 | 25.64 | 23.24 | 43.45 | 37.97 | 22.57 | 43.79 | 33.77 | 33.88 | 44.82 | 29.17 | 31.98 |
| Movement LOS | D | C | C | D | D | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 33.04 | | | 37.10 | | | 34.60 | | | 32.85 | | |
| Approach LOS | C | | | D | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.59 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.772 | | | | | | | | | | | |

**Emissions**

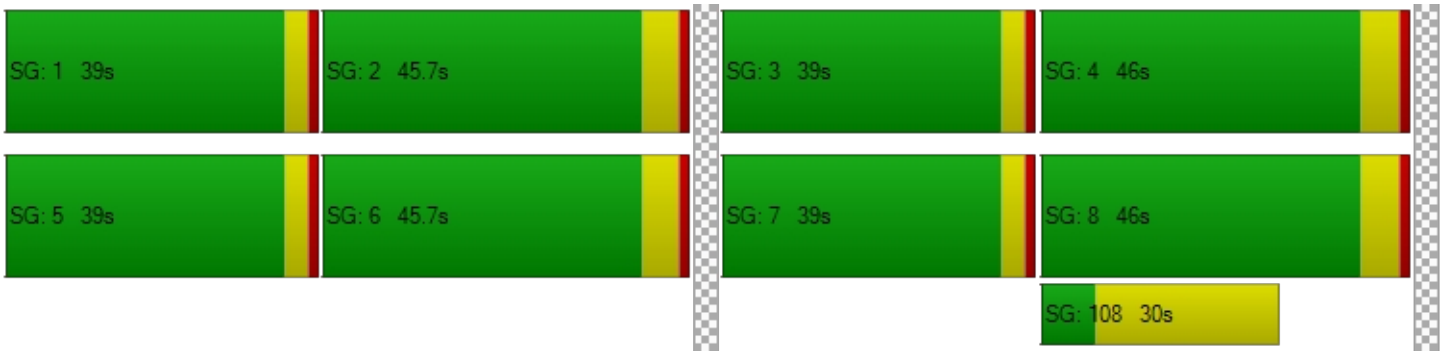
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 69.40 | 94.54 | 14.08 | 94.20 | 275.12 | 57.82 | 34.50 | 199.91 | 190.90 | 39.31 | 103.79 | 100.12 |
| Stops [stops/h] | 120.67 | 118.55 | 16.16 | 163.27 | 469.44 | 66.93 | 60.16 | 320.59 | 307.14 | 129.57 | 278.11 | 286.27 |
| Fuel consumption [US gal/h] | 5.15 | 5.70 | 0.82 | 6.93 | 19.53 | 3.35 | 2.45 | 13.09 | 12.53 | 4.67 | 10.10 | 10.23 |
| CO [g/h] | 359.70 | 398.11 | 57.04 | 484.41 | 1365.34 | 233.93 | 171.29 | 915.11 | 875.52 | 326.68 | 705.65 | 715.30 |
| NOx [g/h] | 69.98 | 77.46 | 11.10 | 94.25 | 265.65 | 45.51 | 33.33 | 178.05 | 170.35 | 63.56 | 137.29 | 139.17 |
| VOC [g/h] | 83.36 | 92.26 | 13.22 | 112.27 | 316.43 | 54.22 | 39.70 | 212.09 | 202.91 | 75.71 | 163.54 | 165.78 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.86 | 39.56 | 39.29 | 39.29 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.738 | 2.683 | 2.698 | 2.900 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 847 | 847 | 847 | 847 |
| d_b, Bicycle Delay [s] | 15.69 | 15.69 | 15.69 | 15.69 |
| l_b,int, Bicycle LOS Score for Intersection | 2.144 | 2.974 | 2.272 | 2.325 |
| Bicycle LOS | B | C | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.391 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 3 | 232 | 8 | 37 | 795 | 10 | 5 | 12 | 6 | 0 | 7 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.40 | 3.90 | 5.60 | 0.00 | 3.10 | 1.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 4.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 232 | 8 | 37 | 795 | 10 | 5 | 12 | 6 | 0 | 7 | 40 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 63 | 2 | 10 | 216 | 3 | 1 | 3 | 2 | 0 | 2 | 11 |
| Total Analysis Volume [veh/h] | 3 | 252 | 9 | 40 | 864 | 11 | 5 | 13 | 7 | 0 | 8 | 43 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 14 | 14 | 4 | 18 | 18 | 1 | 7 | 7 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.01 | 0.34 | 0.34 | 0.10 | 0.43 | 0.43 | 0.02 | 0.17 | 0.17 | 0.00 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.07 | 0.01 | 0.02 | 0.24 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| s, saturation flow rate [veh/h] | 1589 | 3506 | 1544 | 1810 | 3529 | 1602 | 1810 | 1862 | 1615 | 1810 | 1900 | 1554 |
| c, Capacity [veh/h] | 15 | 1204 | 530 | 181 | 1532 | 695 | 28 | 317 | 275 | 0 | 294 | 241 |
| d1, Uniform Delay [s] | 20.35 | 9.62 | 8.98 | 17.15 | 8.78 | 6.68 | 20.12 | 14.36 | 14.32 | 0.00 | 14.85 | 15.21 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.42 | 0.09 | 0.01 | 0.23 | 0.47 | 0.01 | 1.14 | 0.08 | 0.06 | 0.00 | 0.06 | 0.58 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.20 | 0.21 | 0.02 | 0.22 | 0.56 | 0.02 | 0.18 | 0.04 | 0.03 | 0.00 | 0.03 | 0.18 |
| d, Delay for Lane Group [s/veh] | 22.77 | 9.71 | 8.99 | 17.37 | 9.25 | 6.69 | 21.26 | 14.44 | 14.38 | 0.00 | 14.91 | 15.79 |
| Lane Group LOS | C | A | A | B | A | A | C | B | B | A | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.04 | 0.65 | 0.04 | 0.32 | 2.16 | 0.04 | 0.05 | 0.09 | 0.05 | 0.00 | 0.06 | 0.34 |
| 50th-Percentile Queue Length [ft/ln] | 0.89 | 16.14 | 1.10 | 7.89 | 54.08 | 1.06 | 1.27 | 2.35 | 1.27 | 0.00 | 1.49 | 8.49 |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 1.16 | 0.08 | 0.57 | 3.89 | 0.08 | 0.09 | 0.17 | 0.09 | 0.00 | 0.11 | 0.61 |
| 95th-Percentile Queue Length [ft/ln] | 1.60 | 29.04 | 1.98 | 14.20 | 97.34 | 1.91 | 2.29 | 4.23 | 2.29 | 0.00 | 2.69 | 15.29 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.77 | 9.71 | 8.99 | 17.37 | 9.25 | 6.69 | 21.26 | 14.44 | 14.38 | 0.00 | 14.91 | 15.79 |
| Movement LOS | C | A | A | B | A | A | C | B | B | A | B | B |
| d_A, Approach Delay [s/veh] | 9.83 | | | 9.57 | | | 15.79 | | | 15.65 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 10.00 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.391 | | | | | | | | | | | |

**Emissions**

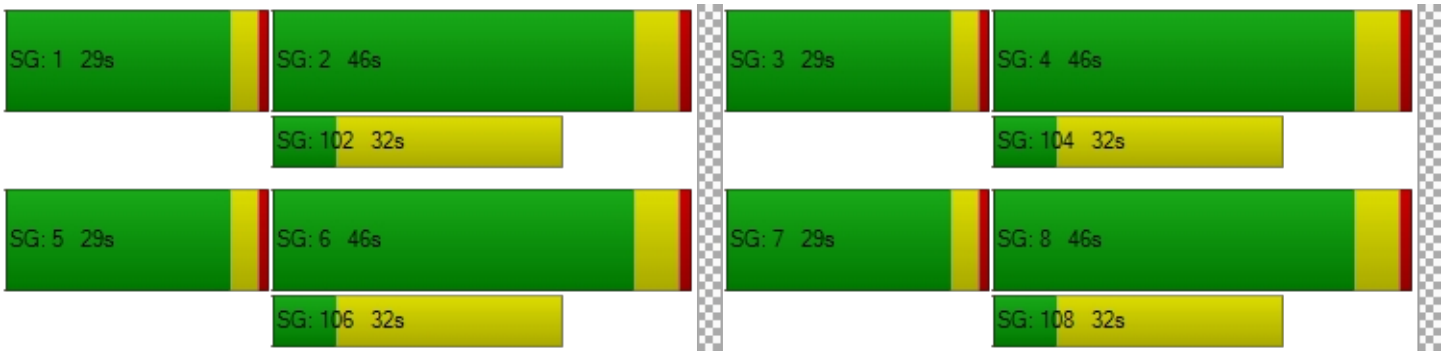
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.50 | 126.21 | 4.51 | 20.11 | 434.48 | 5.53 | 0.63 | 1.64 | 0.88 | 0.00 | 0.85 | 4.58 |
| Stops [stops/h] | 3.10 | 112.64 | 3.84 | 27.54 | 377.50 | 3.70 | 4.44 | 8.20 | 4.45 | 0.00 | 5.21 | 29.65 |
| Fuel consumption [US gal/h] | 0.09 | 6.32 | 0.22 | 1.12 | 21.60 | 0.26 | 0.07 | 0.15 | 0.08 | 0.00 | 0.09 | 0.49 |
| CO [g/h] | 6.49 | 441.48 | 15.61 | 78.40 | 1509.71 | 18.39 | 5.04 | 10.56 | 5.69 | 0.00 | 6.16 | 34.30 |
| NOx [g/h] | 1.26 | 85.90 | 3.04 | 15.25 | 293.74 | 3.58 | 0.98 | 2.05 | 1.11 | 0.00 | 1.20 | 6.67 |
| VOC [g/h] | 1.50 | 102.32 | 3.62 | 18.17 | 349.89 | 4.26 | 1.17 | 2.45 | 1.32 | 0.00 | 1.43 | 7.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.09 | 11.09 | 11.09 | 11.09 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.706 | 2.604 | 2.096 | 2.112 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1939 | 1939 | 1939 | 1939 |
| d_b, Bicycle Delay [s] | 0.02 | 0.02 | 0.02 | 0.02 |
| l_b,int, Bicycle LOS Score for Intersection | 1.777 | 2.314 | 1.601 | 1.644 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.587 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 194 | 189 | 39 | 23 | 467 | 69 | 27 | 314 | 93 | 134 | 375 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 2.70 | 2.90 | 2.60 | 0.90 | 2.70 | 8.30 | 2.10 | 1.80 | 1.10 | 1.70 | 2.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 194 | 189 | 39 | 23 | 467 | 69 | 27 | 314 | 93 | 134 | 375 | 30 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 53 | 51 | 11 | 6 | 127 | 19 | 7 | 85 | 25 | 36 | 102 | 8 |
| Total Analysis Volume [veh/h] | 211 | 205 | 42 | 25 | 508 | 75 | 29 | 341 | 101 | 146 | 408 | 33 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 18 | 18 | 1 | 12 | 12 | 1 | 7 | 7 | 5 | 11 | 11 |
| g / C, Green / Cycle | 0.15 | 0.38 | 0.38 | 0.02 | 0.25 | 0.25 | 0.03 | 0.15 | 0.15 | 0.11 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.06 | 0.03 | 0.01 | 0.14 | 0.05 | 0.02 | 0.10 | 0.06 | 0.08 | 0.11 | 0.02 |
| s, saturation flow rate [veh/h] | 1765 | 3540 | 1578 | 1772 | 3592 | 1581 | 1691 | 3558 | 1592 | 1794 | 3569 | 1579 |
| c, Capacity [veh/h] | 271 | 1351 | 602 | 43 | 904 | 398 | 46 | 533 | 239 | 193 | 823 | 364 |
| d1, Uniform Delay [s] | 19.33 | 9.65 | 9.34 | 22.96 | 15.49 | 13.97 | 22.88 | 18.99 | 18.33 | 20.59 | 15.89 | 14.37 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.82 | 0.07 | 0.07 | 4.67 | 0.78 | 0.32 | 5.18 | 0.95 | 0.88 | 2.25 | 0.34 | 0.08 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.15 | 0.07 | 0.59 | 0.56 | 0.19 | 0.63 | 0.64 | 0.42 | 0.75 | 0.50 | 0.09 |
| d, Delay for Lane Group [s/veh] | 21.15 | 9.72 | 9.41 | 27.62 | 16.28 | 14.29 | 28.05 | 19.95 | 19.22 | 22.84 | 16.23 | 14.45 |
| Lane Group LOS | C | A | A | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.95 | 0.51 | 0.21 | 0.31 | 2.16 | 0.58 | 0.34 | 1.51 | 0.88 | 1.42 | 1.55 | 0.23 |
| 50th-Percentile Queue Length [ft/ln] | 48.78 | 12.79 | 5.22 | 7.69 | 53.90 | 14.58 | 8.46 | 37.67 | 22.00 | 35.50 | 38.76 | 5.73 |
| 95th-Percentile Queue Length [veh/ln] | 3.51 | 0.92 | 0.38 | 0.55 | 3.88 | 1.05 | 0.61 | 2.71 | 1.58 | 2.56 | 2.79 | 0.41 |
| 95th-Percentile Queue Length [ft/ln] | 87.80 | 23.02 | 9.40 | 13.84 | 97.02 | 26.25 | 15.23 | 67.80 | 39.59 | 63.89 | 69.77 | 10.31 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 21.15 | 9.72 | 9.41 | 27.62 | 16.28 | 14.29 | 28.05 | 19.95 | 19.22 | 22.84 | 16.23 | 14.45 |
| Movement LOS | C | A | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 14.96 | | | 16.50 | | | 20.29 | | | 17.77 | | |
| Approach LOS | B | | | B | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.36 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.587 | | | | | | | | | | | |

**Emissions**

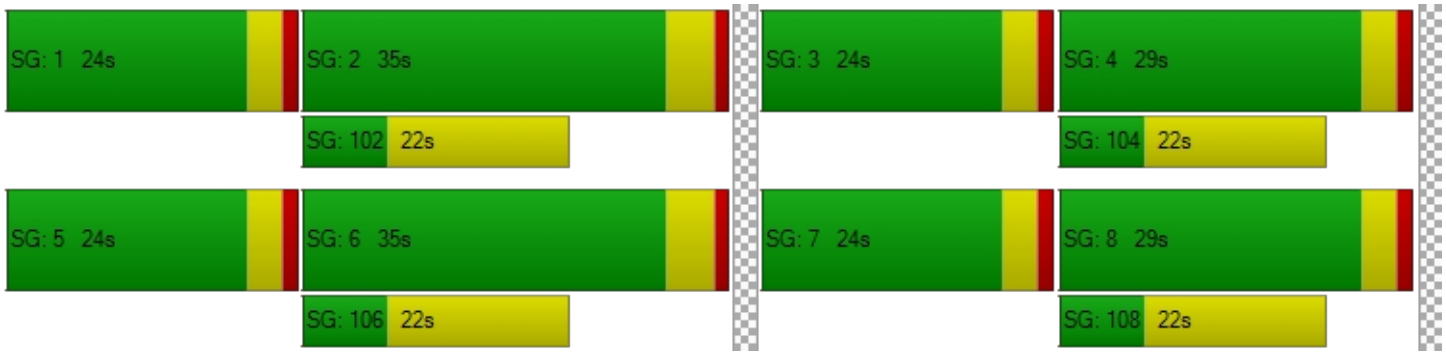
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 105.25 | 102.26 | 20.95 | 12.52 | 254.42 | 37.56 | 14.46 | 170.08 | 50.38 | 146.24 | 408.66 | 33.05 |
| Stops [stops/h] | 148.39 | 77.80 | 15.89 | 23.40 | 327.94 | 44.37 | 25.74 | 229.18 | 66.92 | 107.99 | 235.83 | 17.42 |
| Fuel consumption [US gal/h] | 6.36 | 4.88 | 1.00 | 0.79 | 13.97 | 2.01 | 0.98 | 10.06 | 2.95 | 7.03 | 18.29 | 1.45 |
| CO [g/h] | 444.62 | 340.97 | 69.63 | 54.89 | 976.38 | 140.47 | 68.60 | 703.46 | 206.47 | 491.68 | 1278.32 | 101.12 |
| NOx [g/h] | 86.51 | 66.34 | 13.55 | 10.68 | 189.97 | 27.33 | 13.35 | 136.87 | 40.17 | 95.66 | 248.71 | 19.67 |
| VOC [g/h] | 103.04 | 79.02 | 16.14 | 12.72 | 226.29 | 32.55 | 15.90 | 163.03 | 47.85 | 113.95 | 296.26 | 23.44 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 13.95 | 13.95 | 13.95 | 13.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.712 | 2.558 | 2.700 | 2.765 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1268 | 1268 | 1056 | 1056 |
| d_b, Bicycle Delay [s] | 3.17 | 3.17 | 5.27 | 5.27 |
| l_b,int, Bicycle LOS Score for Intersection | 1.937 | 2.061 | 1.948 | 2.044 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.867 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 383 | 427 | 134 | 63 | 822 | 79 | 23 | 331 | 185 | 146 | 409 | 41 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 3.90 | 3.40 | 4.10 | 2.20 | 2.60 | 0.00 | 1.10 | 1.40 | 1.70 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 383 | 427 | 134 | 63 | 822 | 79 | 23 | 331 | 185 | 146 | 409 | 41 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 104 | 116 | 36 | 17 | 223 | 21 | 6 | 90 | 50 | 40 | 111 | 11 |
| Total Analysis Volume [veh/h] | 416 | 464 | 146 | 68 | 893 | 86 | 25 | 360 | 201 | 159 | 445 | 45 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 1 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 1 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 1 | | | 0 | | | 2 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 43 | 43 | 8 | 29 | 29 | 5 | 23 | 23 | 11 | 30 | 30 |
| g / C, Green / Cycle | 0.21 | 0.42 | 0.42 | 0.08 | 0.29 | 0.29 | 0.05 | 0.23 | 0.23 | 0.11 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.13 | 0.09 | 0.04 | 0.25 | 0.05 | 0.01 | 0.19 | 0.13 | 0.09 | 0.24 | 0.03 |
| s, saturation flow rate [veh/h] | 1792 | 3506 | 1562 | 1751 | 3555 | 1580 | 1810 | 1883 | 1595 | 1785 | 1885 | 1612 |
| c, Capacity [veh/h] | 374 | 1489 | 663 | 134 | 1040 | 462 | 82 | 436 | 369 | 195 | 556 | 475 |
| d1, Uniform Delay [s] | 39.88 | 19.23 | 18.39 | 44.72 | 33.68 | 26.67 | 46.56 | 36.81 | 34.06 | 43.90 | 32.79 | 25.76 |
| k, delay calibration | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.16 | 0.11 | 0.11 | 0.26 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 80.97 | 0.12 | 0.17 | 2.97 | 2.20 | 0.19 | 2.06 | 5.87 | 1.26 | 8.09 | 6.41 | 0.09 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.11 | 0.31 | 0.22 | 0.51 | 0.86 | 0.19 | 0.30 | 0.83 | 0.54 | 0.82 | 0.80 | 0.09 |
| d, Delay for Lane Group [s/veh] | 120.85 | 19.35 | 18.56 | 47.69 | 35.88 | 26.86 | 48.62 | 42.68 | 35.32 | 51.99 | 39.20 | 25.85 |
| Lane Group LOS | F | B | B | D | D | C | D | D | D | D | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 17.15 | 3.37 | 2.04 | 1.73 | 10.39 | 1.56 | 0.65 | 8.99 | 4.41 | 4.16 | 10.39 | 0.76 |
| 50th-Percentile Queue Length [ft/ln] | 428.79 | 84.22 | 51.09 | 43.31 | 259.73 | 39.02 | 16.25 | 224.74 | 110.15 | 104.03 | 259.86 | 18.96 |
| 95th-Percentile Queue Length [veh/ln] | 25.35 | 6.06 | 3.68 | 3.12 | 15.68 | 2.81 | 1.17 | 13.91 | 7.85 | 7.49 | 15.68 | 1.37 |
| 95th-Percentile Queue Length [ft/ln] | 633.72 | 151.60 | 91.96 | 77.95 | 391.88 | 70.23 | 29.26 | 347.67 | 196.22 | 187.25 | 392.04 | 34.14 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 120.85 | 19.35 | 18.56 | 47.69 | 35.88 | 26.86 | 48.62 | 42.68 | 35.32 | 51.99 | 39.20 | 25.85 |
| Movement LOS | F | B | B | D | D | C | D | D | D | D | D | C |
| d_A, Approach Delay [s/veh] | 60.39 | | | 35.91 | | | 40.41 | | | 41.41 | | |
| Approach LOS | E | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 45.38 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.867 | | | | | | | | | | | |

**Emissions**

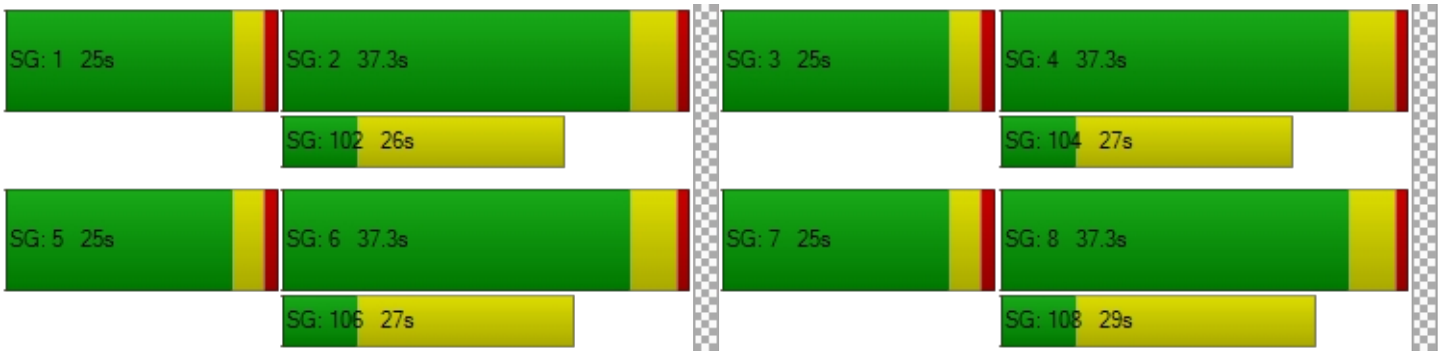
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 83.15 | 92.75 | 29.18 | 33.92 | 445.44 | 42.90 | 12.32 | 177.40 | 99.05 | 16.42 | 45.94 | 4.65 |
| Stops [stops/h] | 613.86 | 241.14 | 73.14 | 62.00 | 743.65 | 55.86 | 23.27 | 321.74 | 157.70 | 148.93 | 372.01 | 27.15 |
| Fuel consumption [US gal/h] | 20.71 | 8.00 | 2.46 | 2.40 | 28.97 | 2.54 | 0.88 | 12.21 | 6.39 | 4.10 | 9.75 | 0.73 |
| CO [g/h] | 1447.77 | 559.50 | 172.03 | 167.67 | 2024.71 | 177.87 | 61.72 | 853.27 | 446.89 | 286.34 | 681.51 | 51.27 |
| NOx [g/h] | 281.68 | 108.86 | 33.47 | 32.62 | 393.94 | 34.61 | 12.01 | 166.02 | 86.95 | 55.71 | 132.60 | 9.98 |
| VOC [g/h] | 335.54 | 129.67 | 39.87 | 38.86 | 469.25 | 41.22 | 14.30 | 197.75 | 103.57 | 66.36 | 157.95 | 11.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.89 | 39.89 | 39.89 | 39.89 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.014 | 2.819 | 2.604 | 2.583 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 636 | 636 | 636 | 636 |
| d_b, Bicycle Delay [s] | 23.38 | 23.38 | 23.38 | 23.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.406 | 2.423 | 2.527 | 2.630 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.831 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 312 | 908 | 0 | 0 | 474 | 730 | 0 | 0 | 0 | 213 | 0 | 18 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 27.00 | 1.70 | 2.00 | 2.00 | 1.80 | 0.20 | 2.00 | 2.00 | 2.00 | 1.20 | 2.00 | 3.40 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 312 | 908 | 0 | 0 | 474 | 730 | 0 | 0 | 0 | 213 | 0 | 18 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 85 | 247 | 0 | 0 | 129 | 198 | 0 | 0 | 0 | 58 | 0 | 5 |
| Total Analysis Volume [veh/h] | 339 | 987 | 0 | 0 | 515 | 793 | 0 | 0 | 0 | 232 | 0 | 20 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | R | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 92 | 92 | 92 | 92 | | 92 | 92 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 14 | 64 | 45 | 45 | | 15 | 15 |
| g / C, Green / Cycle | 0.15 | 0.70 | 0.49 | 0.49 | | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.28 | 0.14 | 0.50 | | 0.13 | 0.01 |
| s, saturation flow rate [veh/h] | 2765 | 3569 | 3566 | 1592 | | 1792 | 1572 |
| c, Capacity [veh/h] | 408 | 2483 | 1734 | 774 | | 292 | 256 |
| d1, Uniform Delay [s] | 38.31 | 5.93 | 14.27 | 23.49 | | 37.25 | 32.84 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.46 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.69 | 0.19 | 0.18 | 37.12 | | 9.97 | 0.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.40 | 0.30 | 1.02 | | 0.79 | 0.08 |
| d, Delay for Lane Group [s/veh] | 40.00 | 6.12 | 14.45 | 60.61 | | 47.22 | 33.12 |
| Lane Group LOS | D | A | B | F | | D | C |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.64 | 2.96 | 2.93 | 22.29 | | 5.47 | 0.37 |
| 50th-Percentile Queue Length [ft/ln] | 90.91 | 74.00 | 73.32 | 557.31 | | 136.67 | 9.34 |
| 95th-Percentile Queue Length [veh/ln] | 6.55 | 5.33 | 5.28 | 30.59 | | 9.30 | 0.67 |
| 95th-Percentile Queue Length [ft/ln] | 163.63 | 133.19 | 131.98 | 764.84 | | 232.53 | 16.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.00 | 6.12 | 0.00 | 0.00 | 14.45 | 60.61 | 0.00 | 0.00 | 0.00 | 47.22 | 0.00 | 33.12 |
| Movement LOS | D | A | | | B | F | | | | D | | C |
| d_A, Approach Delay [s/veh] | 14.78 | | | 42.43 | | | 0.00 | | | 46.10 | | |
| Approach LOS | B | | | D | | | A | | | D | | |
| d_I, Intersection Delay [s/veh] | 30.05 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.831 | | | | | | | | | | | |

**Emissions**

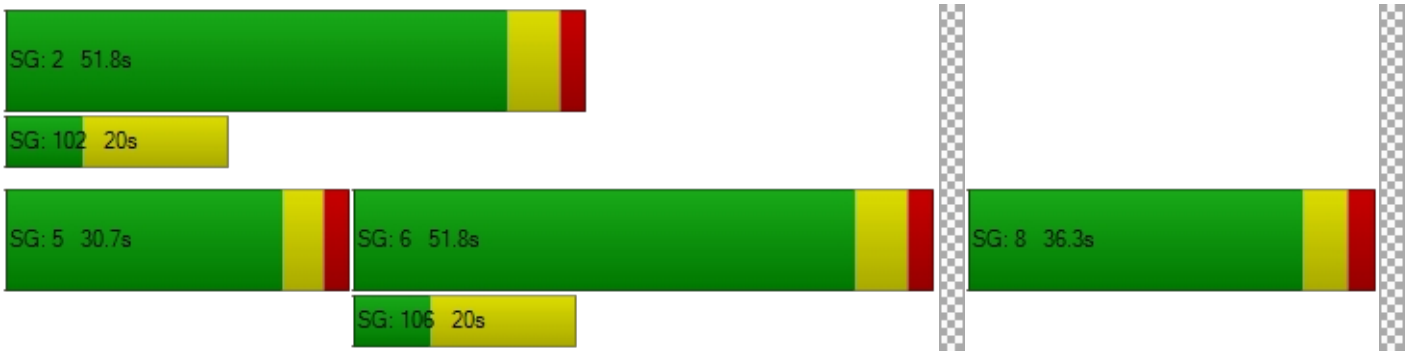
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.65 | 106.69 | 102.94 | 158.51 | | 19.94 | 1.72 |
| Stops [stops/h] | 283.32 | 230.61 | 228.52 | 868.46 | | 212.98 | 14.56 |
| Fuel consumption [US gal/h] | 7.54 | 7.75 | 7.88 | 26.01 | | 6.85 | 0.46 |
| CO [g/h] | 526.92 | 541.99 | 551.10 | 1818.21 | | 478.95 | 32.34 |
| NOx [g/h] | 102.52 | 105.45 | 107.22 | 353.76 | | 93.19 | 6.29 |
| VOC [g/h] | 122.12 | 125.61 | 127.72 | 421.39 | | 111.00 | 7.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.54 | 43.54 | 35.86 | 35.86 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.967 | 2.986 | 2.268 | 1.941 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 974 | 974 | 0 | 649 |
| d_b, Bicycle Delay [s] | 12.16 | 12.17 | 46.20 | 21.07 |
| l_b,int, Bicycle LOS Score for Intersection | 2.654 | 2.639 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.713 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1178 | 92 | 10 | 710 | 0 | 302 | 0 | 389 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.50 | 3.30 | 6.30 | 1.40 | 2.00 | 2.50 | 2.00 | 1.50 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1178 | 92 | 10 | 710 | 0 | 302 | 0 | 389 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 320 | 25 | 3 | 193 | 0 | 82 | 0 | 106 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1280 | 100 | 11 | 772 | 0 | 328 | 0 | 423 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 0 | | | 0 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 51 | 51 | 2 | 58 | 29 | 29 | |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.02 | 0.58 | 0.29 | 0.29 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.37 | 0.38 | 0.01 | 0.22 | 0.10 | 0.27 | |
| s, saturation flow rate [veh/h] | 1877 | 1830 | 1719 | 3578 | 3445 | 1596 | |
| c, Capacity [veh/h] | 956 | 932 | 29 | 2086 | 991 | 459 | |
| d1, Uniform Delay [s] | 19.02 | 19.31 | 48.60 | 11.07 | 28.01 | 34.48 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.38 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 4.70 | 5.27 | 3.05 | 0.51 | 0.41 | 21.67 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.74 | 0.38 | 0.37 | 0.33 | 0.92 | |
| d, Delay for Lane Group [s/veh] | 23.72 | 24.59 | 51.65 | 11.58 | 28.42 | 56.16 | |
| Lane Group LOS | C | C | D | B | C | E | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 12.46 | 12.75 | 0.29 | 4.09 | 2.91 | 11.83 | |
| 50th-Percentile Queue Length [ft/ln] | 311.57 | 318.80 | 7.18 | 102.31 | 72.78 | 295.69 | |
| 95th-Percentile Queue Length [veh/ln] | 18.25 | 18.61 | 0.52 | 7.37 | 5.24 | 17.47 | |
| 95th-Percentile Queue Length [ft/ln] | 456.31 | 465.21 | 12.93 | 184.15 | 131.01 | 436.70 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 24.12 | 24.59 | 51.65 | 11.58 | 0.00 | 28.42 | 0.00 | 56.16 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | E | | | |
| d_A, Approach Delay [s/veh] | 24.15 | | | 12.14 | | | 44.04 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 26.05 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.713 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.79 | 45.79 | 1.19 | 83.45 | 38.98 | 50.27 | |
| Stops [stops/h] | 448.86 | 459.28 | 10.35 | 294.77 | 209.71 | 425.99 | |
| Fuel consumption [US gal/h] | 9.38 | 9.60 | 0.29 | 8.34 | 7.10 | 14.43 | |
| CO [g/h] | 655.69 | 671.33 | 19.92 | 583.26 | 496.05 | 1008.49 | |
| NOx [g/h] | 127.57 | 130.62 | 3.88 | 113.48 | 96.51 | 196.22 | |
| VOC [g/h] | 151.96 | 155.59 | 4.62 | 135.18 | 114.96 | 233.73 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.954 | 2.985 | 2.392 | 1.774 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.698 | 2.206 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.031 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 11 | 0 | 265 | 10 | 5 | 394 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 11 | 0 | 265 | 10 | 5 | 394 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 0 | 72 | 3 | 1 | 107 |
| Total Analysis Volume [veh/h] | 12 | 0 | 288 | 11 | 5 | 428 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.61 | 10.13 | 0.00 | 0.00 | 7.86 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 2.40 | 2.40 | 0.00 | 0.00 | 0.21 | 0.21 |
| d_A, Approach Delay [s/veh] | 14.61 | | 0.00 | | 0.09 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.29 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 27.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.053 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 8 | 27 | 16 | 506 | 833 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 3.30 | 2.70 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 27 | 16 | 506 | 833 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 7 | 4 | 138 | 226 | 3 |
| Total Analysis Volume [veh/h] | 9 | 29 | 17 | 550 | 905 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.05 | 0.02 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 27.58 | 12.77 | 9.99 | 0.00 | 0.00 | 0.00 |
| Movement LOS | D | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.35 | 0.35 | 0.07 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.85 | 8.85 | 1.76 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.28 | | 0.30 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.52 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.178 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 20 | 544 | 37 | 7 | 786 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.20 | 0.00 | 2.40 | 0.00 | 2.00 | 1.40 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 20 | 544 | 37 | 7 | 786 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 5 | 148 | 10 | 2 | 214 |
| Total Analysis Volume [veh/h] | 40 | 22 | 591 | 40 | 8 | 854 |
| Pedestrian Volume [ped/h] | 4 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.18 | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 24.18 | 13.33 | 0.00 | 0.00 | 8.86 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.77 | 0.77 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 19.32 | 19.32 | 0.00 | 0.00 | 0.64 | 0.00 |
| d_A, Approach Delay [s/veh] | 20.33 | | 0.00 | | 0.08 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.86 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.578 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 104 | 308 | 49 | 16 | 136 | 2 | 57 | 398 | 145 | 176 | 488 | 23 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 28.00 | 0.00 | 7.50 | 0.00 | 0.00 | 0.00 | 5.00 | 3.40 | 0.80 | 4.00 | 1.80 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 104 | 308 | 49 | 16 | 136 | 2 | 57 | 398 | 145 | 176 | 488 | 23 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 84 | 13 | 4 | 37 | 1 | 15 | 108 | 39 | 48 | 133 | 6 |
| Total Analysis Volume [veh/h] | 113 | 335 | 53 | 17 | 148 | 2 | 62 | 433 | 158 | 191 | 530 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 18 | 18 | 18 | 13 | 13 | 7 | 19 | 19 | 11 | 23 | 23 |
| g / C, Green / Cycle | 0.24 | 0.24 | 0.24 | 0.17 | 0.17 | 0.09 | 0.24 | 0.24 | 0.15 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.18 | 0.03 | 0.01 | 0.08 | 0.04 | 0.12 | 0.10 | 0.11 | 0.15 | 0.02 |
| s, saturation flow rate [veh/h] | 1409 | 1900 | 1519 | 1810 | 1896 | 1738 | 3520 | 1603 | 1752 | 3566 | 1615 |
| c, Capacity [veh/h] | 337 | 454 | 363 | 300 | 314 | 156 | 851 | 387 | 255 | 1061 | 480 |
| d1, Uniform Delay [s] | 24.21 | 27.04 | 23.08 | 27.03 | 29.08 | 33.04 | 25.22 | 24.53 | 31.51 | 22.30 | 19.28 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.22 | 0.89 | 0.07 | 0.17 | 2.40 | 0.61 | 1.01 | 1.47 | 1.66 | 0.78 | 0.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.34 | 0.74 | 0.15 | 0.06 | 0.48 | 0.40 | 0.51 | 0.41 | 0.75 | 0.50 | 0.05 |
| d, Delay for Lane Group [s/veh] | 24.43 | 27.93 | 23.15 | 27.20 | 31.49 | 33.64 | 26.22 | 26.00 | 33.17 | 23.08 | 19.38 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | B |
| Critical Lane Group | No | Yes | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.66 | 5.54 | 0.74 | 0.27 | 2.64 | 1.03 | 3.17 | 2.33 | 3.21 | 3.60 | 0.30 |
| 50th-Percentile Queue Length [ft/ln] | 41.48 | 138.46 | 18.49 | 6.74 | 65.89 | 25.74 | 79.33 | 58.16 | 80.24 | 89.94 | 7.42 |
| 95th-Percentile Queue Length [veh/ln] | 2.99 | 9.40 | 1.33 | 0.49 | 4.74 | 1.85 | 5.71 | 4.19 | 5.78 | 6.48 | 0.53 |
| 95th-Percentile Queue Length [ft/ln] | 74.67 | 234.95 | 33.28 | 12.13 | 118.60 | 46.33 | 142.79 | 104.68 | 144.43 | 161.89 | 13.36 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.43 | 27.93 | 23.15 | 27.20 | 31.49 | 31.49 | 33.64 | 26.22 | 26.00 | 33.17 | 23.08 | 19.38 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 26.63 | | | 31.05 | | | 26.87 | | | 25.54 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.67 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.578 | | | | | | | | | | | |

**Emissions**

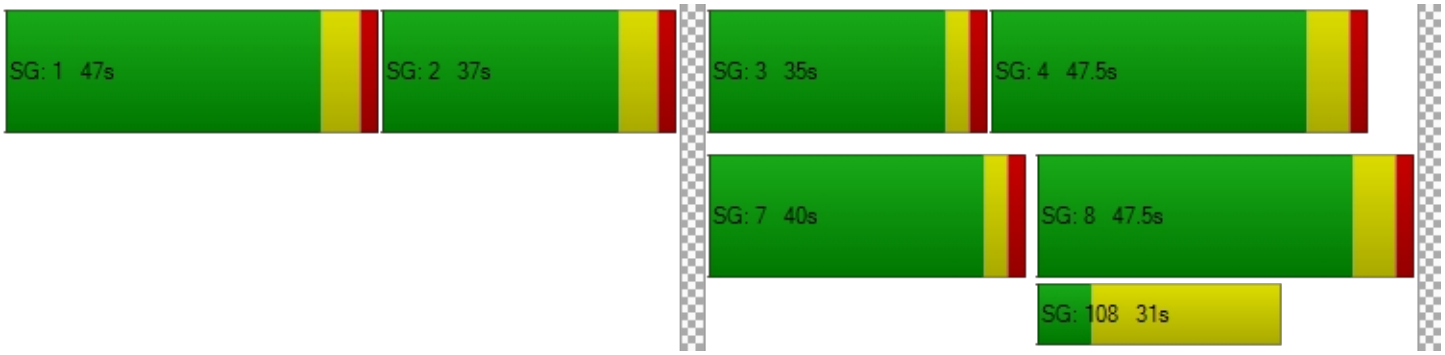
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 112.60 | 333.81 | 52.81 | 0.48 | 4.22 | 22.86 | 159.67 | 58.26 | 96.50 | 267.77 | 12.63 |
| Stops [stops/h] | 77.86 | 259.86 | 34.70 | 12.64 | 123.66 | 48.31 | 297.75 | 109.15 | 150.59 | 337.59 | 13.93 |
| Fuel consumption [US gal/h] | 5.63 | 17.08 | 2.62 | 0.18 | 1.82 | 1.93 | 12.23 | 4.46 | 6.83 | 16.64 | 0.74 |
| CO [g/h] | 393.34 | 1193.97 | 182.82 | 12.84 | 127.08 | 135.03 | 854.77 | 311.94 | 477.58 | 1163.01 | 51.40 |
| NOx [g/h] | 76.53 | 232.30 | 35.57 | 2.50 | 24.73 | 26.27 | 166.31 | 60.69 | 92.92 | 226.28 | 10.00 |
| VOC [g/h] | 91.16 | 276.71 | 42.37 | 2.98 | 29.45 | 31.29 | 198.10 | 72.29 | 110.68 | 269.54 | 11.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.15 | 32.14 | 31.68 | 31.68 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.486 | 2.128 | 2.891 | 2.787 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1043 | 782 | 1043 | 1043 |
| d_b, Bicycle Delay [s] | 8.79 | 14.23 | 8.79 | 8.79 |
| l_b,int, Bicycle LOS Score for Intersection | 2.386 | 1.835 | 2.098 | 2.175 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.501 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 54 | 411 | 25 | 5 | 738 | 198 | 101 | 92 | 99 | 11 | 264 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.10 | 3.20 | 0.00 | 0.00 | 0.90 | 1.50 | 1.30 | 5.00 | 1.70 | 1.10 | 1.10 | 16.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 54 | 411 | 25 | 5 | 738 | 198 | 101 | 92 | 99 | 11 | 264 | 15 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 112 | 7 | 1 | 201 | 54 | 27 | 25 | 27 | 3 | 72 | 4 |
| Total Analysis Volume [veh/h] | 59 | 447 | 27 | 5 | 802 | 215 | 110 | 100 | 108 | 12 | 287 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 25 | 25 | 1 | 20 | 20 | 8 | 15 | 15 | 2 | 9 | 9 |
| g / C, Green / Cycle | 0.10 | 0.43 | 0.43 | 0.01 | 0.34 | 0.34 | 0.13 | 0.26 | 0.26 | 0.03 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.13 | 0.02 | 0.00 | 0.22 | 0.13 | 0.06 | 0.03 | 0.07 | 0.01 | 0.08 | 0.01 |
| s, saturation flow rate [veh/h] | 1765 | 3526 | 1612 | 1810 | 3592 | 1594 | 1791 | 3475 | 1593 | 1794 | 3586 | 1399 |
| c, Capacity [veh/h] | 169 | 1502 | 687 | 22 | 1231 | 547 | 230 | 909 | 417 | 50 | 577 | 225 |
| d1, Uniform Delay [s] | 24.85 | 11.07 | 9.84 | 28.72 | 16.32 | 14.65 | 23.76 | 16.48 | 17.17 | 27.94 | 22.47 | 20.91 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.46 | 0.15 | 0.03 | 1.89 | 0.78 | 0.61 | 0.57 | 0.07 | 0.41 | 0.93 | 0.83 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.35 | 0.30 | 0.04 | 0.23 | 0.65 | 0.39 | 0.48 | 0.11 | 0.26 | 0.24 | 0.50 | 0.07 |
| d, Delay for Lane Group [s/veh] | 25.31 | 11.22 | 9.87 | 30.61 | 17.11 | 15.27 | 24.33 | 16.55 | 17.58 | 28.87 | 23.30 | 21.08 |
| Lane Group LOS | C | B | A | C | B | B | C | B | B | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.69 | 1.45 | 0.16 | 0.07 | 3.70 | 1.81 | 1.36 | 0.48 | 1.11 | 0.16 | 1.64 | 0.17 |
| 50th-Percentile Queue Length [ft/ln] | 17.23 | 36.33 | 3.96 | 1.83 | 92.56 | 45.27 | 34.05 | 11.96 | 27.63 | 4.02 | 41.03 | 4.34 |
| 95th-Percentile Queue Length [veh/ln] | 1.24 | 2.62 | 0.29 | 0.13 | 6.66 | 3.26 | 2.45 | 0.86 | 1.99 | 0.29 | 2.95 | 0.31 |
| 95th-Percentile Queue Length [ft/ln] | 31.01 | 65.39 | 7.13 | 3.30 | 166.61 | 81.48 | 61.28 | 21.54 | 49.74 | 7.24 | 73.85 | 7.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.31 | 11.22 | 9.87 | 30.61 | 17.11 | 15.27 | 24.33 | 16.55 | 17.58 | 28.87 | 23.30 | 21.08 |
| Movement LOS | C | B | A | C | B | B | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 12.71 | | | 16.79 | | | 19.59 | | | 23.40 | | |
| Approach LOS | B | | | B | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 17.15 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.501 | | | | | | | | | | | |

**Emissions**

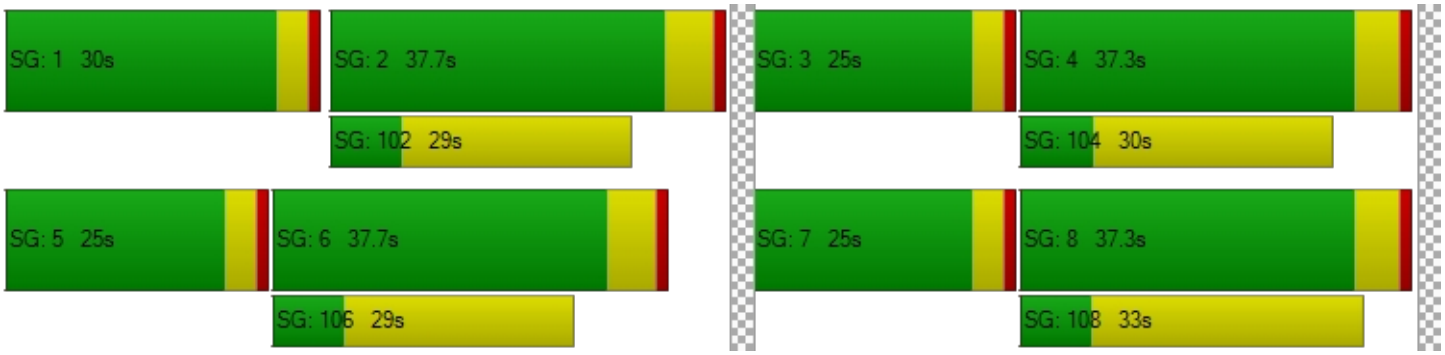
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.01 | 204.61 | 12.36 | 4.98 | 799.14 | 214.23 | 110.18 | 100.16 | 108.18 | 6.02 | 143.96 | 8.03 |
| Stops [stops/h] | 42.33 | 178.52 | 9.74 | 4.50 | 454.84 | 111.22 | 83.65 | 58.79 | 67.89 | 9.89 | 201.61 | 10.67 |
| Fuel consumption [US gal/h] | 1.86 | 10.61 | 0.62 | 0.27 | 36.54 | 9.55 | 5.54 | 4.78 | 5.21 | 0.40 | 8.80 | 0.48 |
| CO [g/h] | 129.88 | 741.87 | 43.17 | 18.67 | 2553.86 | 667.52 | 387.42 | 334.46 | 364.50 | 27.94 | 615.28 | 33.30 |
| NOx [g/h] | 25.27 | 144.34 | 8.40 | 3.63 | 496.89 | 129.87 | 75.38 | 65.07 | 70.92 | 5.44 | 119.71 | 6.48 |
| VOC [g/h] | 30.10 | 171.94 | 10.00 | 4.33 | 591.88 | 154.70 | 89.79 | 77.52 | 84.48 | 6.48 | 142.60 | 7.72 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.34 | 19.34 | 19.34 | 19.34 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.823 | 2.861 | 2.572 | 2.663 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1092 | 1092 | 1092 | 1092 |
| d_b, Bicycle Delay [s] | 6.04 | 6.04 | 6.04 | 6.04 |
| l_b,int, Bicycle LOS Score for Intersection | 1.999 | 2.403 | 1.822 | 1.819 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 20.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 258 | 317 | 483 | 88 | 625 | 97 | 10 | 111 | 187 | 613 | 129 | 79 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 5.70 | 1.90 | 3.40 | 1.40 | 0.00 | 5.00 | 2.90 | 0.90 | 3.50 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 258 | 317 | 483 | 88 | 625 | 97 | 10 | 111 | 187 | 613 | 129 | 79 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 70 | 86 | 131 | 24 | 170 | 26 | 3 | 30 | 51 | 167 | 35 | 21 |
| Total Analysis Volume [veh/h] | 280 | 345 | 525 | 96 | 679 | 105 | 11 | 121 | 203 | 666 | 140 | 86 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 235 | | | 1115 | | | 1477 | | | 662 | | |
| Exiting Flow Rate [veh/h] | 1583 | | | 462 | | | 531 | | | 759 | | |
| Demand Flow Rate [veh/h] | 258 | 317 | 483 | 88 | 625 | 97 | 10 | 111 | 187 | 613 | 129 | 79 |
| Adjusted Demand Flow Rate [veh/h] | 280 | 345 | 525 | 96 | 679 | 105 | 11 | 121 | 203 | 666 | 140 | 86 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.96 | 0.97 | 0.98 | 0.99 | 0.97 | 0.99 | 0.97 | 0.97 |
| Entry Flow Rate [veh/h] | 563 | 631 | 421 | 473 | 137 | 205 | 490 | 431 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1147 | 1147 | 485 | 551 | 347 | 405 | 735 | 810 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1102 | 1108 | 477 | 544 | 337 | 401 | 710 | 789 |
| X, volume / capacity | 0.49 | 0.55 | 0.87 | 0.86 | 0.39 | 0.51 | 0.67 | 0.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | E | E | C | C | C | B |
| 95th-Percentile Queue Length [veh] | 2.78 | 3.48 | 9.14 | 9.24 | 1.81 | 2.77 | 5.11 | 3.19 |
| 95th-Percentile Queue Length [ft] | 69.55 | 86.88 | 228.53 | 231.04 | 45.21 | 69.17 | 127.71 | 79.63 |
| Approach Delay [s/veh] | 9.40 | | 41.29 | | 19.98 | | 15.28 | |
| Approach LOS | A | | E | | C | | C | |
| Intersection Delay [s/veh] | 20.71 | | | | | | | |
| Intersection LOS | C | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.613 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 909 | 604 | 0 | 733 | 680 | 0 | 0 | 0 | 48 | 0 | 118 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.40 | 1.60 | 2.00 | 2.60 | 0.20 | 2.00 | 2.00 | 2.00 | 2.90 | 2.00 | 1.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 909 | 604 | 0 | 733 | 680 | 0 | 0 | 0 | 48 | 0 | 118 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 247 | 164 | 0 | 199 | 185 | 0 | 0 | 0 | 13 | 0 | 32 |
| Total Analysis Volume [veh/h] | 0 | 988 | 657 | 0 | 797 | 739 | 0 | 0 | 0 | 52 | 0 | 128 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 49 | 49 | 49 | | 49 | 49 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 29 | 29 | 29 | | 7 | 7 |
| g / C, Green / Cycle | 0.59 | 0.59 | 0.59 | | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.22 | 0.46 | | 0.03 | 0.08 |
| s, saturation flow rate [veh/h] | 3549 | 3543 | 1612 | | 1768 | 1592 |
| c, Capacity [veh/h] | 2112 | 2108 | 959 | | 263 | 237 |
| d1, Uniform Delay [s] | 5.63 | 5.24 | 7.50 | | 18.51 | 19.53 |
| k, delay calibration | 0.20 | 0.20 | 0.24 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.21 | 2.98 | | 0.78 | 4.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.38 | 0.77 | | 0.20 | 0.54 |
| d, Delay for Lane Group [s/veh] | 5.94 | 5.45 | 10.49 | | 19.28 | 23.58 |
| Lane Group LOS | A | A | B | | B | C |
| Critical Lane Group | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.46 | 1.09 | 3.53 | | 0.47 | 1.34 |
| 50th-Percentile Queue Length [ft/ln] | 36.53 | 27.31 | 88.26 | | 11.71 | 33.41 |
| 95th-Percentile Queue Length [veh/ln] | 2.63 | 1.97 | 6.35 | | 0.84 | 2.41 |
| 95th-Percentile Queue Length [ft/ln] | 65.76 | 49.15 | 158.86 | | 21.09 | 60.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.94 | 0.00 | 0.00 | 5.45 | 10.49 | 0.00 | 0.00 | 0.00 | 19.28 | 0.00 | 23.58 |
| Movement LOS | | A | | | A | B | | | | B | | C |
| d_A, Approach Delay [s/veh] | 3.68 | | | 7.87 | | | 0.00 | | | 22.34 | | |
| Approach LOS | A | | | A | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 7.31 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.613 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 113.02 | 78.63 | 72.91 | | 3.68 | 9.06 |
| Stops [stops/h] | 212.57 | 158.89 | 256.78 | | 34.08 | 97.20 |
| Fuel consumption [US gal/h] | 7.71 | 5.56 | 7.27 | | 0.96 | 2.72 |
| CO [g/h] | 538.96 | 388.32 | 508.09 | | 67.12 | 190.31 |
| NOx [g/h] | 104.86 | 75.55 | 98.86 | | 13.06 | 37.03 |
| VOC [g/h] | 124.91 | 90.00 | 117.76 | | 15.56 | 44.11 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.74 | 21.74 | 14.97 | 14.97 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.818 | 3.056 | 2.041 | 2.013 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1414 | 1414 | 0 | 808 |
| d_b, Bicycle Delay [s] | 2.12 | 2.12 | 24.75 | 8.79 |
| l_b,int, Bicycle LOS Score for Intersection | 2.375 | 2.827 | 4.132 | 1.560 |
| Bicycle LOS | B | C | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.646 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1179 | 34 | 24 | 754 | 0 | 311 | 0 | 744 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.80 | 0.00 | 3.60 | 1.30 | 2.00 | 4.20 | 2.00 | 1.40 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1179 | 34 | 24 | 754 | 0 | 311 | 0 | 744 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 320 | 9 | 7 | 205 | 0 | 85 | 0 | 202 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1282 | 37 | 26 | 820 | 0 | 338 | 0 | 809 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 70 | 70 | 70 | 70 | 70 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | |
| g_i, Effective Green Time [s] | 33 | 33 | 2 | 41 | 17 | |
| g / C, Green / Cycle | 0.47 | 0.47 | 0.03 | 0.58 | 0.24 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.35 | 0.36 | 0.01 | 0.23 | 0.19 | |
| s, saturation flow rate [veh/h] | 1873 | 1855 | 1758 | 3580 | 1749 | |
| c, Capacity [veh/h] | 871 | 863 | 60 | 2078 | 423 | |
| d1, Uniform Delay [s] | 15.53 | 15.62 | 33.31 | 8.03 | 25.06 | |
| k, delay calibration | 0.19 | 0.19 | 0.04 | 0.19 | 0.23 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 2.43 | 2.57 | 1.81 | 0.22 | 7.22 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.76 | 0.43 | 0.39 | 0.80 | |
| d, Delay for Lane Group [s/veh] | 17.96 | 18.19 | 35.12 | 8.25 | 32.29 | |
| Lane Group LOS | B | B | D | A | C | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 7.58 | 7.65 | 0.43 | 2.52 | 5.36 | |
| 50th-Percentile Queue Length [ft/ln] | 189.59 | 191.25 | 10.84 | 63.03 | 134.10 | |
| 95th-Percentile Queue Length [veh/ln] | 12.10 | 12.19 | 0.78 | 4.54 | 9.16 | |
| 95th-Percentile Queue Length [ft/ln] | 302.50 | 304.65 | 19.51 | 113.45 | 229.05 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 18.07 | 18.19 | 35.12 | 8.25 | 0.00 | 32.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | D | A | | C | | | | | |
| d_A, Approach Delay [s/veh] | 18.07 | | | 9.08 | | | 32.29 | | | 0.00 | | |
| Approach LOS | B | | | A | | | C | | | A | | |
| d_I, Intersection Delay [s/veh] | 16.95 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.646 | | | | | | | | | | | |

**Emissions**

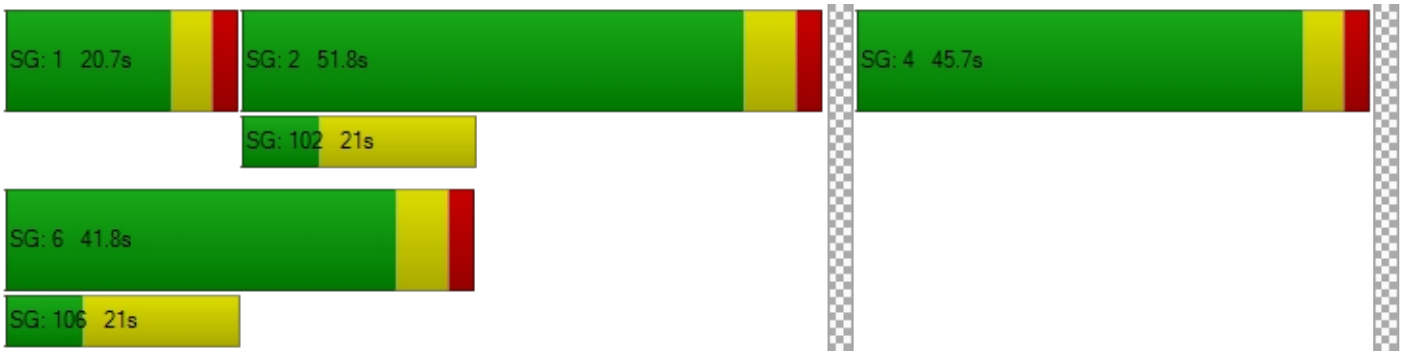
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 53.42 | 53.42 | 2.97 | 93.80 | 26.43 | |
| Stops [stops/h] | 388.67 | 392.06 | 22.22 | 258.41 | 274.90 | |
| Fuel consumption [US gal/h] | 9.07 | 9.15 | 0.56 | 7.81 | 8.21 | |
| CO [g/h] | 634.30 | 639.37 | 39.43 | 545.59 | 573.95 | |
| NOx [g/h] | 123.41 | 124.40 | 7.67 | 106.15 | 111.67 | |
| VOC [g/h] | 147.01 | 148.18 | 9.14 | 126.45 | 133.02 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.12 | 35.12 | 24.98 | 24.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.913 | 3.054 | 2.003 | 1.732 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1281 | 997 | 1139 | 0 |
| d_b, Bicycle Delay [s] | 4.54 | 8.84 | 6.51 | 35.12 |
| l_b,int, Bicycle LOS Score for Intersection | 2.648 | 2.258 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.641 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 175 | 0 | 17 | 142 | 270 | 11 | 60 | 362 | 41 | 6 | 420 | 28 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.70 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 | 5.30 | 9.40 | 0.00 | 1.50 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 175 | 0 | 17 | 142 | 270 | 11 | 60 | 362 | 41 | 6 | 420 | 28 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 48 | 0 | 5 | 39 | 73 | 3 | 16 | 98 | 11 | 2 | 114 | 8 |
| Total Analysis Volume [veh/h] | 190 | 0 | 18 | 154 | 293 | 12 | 65 | 393 | 45 | 7 | 457 | 30 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 11 | 10 | 13 | 7 | 19 | 19 | 1 | 13 | 13 |
| g / C, Green / Cycle | 0.43 | 0.19 | 0.18 | 0.23 | 0.12 | 0.34 | 0.34 | 0.02 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.01 | 0.11 | 0.16 | 0.04 | 0.11 | 0.03 | 0.00 | 0.13 | 0.02 |
| s, saturation flow rate [veh/h] | 999 | 1481 | 1440 | 1887 | 1810 | 3466 | 1493 | 1810 | 3575 | 1615 |
| c, Capacity [veh/h] | 409 | 281 | 125 | 427 | 225 | 1170 | 504 | 37 | 835 | 377 |
| d1, Uniform Delay [s] | 18.85 | 19.19 | 21.61 | 20.62 | 22.95 | 14.29 | 13.06 | 27.80 | 19.44 | 17.28 |
| k, delay calibration | 0.15 | 0.12 | 0.04 | 0.44 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.17 | 0.10 | 111.31 | 8.69 | 0.26 | 0.26 | 0.12 | 0.89 | 0.92 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.06 | 1.23 | 0.71 | 0.29 | 0.34 | 0.09 | 0.19 | 0.55 | 0.08 |
| d, Delay for Lane Group [s/veh] | 20.03 | 19.30 | 132.92 | 29.31 | 23.21 | 14.55 | 13.18 | 28.69 | 20.36 | 17.42 |
| Lane Group LOS | C | B | F | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.96 | 0.18 | 5.27 | 4.49 | 0.71 | 1.55 | 0.33 | 0.09 | 2.33 | 0.27 |
| 50th-Percentile Queue Length [ft/ln] | 48.99 | 4.48 | 131.81 | 112.19 | 17.63 | 38.79 | 8.31 | 2.32 | 58.17 | 6.86 |
| 95th-Percentile Queue Length [veh/ln] | 3.53 | 0.32 | 9.49 | 7.96 | 1.27 | 2.79 | 0.60 | 0.17 | 4.19 | 0.49 |
| 95th-Percentile Queue Length [ft/ln] | 88.17 | 8.07 | 237.25 | 199.04 | 31.74 | 69.82 | 14.95 | 4.17 | 104.71 | 12.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.03 | 20.03 | 19.30 | 132.92 | 29.31 | 29.31 | 23.21 | 14.55 | 13.18 | 28.69 | 20.36 | 17.42 |
| Movement LOS | C | C | B | F | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 19.97 | | | 64.07 | | | 15.54 | | | 20.30 | | |
| Approach LOS | B | | | E | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 1.641 | | | | | | | | | | | |

**Emissions**

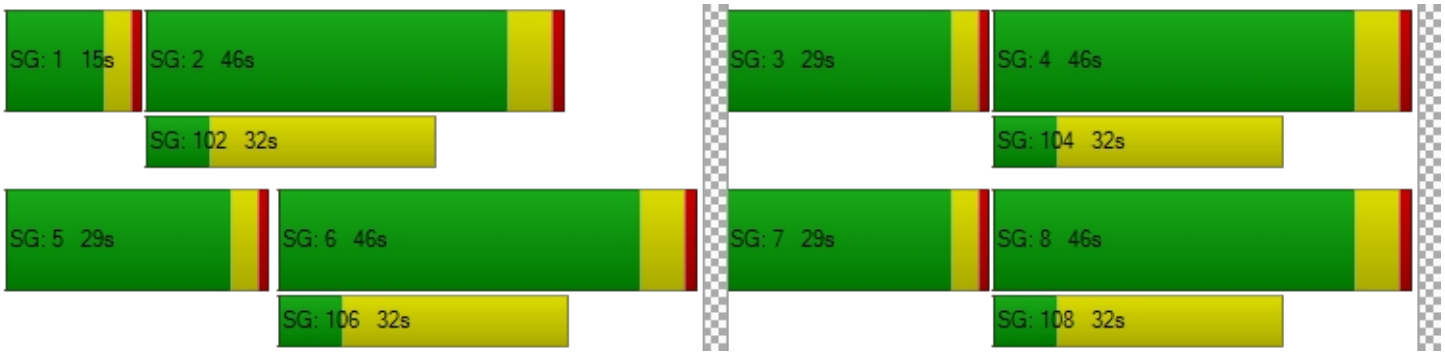
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.89 | 0.94 | 3.85 | 7.62 | 32.84 | 198.55 | 22.74 | 3.50 | 228.65 | 15.01 |
| Stops [stops/h] | 122.46 | 11.21 | 329.52 | 280.48 | 44.08 | 193.95 | 20.77 | 5.79 | 290.85 | 17.15 |
| Fuel consumption [US gal/h] | 2.64 | 0.24 | 6.14 | 3.68 | 2.08 | 10.79 | 1.20 | 0.25 | 14.02 | 0.87 |
| CO [g/h] | 184.26 | 16.93 | 429.47 | 257.40 | 145.63 | 754.21 | 83.94 | 17.27 | 979.69 | 60.97 |
| NOx [g/h] | 35.85 | 3.29 | 83.56 | 50.08 | 28.33 | 146.74 | 16.33 | 3.36 | 190.61 | 11.86 |
| VOC [g/h] | 42.70 | 3.92 | 99.53 | 59.65 | 33.75 | 174.80 | 19.45 | 4.00 | 227.05 | 14.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.85 | 18.85 | 18.85 | 18.85 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.185 | 2.095 | 2.925 | 2.934 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2396 | 1389 | 1389 | 1389 |
| d_b, Bicycle Delay [s] | 1.13 | 2.69 | 2.69 | 2.69 |
| l_b,int, Bicycle LOS Score for Intersection | 1.903 | 2.317 | 1.975 | 1.967 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.315 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 51 | 3 | 8 | 200 | 223 | 99 | 18 | 0 | 1 | 35 | 8 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 51 | 3 | 8 | 200 | 223 | 99 | 18 | 0 | 1 | 35 | 8 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 14 | 1 | 2 | 54 | 61 | 27 | 5 | 0 | 0 | 10 | 2 |
| Total Analysis Volume [veh/h] | 0 | 55 | 3 | 9 | 217 | 242 | 108 | 20 | 0 | 1 | 38 | 9 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 11 | 1 | 12 | 12 | 8 | 14 | 14 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.00 | 0.26 | 0.03 | 0.28 | 0.28 | 0.19 | 0.33 | 0.33 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.03 | 0.01 | 0.12 | 0.15 | 0.06 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 1853 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 0 | 476 | 48 | 531 | 451 | 340 | 1167 | 521 | 6 | 500 | 223 |
| d1, Uniform Delay [s] | 0.00 | 11.84 | 19.78 | 12.06 | 12.58 | 14.49 | 9.44 | 0.00 | 20.66 | 15.52 | 15.44 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 0.12 | 0.70 | 0.72 | 1.41 | 0.20 | 0.01 | 0.00 | 5.13 | 0.11 | 0.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.12 | 0.19 | 0.41 | 0.54 | 0.32 | 0.02 | 0.00 | 0.17 | 0.08 | 0.04 |
| d, Delay for Lane Group [s/veh] | 0.00 | 11.96 | 20.48 | 12.78 | 13.99 | 14.69 | 9.45 | 0.00 | 25.79 | 15.62 | 15.56 |
| Lane Group LOS | A | B | C | B | B | B | A | A | C | B | B |
| Critical Lane Group | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 0.31 | 0.08 | 1.26 | 1.51 | 0.76 | 0.05 | 0.00 | 0.02 | 0.13 | 0.06 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 7.87 | 1.96 | 31.39 | 37.84 | 18.96 | 1.26 | 0.00 | 0.40 | 3.22 | 1.62 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.57 | 0.14 | 2.26 | 2.72 | 1.37 | 0.09 | 0.00 | 0.03 | 0.23 | 0.12 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 14.17 | 3.53 | 56.50 | 68.11 | 34.13 | 2.26 | 0.00 | 0.73 | 5.80 | 2.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 11.96 | 11.96 | 20.48 | 12.78 | 13.99 | 14.69 | 9.45 | 0.00 | 25.79 | 15.62 | 15.56 |
| Movement LOS | A | B | B | C | B | B | B | A | A | C | B | B |
| d_A, Approach Delay [s/veh] | 11.96 | | | 13.55 | | | 13.87 | | | 15.82 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.64 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.315 | | | | | | | | | | | |

**Emissions**

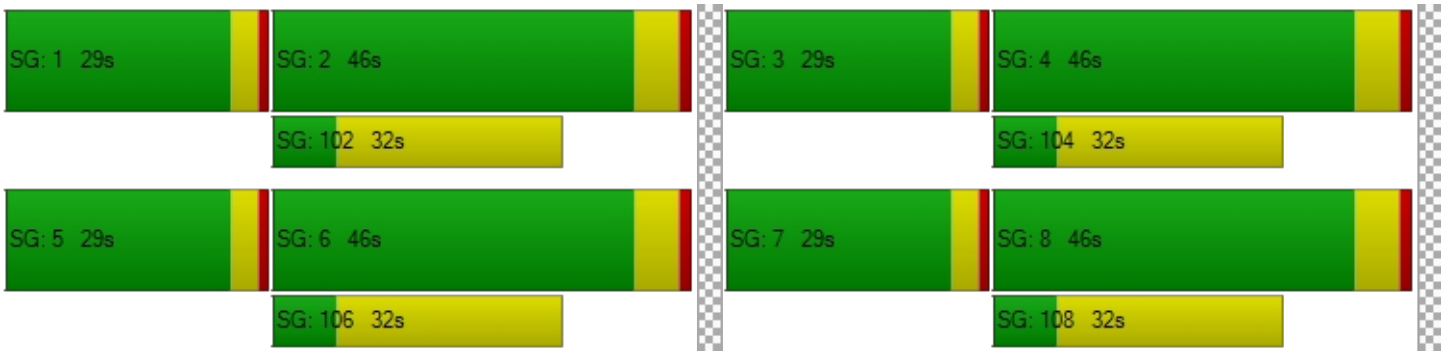
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 16.27 | 0.39 | 9.30 | 10.38 | 54.17 | 10.03 | 0.00 | 0.06 | 2.17 | 0.51 |
| Stops [stops/h] | 0.00 | 27.36 | 6.81 | 109.11 | 131.53 | 65.91 | 8.74 | 0.00 | 1.40 | 22.40 | 5.63 |
| Fuel consumption [US gal/h] | 0.00 | 1.04 | 0.14 | 2.24 | 2.68 | 2.92 | 0.50 | 0.00 | 0.02 | 0.47 | 0.12 |
| CO [g/h] | 0.00 | 72.64 | 9.47 | 156.58 | 187.34 | 203.91 | 34.93 | 0.00 | 1.72 | 33.12 | 8.12 |
| NOx [g/h] | 0.00 | 14.13 | 1.84 | 30.47 | 36.45 | 39.67 | 6.80 | 0.00 | 0.34 | 6.44 | 1.58 |
| VOC [g/h] | 0.00 | 16.84 | 2.19 | 36.29 | 43.42 | 47.26 | 8.10 | 0.00 | 0.40 | 7.68 | 1.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 11.17 | 11.17 | 11.17 | 11.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.186 | 2.319 | 2.605 | 2.426 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1931 | 1931 | 1931 | 1931 |
| d_b, Bicycle Delay [s] | 0.02 | 0.02 | 0.02 | 0.02 |
| l_b,int, Bicycle LOS Score for Intersection | 1.655 | 1.946 | 1.665 | 1.599 |
| Bicycle LOS | A | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.517 |

**Intersection Setup**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 469 | 104 | 10 | 21 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 469 | 104 | 10 | 21 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 127 | 28 | 3 | 6 | 0 |
| Total Analysis Volume [veh/h] | 0 | 510 | 113 | 11 | 23 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 3 | 0 | 1 | 6 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 25 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 11 | 0 | 11 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 4.0 | 4.0 | 0.0 |
| Minimum Recall | No | | No | Yes | Yes | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 37 | 37 | 37 | 37 | 37 | 37 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 14 | 8 | 15 | 4 | 4 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.21 | 0.41 | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.32 | 0.06 | 0.00 | 0.01 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 1589 | 1781 | 3560 | 3560 | 1589 |
| c, Capacity [veh/h] | 659 | 589 | 367 | 1474 | 357 | 159 |
| d1, Uniform Delay [s] | 0.00 | 10.83 | 12.49 | 6.39 | 15.11 | 0.00 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 1.55 | 0.18 | 0.00 | 0.11 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.87 | 0.31 | 0.01 | 0.06 | 0.00 |
| d, Delay for Lane Group [s/veh] | 0.00 | 12.38 | 12.66 | 6.39 | 15.22 | 0.00 |
| Lane Group LOS | A | B | B | A | B | A |
| Critical Lane Group | No | Yes | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 2.95 | 0.65 | 0.02 | 0.08 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 73.75 | 16.35 | 0.45 | 1.97 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 5.31 | 1.18 | 0.03 | 0.14 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 132.75 | 29.43 | 0.80 | 3.55 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 12.38 | 12.66 | 6.39 | 15.22 | 0.00 |
| Movement LOS | A | B | B | A | B | A |
| d_A, Approach Delay [s/veh] | 12.38 | | 12.11 | | 15.22 | |
| Approach LOS | B | | B | | B | |
| d_I, Intersection Delay [s/veh] | 12.43 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.517 | | | | | |

**Emissions**

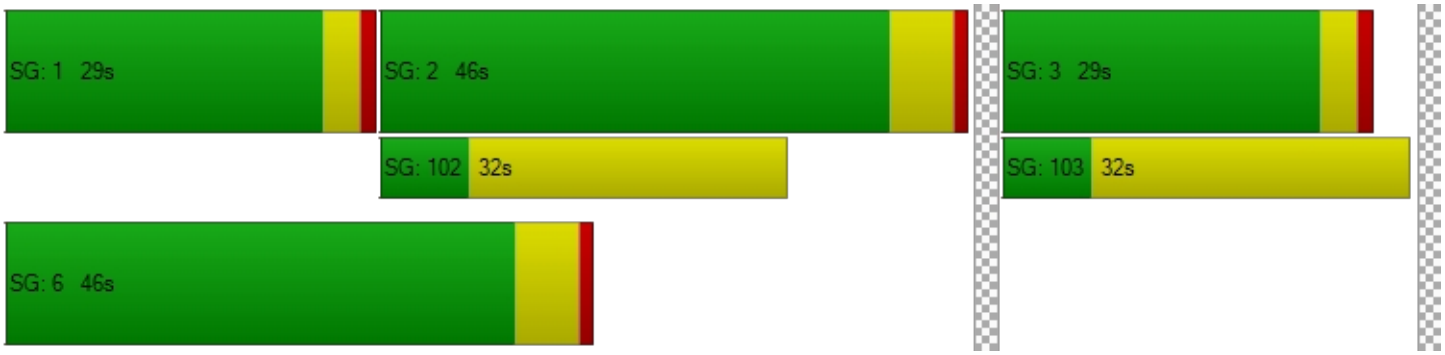
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 143.09 | 11.81 | 1.15 | 0.55 | 0.00 |
| Stops [stops/h] | 0.00 | 287.27 | 63.69 | 3.48 | 15.36 | 0.00 |
| Fuel consumption [US gal/h] | 0.00 | 8.76 | 1.13 | 0.08 | 0.18 | 0.00 |
| CO [g/h] | 0.00 | 612.56 | 78.95 | 5.65 | 12.48 | 0.00 |
| NOx [g/h] | 0.00 | 119.18 | 15.36 | 1.10 | 2.43 | 0.00 |
| VOC [g/h] | 0.00 | 141.97 | 18.30 | 1.31 | 2.89 | 0.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.12 | 9.12 | 9.12 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.089 | 2.374 | 2.252 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1353 | 2164 | 2164 |
| d_b, Bicycle Delay [s] | 1.94 | 0.12 | 0.12 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.662 | 1.579 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.293 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 156 | 4 | 0 | 334 | 153 | 3 | 290 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 0.00 | 0.00 | 5.00 | 4.20 | 1.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 156 | 4 | 0 | 334 | 153 | 3 | 290 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 1 | 0 | 91 | 42 | 1 | 79 |
| Total Analysis Volume [veh/h] | 170 | 4 | 0 | 363 | 166 | 3 | 315 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 7 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.25 | 0.25 | 0.00 | 0.34 | 0.34 | 0.01 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.00 | 0.00 | 0.10 | 0.11 | 0.00 | 0.09 |
| s, saturation flow rate [veh/h] | 1767 | 1615 | 1810 | 3475 | 1561 | 1795 | 3618 |
| c, Capacity [veh/h] | 447 | 409 | 1 | 1165 | 524 | 14 | 1239 |
| d1, Uniform Delay [s] | 9.18 | 8.31 | 0.00 | 7.33 | 7.35 | 14.65 | 7.04 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.20 | 0.00 | 0.00 | 0.21 | 0.47 | 2.67 | 0.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.01 | 0.00 | 0.31 | 0.32 | 0.21 | 0.25 |
| d, Delay for Lane Group [s/veh] | 9.37 | 8.32 | 0.00 | 7.54 | 7.82 | 17.32 | 7.18 |
| Lane Group LOS | A | A | A | A | A | B | A |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.64 | 0.01 | 0.00 | 0.37 | 0.38 | 0.03 | 0.46 |
| 50th-Percentile Queue Length [ft/ln] | 15.98 | 0.34 | 0.00 | 9.32 | 9.49 | 0.66 | 11.52 |
| 95th-Percentile Queue Length [veh/ln] | 1.15 | 0.02 | 0.00 | 0.67 | 0.68 | 0.05 | 0.83 |
| 95th-Percentile Queue Length [ft/ln] | 28.77 | 0.61 | 0.00 | 16.77 | 17.09 | 1.19 | 20.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.37 | 8.32 | 0.00 | 7.54 | 7.82 | 17.32 | 7.18 |
| Movement LOS | A | A | A | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.35 | | 7.63 | | | 7.28 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 7.81 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.293 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 127.23 | 2.99 | 0.00 | 181.62 | 83.05 | 3.75 | 393.37 |
| Stops [stops/h] | 77.73 | 1.64 | 0.00 | 90.64 | 46.17 | 3.22 | 112.06 |
| Fuel consumption [US gal/h] | 5.99 | 0.14 | 0.00 | 8.03 | 3.75 | 0.18 | 17.27 |
| CO [g/h] | 418.79 | 9.72 | 0.00 | 561.33 | 262.43 | 12.76 | 1207.42 |
| NOx [g/h] | 81.48 | 1.89 | 0.00 | 109.21 | 51.06 | 2.48 | 234.92 |
| VOC [g/h] | 97.06 | 2.25 | 0.00 | 130.09 | 60.82 | 2.96 | 279.83 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.85 | 11.34 | 11.34 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.143 | 2.682 | 2.388 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1486 | 2161 | 2161 |
| d_b, Bicycle Delay [s] | 0.98 | 0.10 | 0.10 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.996 | 1.822 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 6.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 629 | 69 | 33 | 65 | 22 | 154 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.10 | 0.00 | 8.30 | 2.00 | 18.20 | 3.10 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 629 | 69 | 33 | 65 | 22 | 154 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 171 | 19 | 9 | 18 | 6 | 42 |
| Total Analysis Volume [veh/h] | 684 | 75 | 36 | 71 | 24 | 167 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 28 | | 692 | | 39 | |
| Exiting Flow Rate [veh/h] | 211 | | 103 | | 764 | |
| Demand Flow Rate [veh/h] | 629 | 69 | 33 | 65 | 22 | 154 |
| Adjusted Demand Flow Rate [veh/h] | 684 | 75 | 36 | 71 | 24 | 167 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 0.99 | 1.00 | 0.96 | 0.98 | 0.85 | 0.95 |
| Entry Flow Rate [veh/h] | 692 | 75 | 53 | 58 | 29 | 175 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1316 | 1387 | 757 | 757 | 1371 | 1371 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1301 | 1387 | 728 | 742 | 1160 | 1309 |
| X, volume / capacity | 0.53 | 0.05 | 0.07 | 0.08 | 0.02 | 0.13 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 3.19 | 0.17 | 0.22 | 0.25 | 0.06 | 0.44 |
| 95th-Percentile Queue Length [ft] | 79.85 | 4.29 | 5.56 | 6.19 | 1.58 | 10.94 |
| Approach Delay [s/veh] | 7.89 | | 5.65 | | 3.73 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 6.91 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 38.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.560 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 158 | 42 | 2 | 2 | 95 | 576 | 140 | 228 | 55 | 16 | 496 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.40 | 17.40 | 2.00 | 0.00 | 4.70 | 1.00 | 9.60 | 12.30 | 3.90 | 8.30 | 2.20 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 288 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 158 | 42 | 2 | 2 | 95 | 288 | 140 | 228 | 55 | 16 | 496 | 17 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 11 | 1 | 1 | 26 | 78 | 38 | 62 | 15 | 4 | 135 | 5 |
| Total Analysis Volume [veh/h] | 172 | 46 | 2 | 2 | 103 | 313 | 152 | 248 | 60 | 17 | 539 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 4 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 30 | 30 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.8 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 61 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 5.2 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 14 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 18 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 5.6 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 11 | 33 | 33 | 1 | 23 | 23 | 10 | 29 | 29 | 4 | 23 | 23 |
| g / C, Green / Cycle | 0.12 | 0.34 | 0.34 | 0.01 | 0.23 | 0.23 | 0.10 | 0.30 | 0.30 | 0.04 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.01 | 0.00 | 0.00 | 0.06 | 0.20 | 0.05 | 0.08 | 0.04 | 0.01 | 0.15 | 0.01 |
| s, saturation flow rate [veh/h] | 1775 | 3120 | 1589 | 1810 | 1829 | 1602 | 3248 | 3266 | 1565 | 1691 | 3555 | 1589 |
| c, Capacity [veh/h] | 207 | 1075 | 548 | 10 | 427 | 374 | 329 | 991 | 475 | 65 | 854 | 382 |
| d1, Uniform Delay [s] | 41.93 | 21.15 | 20.87 | 48.04 | 30.20 | 35.42 | 41.10 | 25.47 | 24.47 | 45.34 | 33.01 | 28.32 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.33 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.35 | 0.04 | 0.01 | 9.48 | 0.84 | 13.64 | 1.01 | 0.84 | 0.76 | 2.14 | 4.85 | 0.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.04 | 0.00 | 0.20 | 0.24 | 0.84 | 0.46 | 0.25 | 0.13 | 0.26 | 0.63 | 0.05 |
| d, Delay for Lane Group [s/veh] | 50.29 | 21.19 | 20.87 | 57.52 | 31.04 | 49.06 | 42.11 | 26.31 | 25.23 | 47.48 | 37.86 | 28.65 |
| Lane Group LOS | D | C | C | E | C | D | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.46 | 0.35 | 0.03 | 0.07 | 2.04 | 8.32 | 1.74 | 2.24 | 1.09 | 0.43 | 6.16 | 0.35 |
| 50th-Percentile Queue Length [ft/ln] | 111.52 | 8.78 | 0.77 | 1.85 | 50.93 | 208.08 | 43.61 | 56.09 | 27.24 | 10.84 | 153.92 | 8.85 |
| 95th-Percentile Queue Length [veh/ln] | 7.92 | 0.63 | 0.06 | 0.13 | 3.67 | 13.05 | 3.14 | 4.04 | 1.96 | 0.78 | 10.23 | 0.64 |
| 95th-Percentile Queue Length [ft/ln] | 198.12 | 15.80 | 1.38 | 3.34 | 91.67 | 326.36 | 78.50 | 100.97 | 49.03 | 19.51 | 255.65 | 15.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.29 | 21.19 | 20.87 | 57.52 | 31.04 | 49.06 | 42.11 | 26.31 | 25.23 | 47.48 | 37.86 | 28.65 |
| Movement LOS | D | C | C | E | C | D | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 43.94 | | | 44.66 | | | 31.39 | | | 37.86 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 38.58 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.560 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.93 | 4.26 | 0.19 | 0.14 | 7.32 | 22.23 | 21.01 | 34.27 | 8.29 | 21.20 | 672.25 | 22.45 |
| Stops [stops/h] | 165.72 | 26.08 | 1.14 | 2.75 | 75.68 | 309.20 | 129.61 | 166.71 | 40.48 | 16.10 | 457.44 | 13.16 |
| Fuel consumption [US gal/h] | 3.33 | 0.52 | 0.02 | 0.04 | 1.37 | 5.75 | 2.88 | 3.66 | 0.87 | 1.13 | 34.35 | 1.10 |
| CO [g/h] | 232.86 | 36.20 | 1.57 | 3.11 | 95.75 | 401.78 | 201.54 | 255.80 | 61.03 | 78.71 | 2401.33 | 77.01 |
| NOx [g/h] | 45.31 | 7.04 | 0.30 | 0.60 | 18.63 | 78.17 | 39.21 | 49.77 | 11.87 | 15.31 | 467.21 | 14.98 |
| VOC [g/h] | 53.97 | 8.39 | 0.36 | 0.72 | 22.19 | 93.12 | 46.71 | 59.28 | 14.14 | 18.24 | 556.53 | 17.85 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 38.08 | 38.08 | 38.08 | 38.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.521 | 2.893 | 2.844 | 2.942 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 413 | 619 | 826 | 826 |
| d_b, Bicycle Delay [s] | 30.52 | 23.10 | 16.71 | 16.71 |
| l_b,int, Bicycle LOS Score for Intersection | 1.741 | 2.725 | 1.939 | 2.033 |
| Bicycle LOS | A | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.287 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 126 | 2 | 70 | 172 | 179 | 49 | 170 | 13 | 1 | 272 | 117 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 8.60 | 2.00 | 2.00 | 2.20 | 0.50 | 4.70 | 4.90 | 0.00 | 0.00 | 1.50 | 2.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 126 | 2 | 70 | 172 | 179 | 49 | 170 | 13 | 1 | 272 | 117 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 34 | 1 | 19 | 47 | 49 | 13 | 46 | 4 | 0 | 74 | 32 |
| Total Analysis Volume [veh/h] | 33 | 137 | 2 | 76 | 187 | 195 | 53 | 185 | 14 | 1 | 296 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 5 | 17 | 8 | 20 | 20 | 7 | 16 | 16 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.07 | 0.24 | 0.11 | 0.28 | 0.28 | 0.09 | 0.23 | 0.23 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.08 | 0.02 | 0.10 | 0.12 | 0.02 | 0.05 | 0.01 | 0.00 | 0.08 | 0.05 |
| s, saturation flow rate [veh/h] | 1762 | 1766 | 3459 | 1867 | 1609 | 3384 | 3478 | 1615 | 1810 | 3575 | 2809 |
| c, Capacity [veh/h] | 120 | 419 | 381 | 521 | 449 | 312 | 800 | 372 | 6 | 520 | 408 |
| d1, Uniform Delay [s] | 31.53 | 22.51 | 28.86 | 20.60 | 21.09 | 29.84 | 22.31 | 21.31 | 35.43 | 28.38 | 27.27 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.45 | 1.58 | 0.09 | 2.38 | 3.77 | 0.09 | 0.31 | 0.09 | 5.13 | 2.10 | 0.92 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.33 | 0.20 | 0.36 | 0.43 | 0.17 | 0.23 | 0.04 | 0.17 | 0.57 | 0.31 |
| d, Delay for Lane Group [s/veh] | 31.98 | 24.09 | 28.96 | 22.98 | 24.86 | 29.93 | 22.62 | 21.40 | 40.56 | 30.48 | 28.18 |
| Lane Group LOS | C | C | C | C | C | C | C | C | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.54 | 2.02 | 0.54 | 2.52 | 2.79 | 0.41 | 1.24 | 0.18 | 0.02 | 2.16 | 0.88 |
| 50th-Percentile Queue Length [ft/ln] | 13.44 | 50.56 | 13.53 | 62.92 | 69.72 | 10.24 | 31.00 | 4.58 | 0.59 | 53.88 | 21.95 |
| 95th-Percentile Queue Length [veh/ln] | 0.97 | 3.64 | 0.97 | 4.53 | 5.02 | 0.74 | 2.23 | 0.33 | 0.04 | 3.88 | 1.58 |
| 95th-Percentile Queue Length [ft/ln] | 24.19 | 91.01 | 24.35 | 113.25 | 125.50 | 18.43 | 55.81 | 8.25 | 1.06 | 96.99 | 39.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.98 | 24.09 | 24.09 | 28.96 | 22.98 | 24.86 | 29.93 | 22.62 | 21.40 | 40.56 | 30.48 | 28.18 |
| Movement LOS | C | C | C | C | C | C | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 25.61 | | | 24.78 | | | 24.09 | | | 29.82 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.39 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.287 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.06 | 8.66 | 3.75 | 9.24 | 9.63 | 66.10 | 230.73 | 17.46 | 0.17 | 51.20 | 21.97 |
| Stops [stops/h] | 27.20 | 102.35 | 54.76 | 127.36 | 141.14 | 41.45 | 125.52 | 9.28 | 1.19 | 218.15 | 88.86 |
| Fuel consumption [US gal/h] | 0.45 | 1.60 | 1.41 | 3.14 | 3.48 | 3.27 | 11.04 | 0.83 | 0.05 | 9.32 | 3.82 |
| CO [g/h] | 31.43 | 112.08 | 98.86 | 219.42 | 242.96 | 228.79 | 771.96 | 58.09 | 3.16 | 651.49 | 266.79 |
| NOx [g/h] | 6.12 | 21.81 | 19.23 | 42.69 | 47.27 | 44.51 | 150.19 | 11.30 | 0.62 | 126.76 | 51.91 |
| VOC [g/h] | 7.28 | 25.98 | 22.91 | 50.85 | 56.31 | 53.02 | 178.91 | 13.46 | 0.73 | 150.99 | 61.83 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.42 | 25.42 | 25.42 | 25.42 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.209 | 2.761 | 2.920 | 2.788 |
| Crosswalk LOS | B | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 562 | 562 | 843 | 843 |
| d_b, Bicycle Delay [s] | 18.38 | 18.38 | 11.89 | 11.89 |
| l_b,int, Bicycle LOS Score for Intersection | 1.843 | 2.315 | 1.768 | 1.909 |
| Bicycle LOS | A | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shephed Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.507 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 305 | 0 | 0 | 628 | 52 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 305 | 0 | 0 | 628 | 52 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 83 | 0 | 0 | 171 | 14 |
| Total Analysis Volume [veh/h] | 0 | 332 | 0 | 0 | 683 | 57 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.51 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 16.03 | 9.17 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 2.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 72.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.03 | | 4.59 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.96 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.075 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 0 | 0 | 26 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 69 | 0 | 0 | 26 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 0 | 0 | 7 | 0 | 0 |
| Total Analysis Volume [veh/h] | 75 | 0 | 0 | 28 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.87 | 8.67 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.24 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.04 | 6.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.87 | | 0.00 | | 3.64 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.46 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 4101: Owens Mountain Parkway & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 12.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.608 |

**Intersection Setup**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 158 | 182 | 0 | 0 | 97 | 576 | 0 | 0 | 0 | 16 | 0 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 158 | 182 | 0 | 0 | 97 | 576 | 0 | 0 | 0 | 16 | 0 | 17 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 49 | 0 | 0 | 26 | 157 | 0 | 0 | 0 | 4 | 0 | 5 |
| Total Analysis Volume [veh/h] | 172 | 198 | 0 | 0 | 105 | 626 | 0 | 0 | 0 | 17 | 0 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 52 | 52 | 52 | 52 | | 52 | 52 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 39 | 25 | 25 | | 4 | 4 |
| g / C, Green / Cycle | 0.20 | 0.76 | 0.49 | 0.49 | | 0.08 | 0.08 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.06 | 0.06 | 0.39 | | 0.01 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1589 | | 1781 | 1589 |
| c, Capacity [veh/h] | 348 | 2707 | 911 | 774 | | 151 | 135 |
| d1, Uniform Delay [s] | 18.49 | 1.57 | 7.19 | 11.19 | | 21.82 | 21.86 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | | 0.04 | 0.04 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.40 | 0.02 | 0.08 | 2.92 | | 0.12 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.49 | 0.07 | 0.12 | 0.81 | | 0.11 | 0.13 |
| d, Delay for Lane Group [s/veh] | 18.89 | 1.59 | 7.27 | 14.11 | | 21.95 | 22.03 |
| Lane Group LOS | B | A | A | B | | C | C |
| Critical Lane Group | Yes | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.68 | 0.06 | 0.52 | 5.23 | | 0.18 | 0.19 |
| 50th-Percentile Queue Length [ft/ln] | 42.05 | 1.59 | 12.90 | 130.83 | | 4.51 | 4.81 |
| 95th-Percentile Queue Length [veh/ln] | 3.03 | 0.11 | 0.93 | 8.99 | | 0.32 | 0.35 |
| 95th-Percentile Queue Length [ft/ln] | 75.69 | 2.86 | 23.23 | 224.63 | | 8.12 | 8.65 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 18.89 | 1.59 | 0.00 | 0.00 | 7.27 | 14.11 | 0.00 | 0.00 | 0.00 | 21.95 | 0.00 | 22.03 |
| Movement LOS | B | A | | | A | B | | | | C | | C |
| d_A, Approach Delay [s/veh] | 9.63 | | | 13.13 | | | 0.00 | | | 21.99 | | |
| Approach LOS | A | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 12.26 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.608 | | | | | | | | | | | |

**Emissions**

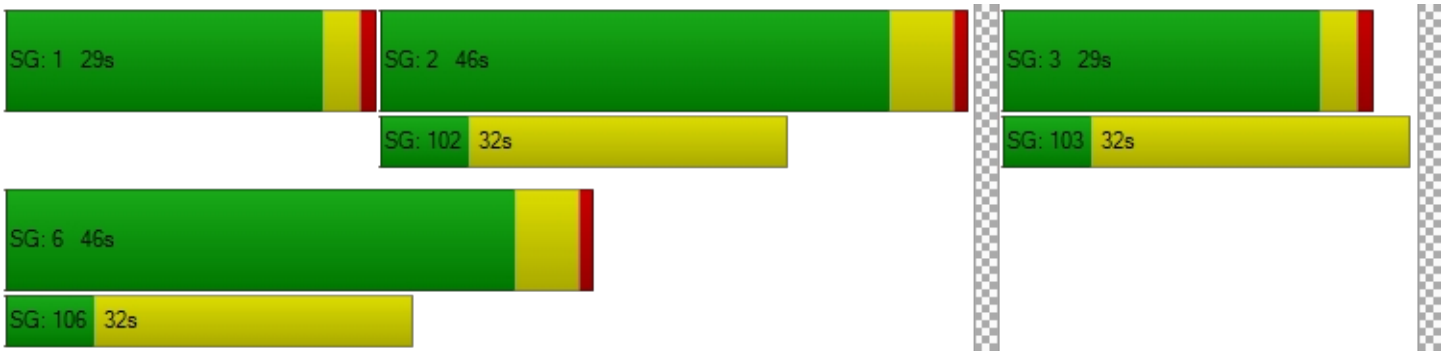
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.22 | 14.06 | 21.33 | 127.18 | | 1.01 | 1.07 |
| Stops [stops/h] | 117.52 | 8.89 | 36.06 | 365.65 | | 12.61 | 13.43 |
| Fuel consumption [US gal/h] | 1.81 | 0.69 | 1.23 | 9.05 | | 0.19 | 0.20 |
| CO [g/h] | 126.77 | 48.37 | 86.17 | 632.88 | | 13.07 | 13.89 |
| NOx [g/h] | 24.66 | 9.41 | 16.77 | 123.14 | | 2.54 | 2.70 |
| VOC [g/h] | 29.38 | 11.21 | 19.97 | 146.68 | | 3.03 | 3.22 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.94 | 15.94 | 15.94 | 15.94 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.501 | 2.330 | 2.072 | 1.920 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1553 | 1553 | 0 | 970 |
| d_b, Bicycle Delay [s] | 1.29 | 1.29 | 25.76 | 6.83 |
| l_b,int, Bicycle LOS Score for Intersection | 1.865 | 2.163 | 4.132 | 1.560 |
| Bicycle LOS | A | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4102: Owens Mountain Parkway and SR 168 EB Ramp Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.217 |

**Intersection Setup**

| Name | Tollhouse | | | Tollhouse | | | SR 168 EB Off-Ramps | | | SR 168 EB On-Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Tollhouse | | | SR 168 EB Off-Ramps | | | SR 168 EB On-Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 200 | 2 | 2 | 111 | 0 | 140 | 0 | 55 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 200 | 2 | 2 | 111 | 0 | 140 | 0 | 55 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 54 | 1 | 1 | 30 | 0 | 38 | 0 | 15 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 217 | 2 | 2 | 121 | 0 | 152 | 0 | 60 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 8 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 40 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 25 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 14 | 0 | 14 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lag | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 8 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | 27 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 9 | 9 | 0 | 13 | 6 | 6 | |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.01 | 0.47 | 0.24 | 0.24 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.06 | 0.00 | 0.03 | 0.09 | 0.04 | |
| s, saturation flow rate [veh/h] | 1870 | 1864 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 589 | 587 | 13 | 1668 | 425 | 380 | |
| d1, Uniform Delay [s] | 6.81 | 6.81 | 13.48 | 4.00 | 8.66 | 8.23 | |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.15 | 0.15 | 5.49 | 0.02 | 0.51 | 0.19 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.19 | 0.16 | 0.07 | 0.36 | 0.16 | |
| d, Delay for Lane Group [s/veh] | 6.96 | 6.97 | 18.97 | 4.01 | 9.16 | 8.42 | |
| Lane Group LOS | A | A | B | A | A | A | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.29 | 0.29 | 0.03 | 0.08 | 0.54 | 0.20 | |
| 50th-Percentile Queue Length [ft/ln] | 7.29 | 7.29 | 0.72 | 1.88 | 13.43 | 4.98 | |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 0.53 | 0.05 | 0.14 | 0.97 | 0.36 | |
| 95th-Percentile Queue Length [ft/ln] | 13.12 | 13.13 | 1.30 | 3.38 | 24.18 | 8.97 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 6.96 | 6.97 | 18.97 | 4.01 | 0.00 | 9.16 | 0.00 | 8.42 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | A | | A | | | |
| d_A, Approach Delay [s/veh] | 6.96 | | | 4.26 | | | 8.95 | | | 0.00 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.12 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.217 | | | | | | | | | | | |

**Emissions**

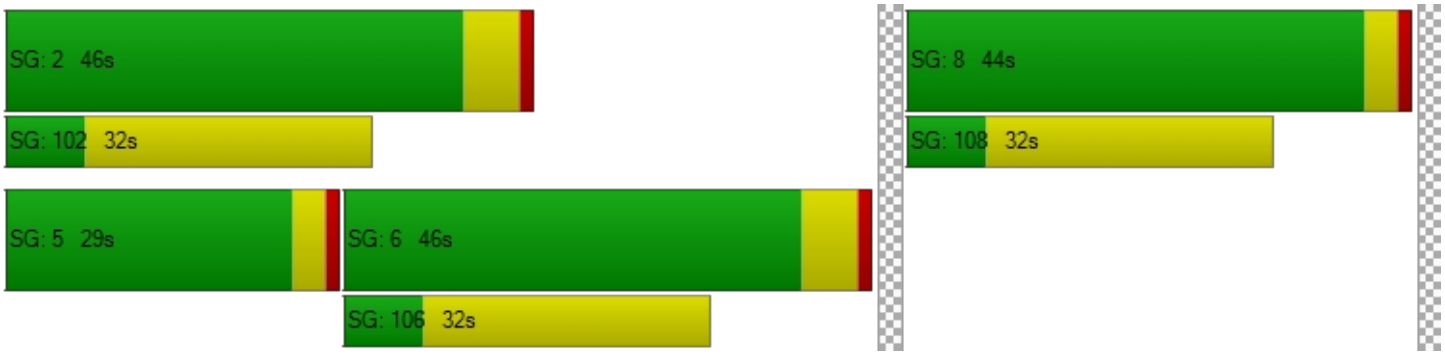
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 6.67 | 6.67 | 0.19 | 11.21 | 11.83 | 4.67 | |
| Stops [stops/h] | 38.61 | 38.63 | 3.82 | 19.91 | 71.16 | 26.40 | |
| Fuel consumption [US gal/h] | 0.64 | 0.64 | 0.04 | 0.67 | 1.16 | 0.44 | |
| CO [g/h] | 44.94 | 44.95 | 2.55 | 46.84 | 81.35 | 30.83 | |
| NOx [g/h] | 8.74 | 8.75 | 0.50 | 9.11 | 15.83 | 6.00 | |
| VOC [g/h] | 10.42 | 10.42 | 0.59 | 10.86 | 18.85 | 7.14 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.82 | 4.82 | 4.82 | 4.82 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.149 | 2.583 | 1.929 | 1.348 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2943 | 2943 | 2943 | 0 |
| d_b, Bicycle Delay [s] | 3.02 | 3.02 | 3.02 | 13.59 |
| l_b,int, Bicycle LOS Score for Intersection | 1.740 | 1.661 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4201: Shepherd Avenue & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.332 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 30 | 175 | 0 | 0 | 242 | 179 | 0 | 0 | 0 | 1 | 0 | 117 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 175 | 0 | 0 | 242 | 179 | 0 | 0 | 0 | 1 | 0 | 117 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 48 | 0 | 0 | 66 | 49 | 0 | 0 | 0 | 0 | 0 | 32 |
| Total Analysis Volume [veh/h] | 33 | 190 | 0 | 0 | 263 | 195 | 0 | 0 | 0 | 1 | 0 | 127 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 0 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 32 | 32 | 32 | 32 | | 32 | 32 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 17 | 10 | 10 | | 8 | 8 |
| g / C, Green / Cycle | 0.09 | 0.52 | 0.31 | 0.31 | | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.05 | 0.12 | 0.14 | | 0.00 | 0.08 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1626 | | 1781 | 1589 |
| c, Capacity [veh/h] | 159 | 1852 | 575 | 500 | | 415 | 370 |
| d1, Uniform Delay [s] | 13.69 | 3.94 | 8.85 | 9.04 | | 9.53 | 10.36 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.24 | 0.03 | 0.64 | 0.93 | | 0.00 | 0.78 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.10 | 0.40 | 0.46 | | 0.00 | 0.34 |
| d, Delay for Lane Group [s/veh] | 13.93 | 3.97 | 9.49 | 9.98 | | 9.54 | 11.14 |
| Lane Group LOS | B | A | A | A | | A | B |
| Critical Lane Group | Yes | No | No | Yes | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.19 | 0.15 | 0.73 | 0.77 | | 0.00 | 0.63 |
| 50th-Percentile Queue Length [ft/ln] | 4.71 | 3.79 | 18.33 | 19.36 | | 0.11 | 15.79 |
| 95th-Percentile Queue Length [veh/ln] | 0.34 | 0.27 | 1.32 | 1.39 | | 0.01 | 1.14 |
| 95th-Percentile Queue Length [ft/ln] | 8.47 | 6.82 | 32.99 | 34.86 | | 0.20 | 28.43 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.93 | 3.97 | 0.00 | 0.00 | 9.55 | 9.98 | 0.00 | 0.00 | 0.00 | 9.54 | 0.00 | 11.14 |
| Movement LOS | B | A | | | A | A | | | | A | | B |
| d_A, Approach Delay [s/veh] | 5.45 | | | 9.73 | | | 0.00 | | | 11.12 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.77 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.332 | | | | | | | | | | | |

**Emissions**

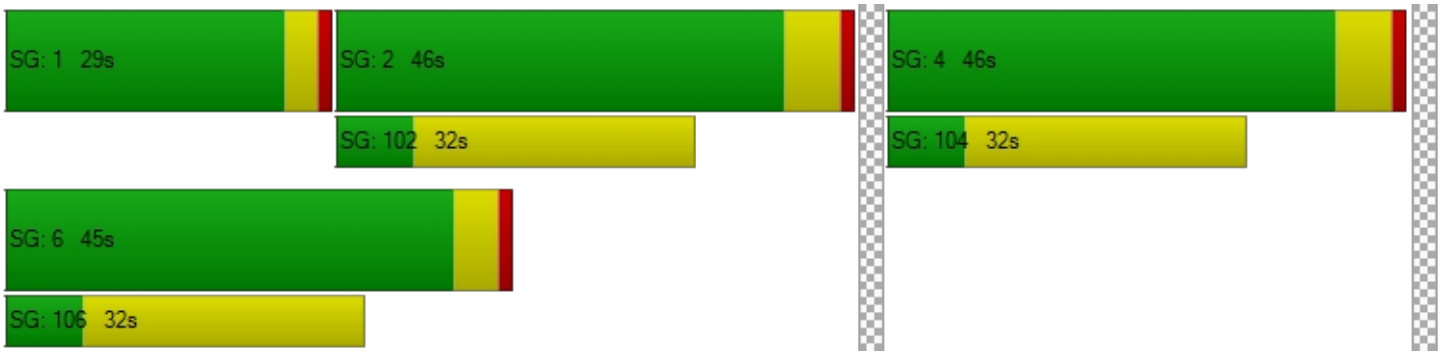
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.63 | 9.39 | 285.98 | 285.98 | | 0.09 | 11.06 |
| Stops [stops/h] | 21.00 | 33.83 | 81.76 | 86.39 | | 0.49 | 70.47 |
| Fuel consumption [US gal/h] | 0.28 | 0.73 | 11.27 | 11.37 | | 0.01 | 1.13 |
| CO [g/h] | 19.34 | 50.81 | 788.06 | 794.61 | | 0.57 | 79.18 |
| NOx [g/h] | 3.76 | 9.89 | 153.33 | 154.60 | | 0.11 | 15.40 |
| VOC [g/h] | 4.48 | 11.78 | 182.64 | 184.16 | | 0.13 | 18.35 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.01 | 7.01 | 7.01 | 7.01 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.597 | 2.381 | 1.581 | 1.917 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2479 | 2479 | 0 | 2479 |
| d_b, Bicycle Delay [s] | 0.92 | 0.92 | 16.14 | 0.92 |
| l_b,int, Bicycle LOS Score for Intersection | 1.744 | 1.937 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4202: Shepherd Avenue & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 7.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.167 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 156 | 2 | 70 | 173 | 0 | 49 | 0 | 13 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 156 | 2 | 70 | 173 | 0 | 49 | 0 | 13 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 42 | 1 | 19 | 47 | 0 | 13 | 0 | 4 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 170 | 2 | 76 | 188 | 0 | 53 | 0 | 14 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Split | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 31 | 31 | 31 | 31 | 31 | 31 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 8 | 8 | 5 | 18 | 6 | 6 | |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.17 | 0.56 | 0.18 | 0.18 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.05 | 0.04 | 0.05 | 0.03 | 0.01 | |
| s, saturation flow rate [veh/h] | 1870 | 1862 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 494 | 492 | 308 | 2012 | 319 | 284 | |
| d1, Uniform Delay [s] | 8.86 | 8.87 | 11.17 | 3.12 | 10.86 | 10.63 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.24 | 0.24 | 0.15 | 0.03 | 0.35 | 0.10 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.17 | 0.17 | 0.25 | 0.09 | 0.17 | 0.05 | |
| d, Delay for Lane Group [s/veh] | 9.10 | 9.10 | 11.33 | 3.15 | 11.21 | 10.73 | |
| Lane Group LOS | A | A | B | A | B | B | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.35 | 0.35 | 0.35 | 0.10 | 0.26 | 0.07 | |
| 50th-Percentile Queue Length [ft/ln] | 8.66 | 8.66 | 8.83 | 2.39 | 6.54 | 1.69 | |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 0.62 | 0.64 | 0.17 | 0.47 | 0.12 | |
| 95th-Percentile Queue Length [ft/ln] | 15.58 | 15.59 | 15.89 | 4.30 | 11.77 | 3.04 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.10 | 9.10 | 11.33 | 3.15 | 0.00 | 11.21 | 0.00 | 10.73 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | B | | B | | | |
| d_A, Approach Delay [s/veh] | 9.10 | | | 5.50 | | | 11.11 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.48 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.167 | | | | | | | | | | | |

**Emissions**

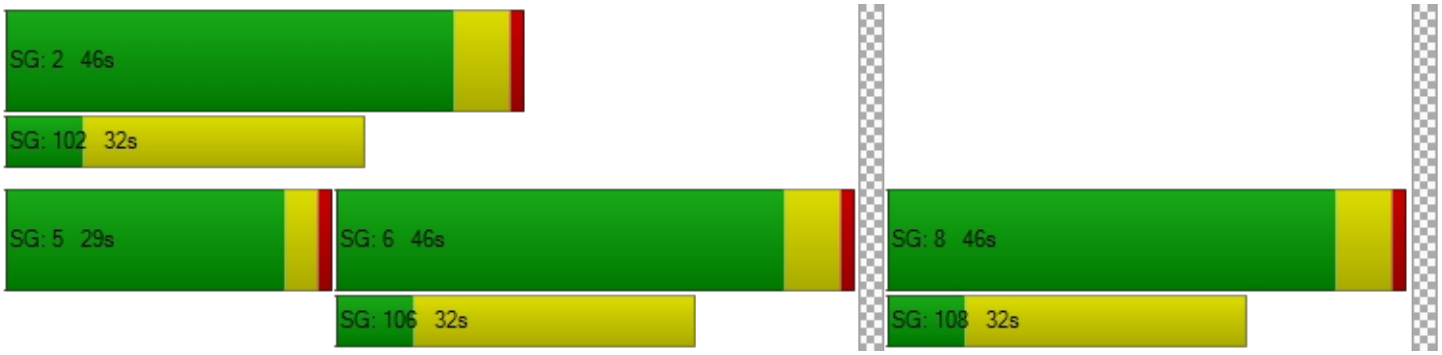
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.58 | 3.58 | 4.74 | 11.71 | 3.92 | 1.04 | |
| Stops [stops/h] | 40.02 | 40.04 | 40.80 | 22.08 | 30.21 | 7.82 | |
| Fuel consumption [US gal/h] | 0.53 | 0.53 | 0.60 | 0.72 | 0.45 | 0.12 | |
| CO [g/h] | 36.88 | 36.89 | 41.63 | 50.66 | 31.40 | 8.14 | |
| NOx [g/h] | 7.18 | 7.18 | 8.10 | 9.86 | 6.11 | 1.58 | |
| VOC [g/h] | 8.55 | 8.55 | 9.65 | 11.74 | 7.28 | 1.89 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.52 | 6.52 | 6.52 | 6.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.155 | 2.464 | 1.894 | 1.432 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2568 | 2568 | 2568 | 0 |
| d_b, Bicycle Delay [s] | 1.26 | 1.26 | 1.26 | 15.58 |
| l_b,int, Bicycle LOS Score for Intersection | 1.702 | 1.777 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Vista Ranch Clovis EIR

Vistro File: \...\Vista Ranch Clovis_20240828.vistro
Report File: \...\Cumulative Plus Proj Improved PM.pdf

Scenario 8 Cumulative PM Plus Proj Improved
8/30/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Willow Ave & International Ave | Signalized | HCM 7th Edition | EB Right | 0.435 | 20.9 | C |
| 2 | Willow Ave & Behymer Ave | Signalized | HCM 7th Edition | EB Right | 0.435 | 22.8 | C |
| 3 | Willow Ave & Shepherd Ave | Signalized | HCM 7th Edition | NB Left | 0.527 | 29.1 | C |
| 4 | Minnewawa Ave & International Ave | Roundabout | HCM 7th Edition | NB Left | | 3.6 | A |
| 5 | Minnewawa Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.451 | 18.8 | B |
| 6 | Minnewawa Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.566 | 21.7 | C |
| 7 | Clovis Ave & International Ave | Signalized | HCM 7th Edition | SB Left | 0.331 | 9.1 | A |
| 8 | Clovis Ave & Behymer Ave | Signalized | HCM 7th Edition | WB Left | 0.465 | 13.2 | B |
| 9 | Clovis Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.489 | 26.1 | C |
| 10 | Clovis Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.632 | 27.4 | C |
| 11 | Clovis Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.666 | 31.2 | C |
| 12 | Clovis Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.956 | 57.7 | E |
| 13 | SR 168 EB Ramps & Herndon Ave | Signalized | HCM 7th Edition | NB Right | 0.825 | 45.0 | D |
| 14 | SR 168 WB Ramps & Herndon Ave | Signalized | HCM 7th Edition | SB Right | 0.559 | 11.6 | B |
| 15 | Behymer Ave & Sunnyside Ave | Unknown | ? | | ? | ? | ? |
| 16 | Sunnyside Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.477 | 20.1 | C |
| 17 | Sunnyside Ave & Nees Ave | Signalized | HCM 7th Edition | NB Left | 0.790 | 43.8 | D |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Sunnyside Ave & Alluvial Ave | Signalized | HCM 7th Edition | EB Left | 0.688 | 26.9 | C |
| 19 | Sunnyside Ave & Herndon Ave | Signalized | HCM 7th Edition | NB Left | 0.856 | 47.1 | D |
| 20 | Fowler Ave & Behymer Ave | Signalized | HCM 7th Edition | NB Left | 0.831 | 47.0 | D |
| 21 | Fowler Ave & Perrin Ave | Two-way stop | HCM 7th Edition | WB Left | 0.662 | 38.0 | E |
| 22 | Fowler Ave & Shepherd Ave | Signalized | HCM 7th Edition | WB Left | 0.698 | 27.7 | C |
| 23 | Fowler Ave & Teague Ave | Signalized | HCM 7th Edition | WB Left | 0.359 | 10.0 | A |
| 24 | Fowler Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.574 | 16.0 | B |
| 25 | Fowler Ave & Alluvial Ave | Signalized | HCM 7th Edition | SB Left | 0.682 | 23.9 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.494 | 11.9 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | EB Right | 0.817 | 37.0 | D |
| 28 | Perrin Rd & Burgan Ave | Two-way stop | HCM 7th Edition | NB Left | 0.017 | 17.8 | C |
| 29 | Burgan Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | SB Left | 0.008 | 19.6 | C |
| 30 | Armstrong Ave & Shepherd Ave | Two-way stop | HCM 7th Edition | NB Left | 0.055 | 16.0 | C |
| 31 | Temperance Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB Left | 0.444 | 23.5 | C |
| 32 | Nees Ave & Temperance Ave | Signalized | HCM 7th Edition | WB Left | 0.495 | 15.6 | B |
| 33 | Temperance Ave & Alluvial Ave | Roundabout | HCM 7th Edition | EB Thru | | 12.9 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.435 | 4.6 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.807 | 34.2 | C |
| 36 | Locan Ave & Shepherd Ave | Signalized | HCM 7th Edition | SB Left | 0.579 | 35.5 | D |
| 37 | Locan Ave & Nees Ave | Signalized | HCM 7th Edition | WB Left | 0.518 | 15.7 | B |
| 38 | Locan Ave & Owens Mountain Pkwy | Signalized | HCM 7th Edition | WB Thru | 0.517 | 14.2 | B |
| | | | HCM 7th | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 | De Wolf Ave & Shepherd Ave | Signalized | HCM 7th Edition | EB U-T | 0.333 | 8.3 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Roundabout | HCM 7th Edition | WB Right | | 5.5 | A |
| 41 | Owen Mountain Pkwy & SR 168 | Signalized | HCM 7th Edition | WB Left | 0.483 | 32.1 | C |
| 42 | Shepherd Ave & SR 168 | Signalized | HCM 7th Edition | NB Left | 0.321 | 27.1 | C |
| 43 | Shepherd Ave & Project Access South | Two-way stop | HCM 7th Edition | SB Right | 0.378 | 13.6 | B |
| 44 | Behymer Ave & Project Access North | Two-way stop | HCM 7th Edition | NB Left | 0.055 | 9.2 | A |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Signalized | HCM 7th Edition | WB Left | 0.278 | 3.8 | A |
| 4102 | Owens Mountain Parkway & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.196 | 8.5 | A |
| 4201 | Shepherd Avenue & SR 168 WB Ramps | Signalized | HCM 7th Edition | NB Left | 0.228 | 5.5 | A |
| 4202 | Shepherd Avenue & SR 168 EB Ramps | Signalized | HCM 7th Edition | SB Left | 0.260 | 10.3 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Willow Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.435 |

**Intersection Setup**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 255.00 | 100.00 | 100.00 | 255.00 | 100.00 | 205.00 | 255.00 | 100.00 | 100.00 | 250.00 | 100.00 | 250.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 246 | 740 | 68 | 28 | 337 | 88 | 16 | 58 | 246 | 33 | 64 | 68 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 2.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 246 | 740 | 68 | 28 | 337 | 88 | 16 | 58 | 246 | 33 | 64 | 68 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 67 | 201 | 18 | 8 | 92 | 24 | 4 | 16 | 67 | 9 | 17 | 18 |
| Total Analysis Volume [veh/h] | 267 | 804 | 74 | 30 | 366 | 96 | 17 | 63 | 267 | 36 | 70 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 4.8 | 0.0 | 3.0 | 4.8 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 2.6 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 4.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 4.60 | 5.80 | 5.80 | 4.00 | 5.80 | 5.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 2.60 | 3.80 | 3.80 | 2.00 | 3.80 | 3.80 |
| g_i, Effective Green Time [s] | 8 | 20 | 20 | 3 | 15 | 15 | 2 | 14 | 14 | 4 | 15 | 15 |
| g / C, Green / Cycle | 0.13 | 0.33 | 0.33 | 0.05 | 0.24 | 0.24 | 0.03 | 0.22 | 0.22 | 0.06 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.16 | 0.05 | 0.01 | 0.07 | 0.06 | 0.00 | 0.02 | 0.17 | 0.02 | 0.02 | 0.05 |
| s, saturation flow rate [veh/h] | 3514 | 5176 | 1615 | 3514 | 5159 | 1615 | 3514 | 3618 | 1604 | 1810 | 3549 | 1615 |
| c, Capacity [veh/h] | 450 | 1700 | 530 | 185 | 1223 | 383 | 117 | 806 | 357 | 109 | 853 | 388 |
| d1, Uniform Delay [s] | 25.51 | 16.55 | 14.65 | 28.05 | 19.42 | 19.18 | 29.11 | 19.05 | 22.46 | 27.92 | 18.25 | 18.75 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.19 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.67 | 0.39 | 0.15 | 0.44 | 1.10 | 0.21 | 0.10 | 7.14 | 0.65 | 0.07 | 0.40 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.59 | 0.47 | 0.14 | 0.16 | 0.30 | 0.25 | 0.15 | 0.08 | 0.75 | 0.33 | 0.08 | 0.19 |
| d, Delay for Lane Group [s/veh] | 25.98 | 17.22 | 15.04 | 28.20 | 19.86 | 20.28 | 29.32 | 19.15 | 29.59 | 28.57 | 18.32 | 19.15 |
| Lane Group LOS | C | B | B | C | B | C | C | B | C | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.64 | 2.56 | 0.66 | 0.19 | 1.27 | 1.07 | 0.11 | 0.32 | 3.84 | 0.51 | 0.37 | 0.83 |
| 50th-Percentile Queue Length [ft/ln] | 41.11 | 64.03 | 16.43 | 4.82 | 31.84 | 26.71 | 2.87 | 8.11 | 96.10 | 12.66 | 9.29 | 20.81 |
| 95th-Percentile Queue Length [veh/ln] | 2.96 | 4.61 | 1.18 | 0.35 | 2.29 | 1.92 | 0.21 | 0.58 | 6.92 | 0.91 | 0.67 | 1.50 |
| 95th-Percentile Queue Length [ft/ln] | 74.00 | 115.25 | 29.58 | 8.67 | 57.31 | 48.07 | 5.17 | 14.61 | 172.98 | 22.80 | 16.71 | 37.46 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.98 | 17.22 | 15.04 | 28.20 | 19.86 | 20.28 | 29.32 | 19.15 | 29.59 | 28.57 | 18.32 | 19.15 |
| Movement LOS | C | B | B | C | B | C | C | B | C | C | B | B |
| d_A, Approach Delay [s/veh] | 19.12 | | | 20.45 | | | 27.68 | | | 20.71 | | |
| Approach LOS | B | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.93 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.435 | | | | | | | | | | | |

**Emissions**

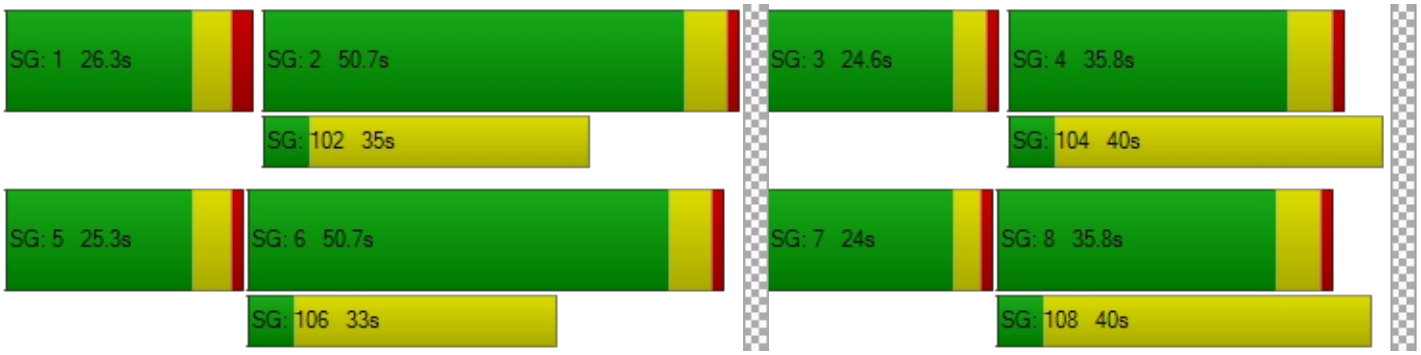
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 134.78 | 405.86 | 37.36 | 2.95 | 36.05 | 9.46 | 1.79 | 6.64 | 28.16 | 37.35 | 72.63 | 76.78 |
| Stops [stops/h] | 191.50 | 447.40 | 38.27 | 22.44 | 222.48 | 62.21 | 13.37 | 37.80 | 223.84 | 29.50 | 43.25 | 48.47 |
| Fuel consumption [US gal/h] | 8.86 | 23.28 | 2.06 | 0.62 | 6.10 | 1.67 | 0.33 | 0.94 | 5.36 | 1.91 | 3.49 | 3.72 |
| CO [g/h] | 619.65 | 1627.03 | 144.34 | 43.03 | 426.49 | 116.58 | 23.00 | 65.93 | 374.42 | 133.50 | 243.94 | 259.81 |
| NOx [g/h] | 120.56 | 316.56 | 28.08 | 8.37 | 82.98 | 22.68 | 4.48 | 12.83 | 72.85 | 25.97 | 47.46 | 50.55 |
| VOC [g/h] | 143.61 | 377.08 | 33.45 | 9.97 | 98.84 | 27.02 | 5.33 | 15.28 | 86.78 | 30.94 | 56.53 | 60.21 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.57 | 22.57 | 22.57 | 22.57 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.244 | 3.082 | 2.739 | 2.625 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1456 | 1456 | 971 | 971 |
| d_b, Bicycle Delay [s] | 2.29 | 2.29 | 8.19 | 8.19 |
| l_b,int, Bicycle LOS Score for Intersection | 2.189 | 1.830 | 1.846 | 1.708 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 2: Willow Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 22.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.435 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 105.00 | 250.00 | 100.00 | 205.00 | 230.00 | 100.00 | 100.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 40.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 92 | 966 | 245 | 145 | 484 | 46 | 22 | 104 | 119 | 126 | 156 | 140 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.20 | 0.80 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 92 | 966 | 245 | 145 | 484 | 46 | 22 | 104 | 119 | 126 | 156 | 140 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 263 | 67 | 39 | 132 | 13 | 6 | 28 | 32 | 34 | 42 | 38 |
| Total Analysis Volume [veh/h] | 100 | 1050 | 266 | 158 | 526 | 50 | 24 | 113 | 129 | 137 | 170 | 152 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 45 | 0 | 20 | 45 | 0 | 20 | 30 | 0 | 20 | 30 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 5.2 | 5.5 | 0.0 | 3.6 | 5.5 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 30 | 0 | 0 | 32 | 0 | 0 | 36 | 0 | 0 | 38 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.3 | 3.7 | 0.0 | 3.3 | 3.7 | 0.0 | 4.2 | 4.5 | 0.0 | 2.6 | 4.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 3.5 | 0.0 | 2.0 | 5.1 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 5.30 | 5.70 | 5.70 | 5.30 | 5.70 | 5.70 | 6.20 | 6.50 | 6.50 | 4.60 | 6.50 | 6.50 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.30 | 3.70 | 3.70 | 3.30 | 3.70 | 3.70 | 4.20 | 4.50 | 4.50 | 2.60 | 4.50 | 4.50 |
| g_i, Effective Green Time [s] | 7 | 31 | 31 | 8 | 32 | 32 | 3 | 9 | 9 | 8 | 11 | 11 |
| g / C, Green / Cycle | 0.09 | 0.40 | 0.40 | 0.10 | 0.41 | 0.41 | 0.04 | 0.11 | 0.11 | 0.10 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.20 | 0.16 | 0.04 | 0.10 | 0.03 | 0.01 | 0.03 | 0.08 | 0.04 | 0.05 | 0.09 |
| s, saturation flow rate [veh/h] | 3459 | 5176 | 1615 | 3514 | 5135 | 1615 | 3514 | 3583 | 1605 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 318 | 2081 | 649 | 353 | 2108 | 663 | 149 | 405 | 181 | 346 | 537 | 240 |
| d1, Uniform Delay [s] | 32.80 | 17.32 | 16.53 | 32.73 | 14.96 | 13.85 | 35.67 | 31.38 | 33.05 | 32.67 | 29.40 | 30.92 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.13 | 0.13 | 0.04 | 0.24 | 0.24 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.21 | 0.62 | 1.35 | 0.33 | 0.20 | 0.16 | 0.19 | 0.45 | 6.09 | 0.27 | 0.75 | 6.10 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.50 | 0.41 | 0.45 | 0.25 | 0.08 | 0.16 | 0.28 | 0.71 | 0.40 | 0.32 | 0.63 |
| d, Delay for Lane Group [s/veh] | 33.00 | 17.94 | 17.88 | 33.06 | 15.15 | 14.01 | 35.85 | 31.83 | 39.14 | 32.94 | 30.15 | 37.02 |
| Lane Group LOS | C | B | B | C | B | B | D | C | D | C | C | D |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.82 | 4.08 | 3.11 | 1.30 | 1.76 | 0.48 | 0.21 | 0.94 | 2.51 | 1.18 | 1.43 | 2.98 |
| 50th-Percentile Queue Length [ft/ln] | 20.39 | 101.96 | 77.85 | 32.41 | 44.12 | 12.11 | 5.29 | 23.48 | 62.63 | 29.60 | 35.65 | 74.59 |
| 95th-Percentile Queue Length [veh/ln] | 1.47 | 7.34 | 5.61 | 2.33 | 3.18 | 0.87 | 0.38 | 1.69 | 4.51 | 2.13 | 2.57 | 5.37 |
| 95th-Percentile Queue Length [ft/ln] | 36.69 | 183.52 | 140.14 | 58.34 | 79.41 | 21.80 | 9.51 | 42.27 | 112.73 | 53.28 | 64.18 | 134.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 33.00 | 17.94 | 17.88 | 33.06 | 15.15 | 14.01 | 35.85 | 31.83 | 39.14 | 32.94 | 30.15 | 37.02 |
| Movement LOS | C | B | B | C | B | B | D | C | D | C | C | D |
| d_A, Approach Delay [s/veh] | 18.99 | | | 18.93 | | | 35.74 | | | 33.26 | | |
| Approach LOS | B | | | B | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 22.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.435 | | | | | | | | | | | |

**Emissions**

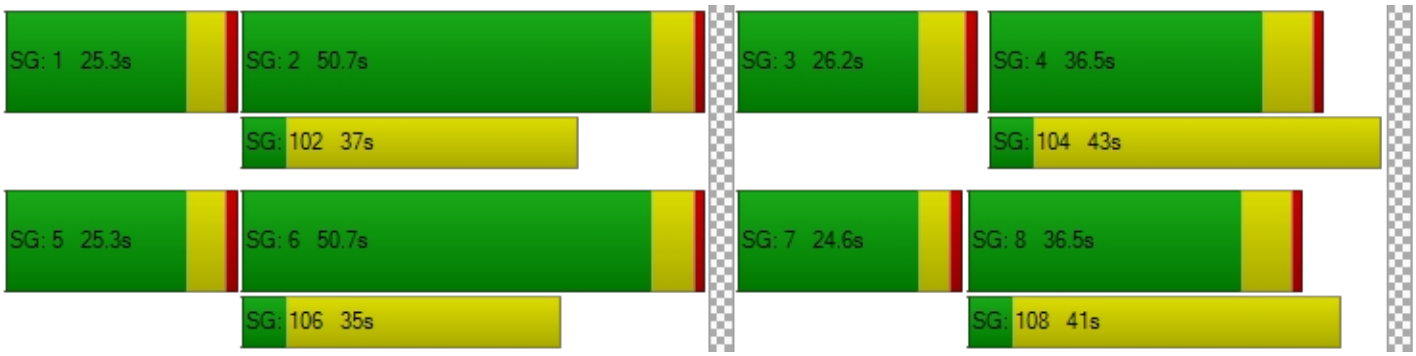
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 101.31 | 1063.72 | 269.48 | 79.76 | 265.53 | 25.24 | 2.61 | 12.29 | 14.03 | 142.13 | 176.36 | 157.69 |
| Stops [stops/h] | 76.14 | 571.20 | 145.39 | 121.05 | 247.16 | 22.62 | 19.74 | 87.71 | 116.95 | 110.55 | 133.17 | 139.29 |
| Fuel consumption [US gal/h] | 5.23 | 48.22 | 12.22 | 5.59 | 14.31 | 1.34 | 0.46 | 2.03 | 2.68 | 7.38 | 9.04 | 8.41 |
| CO [g/h] | 365.78 | 3370.86 | 854.45 | 390.90 | 1000.15 | 93.32 | 32.33 | 142.17 | 187.26 | 515.87 | 631.82 | 587.60 |
| NOx [g/h] | 71.17 | 655.85 | 166.24 | 76.05 | 194.59 | 18.16 | 6.29 | 27.66 | 36.43 | 100.37 | 122.93 | 114.33 |
| VOC [g/h] | 84.77 | 781.23 | 198.03 | 90.59 | 231.80 | 21.63 | 7.49 | 32.95 | 43.40 | 119.56 | 146.43 | 136.18 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 30.08 | 30.08 | 30.08 | 30.08 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.242 | 3.279 | 2.697 | 2.726 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1167 | 1167 | 778 | 778 |
| d_b, Bicycle Delay [s] | 6.69 | 6.69 | 14.39 | 14.39 |
| l_b,int, Bicycle LOS Score for Intersection | 2.338 | 1.963 | 1.779 | 1.938 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 3: Willow Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.527 |

**Intersection Setup**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 160.00 | 250.00 | 100.00 | 150.00 | 250.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 50.00 | | | 50.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Willow | | | Willow | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 241 | 875 | 238 | 59 | 841 | 63 | 82 | 478 | 135 | 111 | 487 | 258 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.50 | 0.30 | 0.60 | 0.70 | 1.30 | 1.50 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 241 | 875 | 238 | 59 | 841 | 63 | 82 | 478 | 135 | 111 | 487 | 258 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 65 | 238 | 65 | 16 | 229 | 17 | 22 | 130 | 37 | 30 | 132 | 70 |
| Total Analysis Volume [veh/h] | 262 | 951 | 259 | 64 | 914 | 68 | 89 | 520 | 147 | 121 | 529 | 280 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 2 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 2 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 6 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 35 | 0 | 25 | 35 | 0 | 25 | 25 | 0 | 25 | 25 | 0 |
| Amber [s] | 4.3 | 4.7 | 0.0 | 4.3 | 4.7 | 0.0 | 3.6 | 5.2 | 0.0 | 4.8 | 5.2 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 36 | 0 | 0 | 34 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 4.3 | 3.7 | 0.0 | 4.3 | 3.7 | 0.0 | 3.6 | 4.2 | 0.0 | 4.8 | 4.2 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 5.8 | 0.0 | 2.0 | 5.8 | 0.0 | 2.0 | 5.2 | 0.0 | 2.0 | 3.9 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |
| L, Total Lost Time per Cycle [s] | 6.30 | 5.70 | 5.70 | 6.30 | 5.70 | 5.70 | 5.60 | 6.20 | 6.20 | 6.80 | 6.20 | 6.20 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.30 | 3.70 | 3.70 | 4.30 | 3.70 | 3.70 | 3.60 | 4.20 | 4.20 | 4.80 | 4.20 | 4.20 |
| g_i, Effective Green Time [s] | 9 | 28 | 28 | 6 | 26 | 26 | 7 | 17 | 17 | 8 | 19 | 19 |
| g / C, Green / Cycle | 0.10 | 0.33 | 0.33 | 0.07 | 0.30 | 0.30 | 0.08 | 0.21 | 0.21 | 0.09 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.18 | 0.16 | 0.02 | 0.18 | 0.04 | 0.03 | 0.14 | 0.09 | 0.03 | 0.15 | 0.17 |
| s, saturation flow rate [veh/h] | 3500 | 5163 | 1607 | 3495 | 5122 | 1591 | 3514 | 3600 | 1585 | 3514 | 3618 | 1615 |
| c, Capacity [veh/h] | 357 | 1717 | 534 | 260 | 1562 | 485 | 294 | 743 | 327 | 316 | 820 | 366 |
| d1, Uniform Delay [s] | 36.69 | 22.99 | 22.36 | 36.73 | 24.76 | 21.25 | 36.26 | 31.00 | 29.18 | 36.11 | 29.49 | 30.46 |
| k, delay calibration | 0.04 | 0.35 | 0.35 | 0.04 | 0.35 | 0.35 | 0.04 | 0.26 | 0.26 | 0.04 | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.10 | 0.91 | 2.21 | 0.18 | 1.14 | 0.42 | 0.21 | 2.83 | 2.27 | 0.28 | 1.18 | 4.57 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.73 | 0.55 | 0.48 | 0.25 | 0.59 | 0.14 | 0.30 | 0.70 | 0.45 | 0.38 | 0.65 | 0.77 |
| d, Delay for Lane Group [s/veh] | 37.79 | 23.90 | 24.57 | 36.91 | 25.90 | 21.67 | 36.47 | 33.83 | 31.45 | 36.40 | 30.67 | 35.03 |
| Lane Group LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.48 | 4.72 | 3.97 | 0.59 | 4.77 | 0.94 | 0.81 | 4.77 | 2.59 | 1.11 | 4.55 | 5.29 |
| 50th-Percentile Queue Length [ft/ln] | 62.11 | 118.10 | 99.15 | 14.67 | 119.30 | 23.49 | 20.28 | 119.20 | 64.71 | 27.63 | 113.74 | 132.30 |
| 95th-Percentile Queue Length [veh/ln] | 4.47 | 8.29 | 7.14 | 1.06 | 8.35 | 1.69 | 1.46 | 8.35 | 4.66 | 1.99 | 8.05 | 9.06 |
| 95th-Percentile Queue Length [ft/ln] | 111.81 | 207.22 | 178.47 | 26.40 | 208.86 | 42.29 | 36.51 | 208.72 | 116.48 | 49.73 | 201.19 | 226.62 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.79 | 23.90 | 24.57 | 36.91 | 25.90 | 21.67 | 36.47 | 33.83 | 31.45 | 36.40 | 30.67 | 35.03 |
| Movement LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| d_A, Approach Delay [s/veh] | 26.49 | | | 26.29 | | | 33.68 | | | 32.73 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.527 | | | | | | | | | | | |

**Emissions**

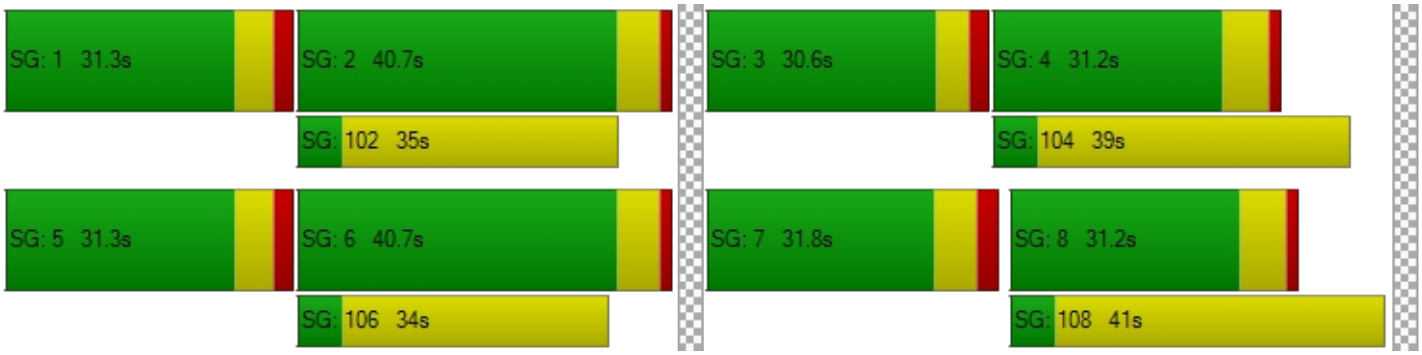
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.75 | 155.17 | 42.26 | 64.84 | 925.94 | 68.89 | 11.63 | 67.95 | 19.21 | 125.36 | 548.08 | 290.10 |
| Stops [stops/h] | 213.03 | 607.58 | 170.03 | 50.31 | 613.71 | 40.29 | 69.57 | 408.81 | 110.97 | 94.75 | 390.08 | 226.87 |
| Fuel consumption [US gal/h] | 6.72 | 19.15 | 5.32 | 3.42 | 45.25 | 3.23 | 2.12 | 12.13 | 3.29 | 6.55 | 27.64 | 15.19 |
| CO [g/h] | 469.47 | 1338.51 | 371.87 | 239.36 | 3162.65 | 225.44 | 148.04 | 847.90 | 229.80 | 457.76 | 1932.29 | 1062.01 |
| NOx [g/h] | 91.34 | 260.43 | 72.35 | 46.57 | 615.34 | 43.86 | 28.80 | 164.97 | 44.71 | 89.06 | 375.95 | 206.63 |
| VOC [g/h] | 108.80 | 310.21 | 86.18 | 55.47 | 732.97 | 52.25 | 34.31 | 196.51 | 53.26 | 106.09 | 447.83 | 246.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 2975.49 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.47 | 33.47 | 33.47 | 33.47 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.326 | 3.349 | 2.967 | 3.084 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 834 | 834 | 595 | 595 |
| d_b, Bicycle Delay [s] | 14.28 | 14.28 | 20.77 | 20.71 |
| l_b,int, Bicycle LOS Score for Intersection | 2.369 | 2.135 | 2.183 | 2.327 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4: Minnewawa Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 3.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 145 | 96 | 2 | 10 | 92 | 23 | 37 | 27 | 57 | 2 | 42 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 0.00 | 0.00 | 2.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 145 | 96 | 2 | 10 | 92 | 23 | 37 | 27 | 57 | 2 | 42 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 26 | 1 | 3 | 25 | 6 | 10 | 7 | 15 | 1 | 11 | 3 |
| Total Analysis Volume [veh/h] | 158 | 104 | 2 | 11 | 100 | 25 | 40 | 29 | 62 | 2 | 46 | 13 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 80 | | | 209 | | | 114 | | | 305 | | |
| Exiting Flow Rate [veh/h] | 165 | | | 157 | | | 232 | | | 42 | | |
| Demand Flow Rate [veh/h] | 145 | 96 | 2 | 10 | 92 | 23 | 37 | 27 | 57 | 2 | 42 | 12 |
| Adjusted Demand Flow Rate [veh/h] | 158 | 104 | 2 | 11 | 100 | 25 | 40 | 29 | 62 | 2 | 46 | 13 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| Entry Flow Rate [veh/h] | 160 | 106 | 65 | 73 | 62 | 70 | 29 | 33 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1254 | 1327 | 1115 | 1190 | 1217 | 1290 | 1020 | 1097 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1242 | 1327 | 1109 | 1186 | 1217 | 1282 | 1020 | 1097 |
| X, volume / capacity | 0.13 | 0.08 | 0.06 | 0.06 | 0.05 | 0.05 | 0.03 | 0.03 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.44 | 0.26 | 0.18 | 0.19 | 0.16 | 0.17 | 0.09 | 0.09 |
| 95th-Percentile Queue Length [ft] | 10.90 | 6.50 | 4.59 | 4.85 | 4.00 | 4.29 | 2.17 | 2.28 |
| Approach Delay [s/veh] | 3.71 | | 3.63 | | 3.30 | | 3.64 | |
| Approach LOS | A | | A | | A | | A | |
| Intersection Delay [s/veh] | 3.60 | | | | | | | |
| Intersection LOS | A | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Minnewawa Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.451 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 15 | 28 | 170 | 62 | 43 | 71 | 290 | 40 | 15 | 321 | 181 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.60 | 3.70 | 0.00 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 69 | 15 | 28 | 170 | 62 | 43 | 71 | 290 | 40 | 15 | 321 | 181 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 4 | 8 | 46 | 17 | 12 | 19 | 79 | 11 | 4 | 87 | 49 |
| Total Analysis Volume [veh/h] | 75 | 16 | 30 | 185 | 67 | 47 | 77 | 315 | 43 | 16 | 349 | 197 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 3.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 6 | 10 | 9 | 8 | 22 | 22 | 2 | 17 | 17 |
| g / C, Green / Cycle | 0.13 | 0.11 | 0.18 | 0.16 | 0.14 | 0.39 | 0.39 | 0.04 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.03 | 0.10 | 0.06 | 0.04 | 0.17 | 0.03 | 0.01 | 0.18 | 0.12 |
| s, saturation flow rate [veh/h] | 1810 | 1694 | 1810 | 1757 | 1810 | 1891 | 1568 | 1810 | 1894 | 1615 |
| c, Capacity [veh/h] | 244 | 184 | 330 | 274 | 248 | 730 | 605 | 79 | 555 | 473 |
| d1, Uniform Delay [s] | 22.36 | 23.40 | 21.32 | 21.82 | 22.29 | 12.96 | 11.10 | 26.41 | 17.55 | 16.30 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.04 | 0.12 | 0.12 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.77 | 0.56 | 1.43 | 0.26 | 0.44 | 0.05 | 0.46 | 1.93 | 0.96 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.25 | 0.56 | 0.42 | 0.31 | 0.43 | 0.07 | 0.20 | 0.63 | 0.42 |
| d, Delay for Lane Group [s/veh] | 22.62 | 24.17 | 21.88 | 23.26 | 22.55 | 13.40 | 11.16 | 26.87 | 19.48 | 17.27 |
| Lane Group LOS | C | C | C | C | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.87 | 0.57 | 2.13 | 1.39 | 0.89 | 2.68 | 0.31 | 0.21 | 3.87 | 2.00 |
| 50th-Percentile Queue Length [ft/ln] | 21.67 | 14.30 | 53.25 | 34.76 | 22.21 | 67.12 | 7.82 | 5.21 | 96.69 | 49.96 |
| 95th-Percentile Queue Length [veh/ln] | 1.56 | 1.03 | 3.83 | 2.50 | 1.60 | 4.83 | 0.56 | 0.38 | 6.96 | 3.60 |
| 95th-Percentile Queue Length [ft/ln] | 39.00 | 25.74 | 95.85 | 62.57 | 39.97 | 120.82 | 14.07 | 9.39 | 174.05 | 89.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 22.62 | 24.17 | 24.17 | 21.88 | 23.26 | 23.26 | 22.55 | 13.40 | 11.16 | 26.87 | 19.48 | 17.27 |
| Movement LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 23.21 | | | 22.40 | | | 14.80 | | | 18.92 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 18.75 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.451 | | | | | | | | | | | |

**Emissions**

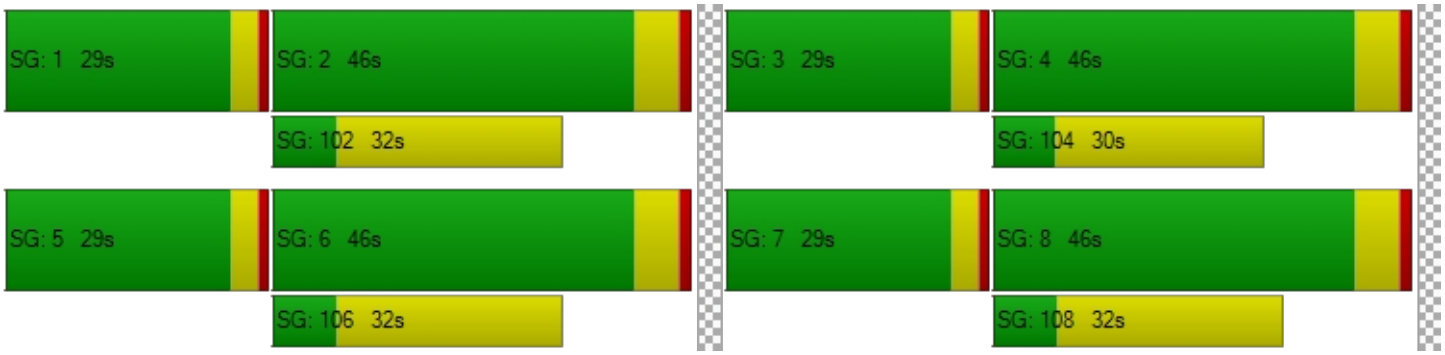
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 75.35 | 46.22 | 93.13 | 57.39 | 79.88 | 326.79 | 44.61 | 9.82 | 214.23 | 120.92 |
| Stops [stops/h] | 54.60 | 36.04 | 134.20 | 87.61 | 55.97 | 169.15 | 19.70 | 13.14 | 243.68 | 125.91 |
| Fuel consumption [US gal/h] | 3.75 | 2.33 | 5.40 | 3.39 | 3.95 | 15.25 | 2.04 | 0.56 | 11.55 | 6.37 |
| CO [g/h] | 262.05 | 162.72 | 377.37 | 236.68 | 276.18 | 1065.71 | 142.80 | 39.45 | 807.28 | 444.98 |
| NOx [g/h] | 50.99 | 31.66 | 73.42 | 46.05 | 53.73 | 207.35 | 27.78 | 7.68 | 157.07 | 86.58 |
| VOC [g/h] | 60.73 | 37.71 | 87.46 | 54.85 | 64.01 | 246.99 | 33.09 | 9.14 | 187.09 | 103.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.63 | 18.63 | 18.63 | 18.63 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.166 | 2.249 | 2.575 | 2.372 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1400 | 1400 | 1400 | 1400 |
| d_b, Bicycle Delay [s] | 2.57 | 2.57 | 2.57 | 2.57 |
| l_b,int, Bicycle LOS Score for Intersection | 1.759 | 2.053 | 2.277 | 2.487 |
| Bicycle LOS | A | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 6: Minnewawa Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.566 |

**Intersection Setup**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 225.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 75.00 | 215.00 | 100.00 | 55.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Minnewawa | | | Minnewawa | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 294 | 231 | 106 | 9 | 100 | 40 | 69 | 464 | 107 | 98 | 404 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.90 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 294 | 231 | 106 | 9 | 100 | 40 | 69 | 464 | 107 | 98 | 404 | 4 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 79 | 62 | 28 | 2 | 27 | 11 | 19 | 125 | 29 | 26 | 109 | 1 |
| Total Analysis Volume [veh/h] | 316 | 248 | 114 | 10 | 108 | 43 | 74 | 499 | 115 | 105 | 434 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 13 | 20 | 20 | 2 | 9 | 8 | 13 | 13 | 9 | 15 | 15 |
| g / C, Green / Cycle | 0.21 | 0.34 | 0.34 | 0.03 | 0.15 | 0.13 | 0.22 | 0.22 | 0.15 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.07 | 0.07 | 0.01 | 0.08 | 0.04 | 0.14 | 0.07 | 0.06 | 0.12 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3592 | 1615 | 1810 | 1801 | 1810 | 3618 | 1615 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 382 | 1211 | 544 | 52 | 278 | 236 | 799 | 357 | 273 | 874 | 390 |
| d1, Uniform Delay [s] | 22.98 | 14.39 | 14.42 | 28.93 | 23.80 | 24.06 | 21.48 | 19.94 | 23.34 | 19.93 | 17.59 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.57 | 0.08 | 0.19 | 1.77 | 1.65 | 0.75 | 0.81 | 0.52 | 0.89 | 0.44 | 0.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.83 | 0.20 | 0.21 | 0.19 | 0.54 | 0.31 | 0.62 | 0.32 | 0.38 | 0.50 | 0.01 |
| d, Delay for Lane Group [s/veh] | 27.55 | 14.48 | 14.61 | 30.70 | 25.44 | 24.81 | 22.29 | 20.45 | 24.22 | 20.37 | 17.60 |
| Lane Group LOS | C | B | B | C | C | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.22 | 1.03 | 0.96 | 0.15 | 1.89 | 0.89 | 2.80 | 1.21 | 1.24 | 2.28 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 105.56 | 25.76 | 24.11 | 3.87 | 47.30 | 22.25 | 70.03 | 30.29 | 31.06 | 56.90 | 0.93 |
| 95th-Percentile Queue Length [veh/ln] | 7.59 | 1.85 | 1.74 | 0.28 | 3.41 | 1.60 | 5.04 | 2.18 | 2.24 | 4.10 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 189.81 | 46.36 | 43.41 | 6.96 | 85.13 | 40.05 | 126.05 | 54.51 | 55.90 | 102.43 | 1.68 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 27.55 | 14.48 | 14.61 | 30.70 | 25.44 | 25.44 | 24.81 | 22.29 | 20.45 | 24.22 | 20.37 | 17.60 |
| Movement LOS | C | B | B | C | C | C | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 20.59 | | | 25.77 | | | 22.25 | | | 21.10 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.68 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.566 | | | | | | | | | | | |

**Emissions**

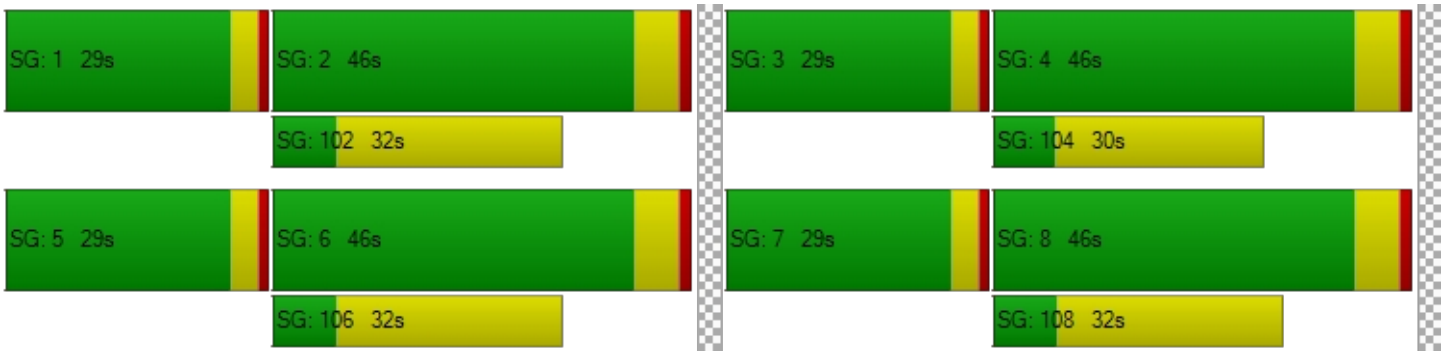
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.83 | 29.69 | 13.65 | 10.05 | 151.71 | 76.67 | 517.00 | 119.15 | 52.58 | 217.34 | 2.00 |
| Stops [stops/h] | 250.10 | 122.05 | 57.13 | 9.16 | 112.05 | 52.72 | 331.84 | 71.75 | 73.58 | 269.64 | 2.21 |
| Fuel consumption [US gal/h] | 6.18 | 3.27 | 1.52 | 0.52 | 7.38 | 3.75 | 24.67 | 5.57 | 3.41 | 13.22 | 0.12 |
| CO [g/h] | 431.85 | 228.29 | 106.04 | 36.40 | 515.54 | 262.15 | 1724.45 | 389.36 | 238.21 | 923.83 | 8.06 |
| NOx [g/h] | 84.02 | 44.42 | 20.63 | 7.08 | 100.31 | 51.00 | 335.52 | 75.75 | 46.35 | 179.74 | 1.57 |
| VOC [g/h] | 100.08 | 52.91 | 24.58 | 8.44 | 119.48 | 60.76 | 399.66 | 90.24 | 55.21 | 214.11 | 1.87 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.38 | 20.38 | 20.38 | 20.38 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.572 | 2.287 | 2.832 | 2.747 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1316 | 1316 | 1316 | 1316 |
| d_b, Bicycle Delay [s] | 3.55 | 3.55 | 3.55 | 3.55 |
| l_b,int, Bicycle LOS Score for Intersection | 2.119 | 1.825 | 2.127 | 2.008 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 7: Clovis Ave & International Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 9.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.331 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | International | | | International | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 28 | 616 | 0 | 21 | 411 | 0 | 0 | 0 | 13 | 0 | 5 | 7 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 28 | 616 | 0 | 21 | 411 | 0 | 0 | 0 | 13 | 0 | 5 | 7 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 167 | 0 | 6 | 112 | 0 | 0 | 0 | 4 | 0 | 1 | 2 |
| Total Analysis Volume [veh/h] | 30 | 670 | 0 | 23 | 447 | 0 | 0 | 0 | 14 | 0 | 5 | 8 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 25 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 3 | 12 | 12 | 2 | 11 | 11 | 0 | 3 | 3 | 0 | 3 | 3 |
| g / C, Green / Cycle | 0.08 | 0.35 | 0.35 | 0.07 | 0.34 | 0.34 | 0.00 | 0.09 | 0.09 | 0.00 | 0.09 | 0.09 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.19 | 0.00 | 0.01 | 0.13 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 149 | 1259 | 562 | 118 | 1198 | 535 | 1 | 178 | 152 | 1 | 178 | 152 |
| d1, Uniform Delay [s] | 14.11 | 8.50 | 0.00 | 14.59 | 8.32 | 0.00 | 0.00 | 0.00 | 13.64 | 0.00 | 13.55 | 13.58 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.25 | 0.38 | 0.00 | 0.30 | 0.28 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.10 | 0.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.20 | 0.53 | 0.00 | 0.20 | 0.37 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.03 | 0.05 |
| d, Delay for Lane Group [s/veh] | 14.36 | 8.88 | 0.00 | 14.89 | 8.59 | 0.00 | 0.00 | 0.00 | 14.04 | 0.00 | 13.66 | 13.82 |
| Lane Group LOS | B | A | A | B | A | A | A | A | B | A | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | No | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.18 | 1.31 | 0.00 | 0.14 | 0.86 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.03 | 0.05 |
| 50th-Percentile Queue Length [ft/ln] | 4.44 | 32.84 | 0.00 | 3.53 | 21.45 | 0.00 | 0.00 | 0.00 | 2.32 | 0.00 | 0.80 | 1.33 |
| 95th-Percentile Queue Length [veh/ln] | 0.32 | 2.36 | 0.00 | 0.25 | 1.54 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.06 | 0.10 |
| 95th-Percentile Queue Length [ft/ln] | 7.99 | 59.11 | 0.00 | 6.36 | 38.62 | 0.00 | 0.00 | 0.00 | 4.17 | 0.00 | 1.44 | 2.39 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 14.36 | 8.88 | 0.00 | 14.89 | 8.59 | 0.00 | 0.00 | 0.00 | 14.04 | 0.00 | 13.66 | 13.82 |
| Movement LOS | B | A | A | B | A | A | A | A | B | A | B | B |
| d_A, Approach Delay [s/veh] | 9.11 | | | 8.90 | | | 14.04 | | | 13.76 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.14 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.331 | | | | | | | | | | | |

**Emissions**

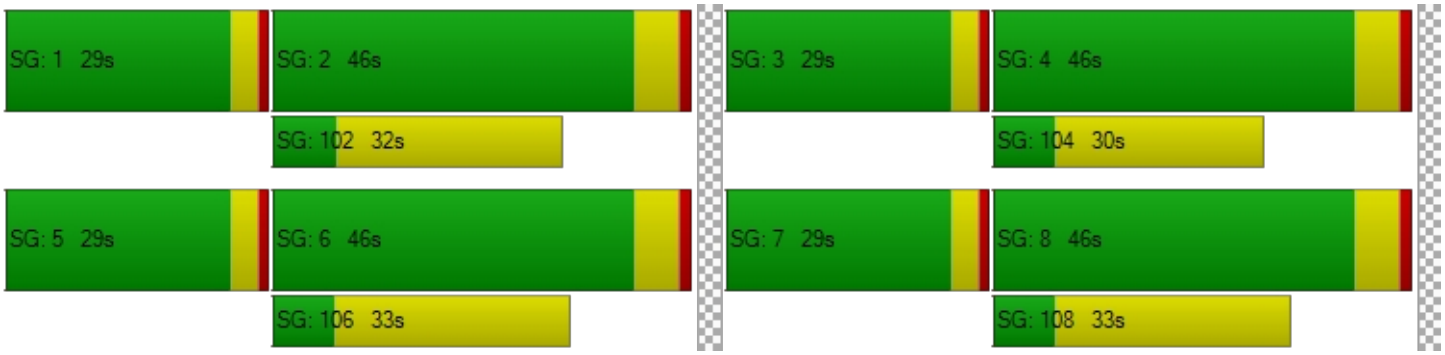
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.68 | 350.17 | 0.00 | 0.54 | 10.56 | 0.00 | 0.00 | 0.00 | 10.56 | 0.00 | 0.12 | 0.19 |
| Stops [stops/h] | 19.47 | 287.94 | 0.00 | 15.48 | 188.10 | 0.00 | 0.00 | 0.00 | 10.16 | 0.00 | 3.52 | 5.82 |
| Fuel consumption [US gal/h] | 0.84 | 17.22 | 0.00 | 0.18 | 2.26 | 0.00 | 0.00 | 0.00 | 0.53 | 0.00 | 0.04 | 0.06 |
| CO [g/h] | 58.76 | 1203.46 | 0.00 | 12.41 | 157.68 | 0.00 | 0.00 | 0.00 | 37.11 | 0.00 | 2.67 | 4.37 |
| NOx [g/h] | 11.43 | 234.15 | 0.00 | 2.42 | 30.68 | 0.00 | 0.00 | 0.00 | 7.22 | 0.00 | 0.52 | 0.85 |
| VOC [g/h] | 13.62 | 278.91 | 0.00 | 2.88 | 36.54 | 0.00 | 0.00 | 0.00 | 8.60 | 0.00 | 0.62 | 1.01 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 7.27 | 7.27 | 7.27 | 7.27 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.692 | 2.576 | 2.246 | 2.077 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2436 | 2436 | 2436 | 2436 |
| d_b, Bicycle Delay [s] | 0.78 | 0.78 | 0.78 | 0.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.137 | 1.947 | 1.583 | 1.581 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 8: Clovis Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 13.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.465 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 82 | 929 | 8 | 5 | 520 | 0 | 0 | 104 | 50 | 1 | 27 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 82 | 929 | 8 | 5 | 520 | 0 | 0 | 104 | 50 | 1 | 27 | 4 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 252 | 2 | 1 | 141 | 0 | 0 | 28 | 14 | 0 | 7 | 1 |
| Total Analysis Volume [veh/h] | 89 | 1010 | 9 | 5 | 565 | 0 | 0 | 113 | 54 | 1 | 29 | 4 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 21 | 21 | 1 | 14 | 14 | 0 | 10 | 10 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.16 | 0.43 | 0.43 | 0.02 | 0.29 | 0.29 | 0.00 | 0.21 | 0.21 | 0.00 | 0.21 | 0.21 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.28 | 0.01 | 0.00 | 0.16 | 0.00 | 0.00 | 0.06 | 0.03 | 0.00 | 0.02 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 |
| c, Capacity [veh/h] | 287 | 1544 | 689 | 27 | 1023 | 457 | 0 | 395 | 336 | 6 | 401 | 341 |
| d1, Uniform Delay [s] | 17.59 | 10.64 | 7.67 | 23.12 | 14.35 | 0.00 | 0.00 | 15.73 | 15.30 | 23.63 | 14.90 | 14.70 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.23 | 0.52 | 0.01 | 1.21 | 0.67 | 0.00 | 0.00 | 0.60 | 0.34 | 5.25 | 0.12 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.65 | 0.01 | 0.19 | 0.55 | 0.00 | 0.00 | 0.29 | 0.16 | 0.17 | 0.07 | 0.01 |
| d, Delay for Lane Group [s/veh] | 17.82 | 11.16 | 7.68 | 24.33 | 15.01 | 0.00 | 0.00 | 16.33 | 15.64 | 28.88 | 15.02 | 14.73 |
| Lane Group LOS | B | B | A | C | B | A | A | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.78 | 3.34 | 0.04 | 0.06 | 2.28 | 0.00 | 0.00 | 0.89 | 0.41 | 0.02 | 0.23 | 0.03 |
| 50th-Percentile Queue Length [ft/ln] | 19.58 | 83.58 | 1.08 | 1.49 | 57.01 | 0.00 | 0.00 | 22.17 | 10.33 | 0.47 | 5.84 | 0.80 |
| 95th-Percentile Queue Length [veh/ln] | 1.41 | 6.02 | 0.08 | 0.11 | 4.10 | 0.00 | 0.00 | 1.60 | 0.74 | 0.03 | 0.42 | 0.06 |
| 95th-Percentile Queue Length [ft/ln] | 35.24 | 150.44 | 1.94 | 2.69 | 102.62 | 0.00 | 0.00 | 39.90 | 18.59 | 0.84 | 10.52 | 1.44 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 17.82 | 11.16 | 7.68 | 24.33 | 15.01 | 0.00 | 0.00 | 16.33 | 15.64 | 28.88 | 15.02 | 14.73 |
| Movement LOS | B | B | A | C | B | A | A | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 11.67 | | | 15.10 | | | 16.11 | | | 15.39 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.17 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.465 | | | | | | | | | | | |

**Emissions**

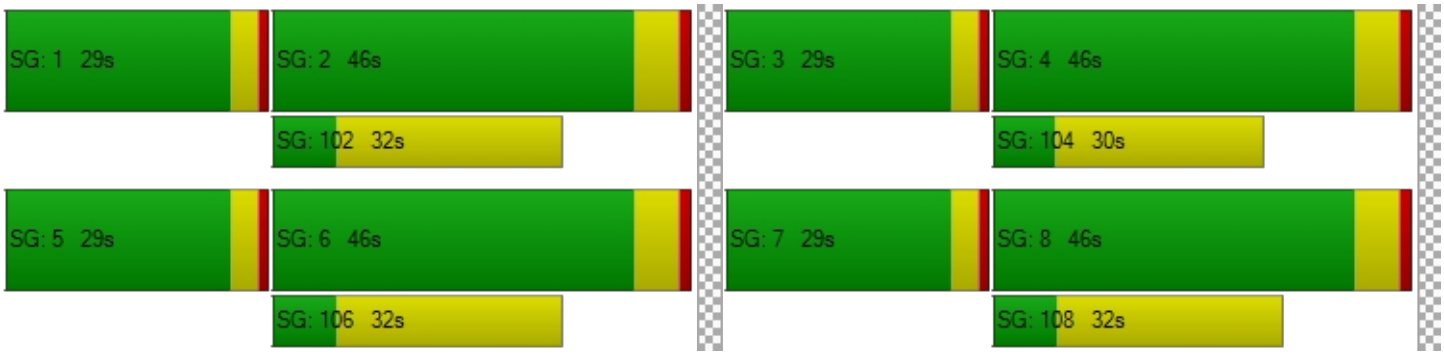
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 92.00 | 1044.00 | 9.30 | 2.61 | 295.29 | 0.00 | 0.00 | 69.36 | 33.15 | 0.39 | 11.33 | 1.56 |
| Stops [stops/h] | 59.45 | 507.50 | 3.27 | 4.53 | 346.18 | 0.00 | 0.00 | 67.30 | 31.35 | 1.41 | 17.74 | 2.43 |
| Fuel consumption [US gal/h] | 4.44 | 48.08 | 0.42 | 0.16 | 15.80 | 0.00 | 0.00 | 3.59 | 1.70 | 0.03 | 0.65 | 0.09 |
| CO [g/h] | 310.24 | 3360.50 | 29.01 | 11.00 | 1104.09 | 0.00 | 0.00 | 250.94 | 118.68 | 2.08 | 45.66 | 6.28 |
| NOx [g/h] | 60.36 | 653.83 | 5.65 | 2.14 | 214.82 | 0.00 | 0.00 | 48.82 | 23.09 | 0.40 | 8.88 | 1.22 |
| VOC [g/h] | 71.90 | 778.83 | 6.72 | 2.55 | 255.88 | 0.00 | 0.00 | 58.16 | 27.51 | 0.48 | 10.58 | 1.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 13.99 | 13.99 | 13.99 | 13.99 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.697 | 2.673 | 2.198 | 2.133 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1687 | 1687 | 1687 | 1687 |
| d_b, Bicycle Delay [s] | 0.58 | 0.58 | 0.58 | 0.58 |
| l_b,int, Bicycle LOS Score for Intersection | 2.474 | 2.030 | 1.835 | 1.616 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 9: Clovis Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.489 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 235.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 | 240.00 | 100.00 | 50.00 | 245.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 1500.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 238 | 426 | 242 | 197 | 214 | 30 | 179 | 345 | 84 | 37 | 327 | 217 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 8.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 238 | 426 | 242 | 197 | 214 | 30 | 179 | 345 | 84 | 37 | 327 | 217 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 63 | 112 | 64 | 52 | 56 | 8 | 47 | 91 | 22 | 10 | 86 | 57 |
| Total Analysis Volume [veh/h] | 251 | 448 | 255 | 207 | 225 | 32 | 188 | 363 | 88 | 39 | 344 | 228 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.6 | 4.7 | 0.0 | 3.6 | 4.7 | 0.0 | 3.6 | 5.0 | 0.0 | 3.6 | 5.0 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 27 | 0 | 0 | 26 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.1 | 0.0 | 2.0 | 6.6 | 0.0 | 2.0 | 4.1 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 12 | 20 | 20 | 11 | 20 | 20 | 11 | 21 | 21 | 7 | 17 | 17 |
| g / C, Green / Cycle | 0.15 | 0.26 | 0.26 | 0.15 | 0.26 | 0.26 | 0.15 | 0.28 | 0.28 | 0.10 | 0.23 | 0.23 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.13 | 0.16 | 0.06 | 0.06 | 0.02 | 0.05 | 0.10 | 0.05 | 0.01 | 0.10 | 0.14 |
| s, saturation flow rate [veh/h] | 3514 | 3578 | 1611 | 3514 | 3618 | 1615 | 3514 | 3618 | 1610 | 3292 | 3618 | 1611 |
| c, Capacity [veh/h] | 533 | 935 | 421 | 530 | 942 | 421 | 527 | 1021 | 455 | 315 | 825 | 367 |
| d1, Uniform Delay [s] | 29.53 | 23.77 | 24.69 | 29.20 | 22.23 | 21.27 | 29.09 | 21.82 | 20.76 | 31.54 | 25.10 | 26.45 |
| k, delay calibration | 0.04 | 0.24 | 0.24 | 0.04 | 0.55 | 0.55 | 0.04 | 0.16 | 0.16 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.24 | 0.86 | 3.13 | 0.17 | 0.66 | 0.39 | 0.15 | 0.31 | 0.30 | 0.06 | 0.50 | 2.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.48 | 0.61 | 0.39 | 0.24 | 0.08 | 0.36 | 0.36 | 0.19 | 0.12 | 0.42 | 0.62 |
| d, Delay for Lane Group [s/veh] | 29.77 | 24.62 | 27.82 | 29.38 | 22.89 | 21.66 | 29.24 | 22.13 | 21.07 | 31.61 | 25.60 | 28.97 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.96 | 3.20 | 4.01 | 1.67 | 1.62 | 0.46 | 1.42 | 2.34 | 1.10 | 0.32 | 2.61 | 3.82 |
| 50th-Percentile Queue Length [ft/ln] | 48.94 | 79.92 | 100.37 | 41.71 | 40.41 | 11.55 | 35.44 | 58.44 | 27.42 | 8.08 | 65.27 | 95.61 |
| 95th-Percentile Queue Length [veh/ln] | 3.52 | 5.75 | 7.23 | 3.00 | 2.91 | 0.83 | 2.55 | 4.21 | 1.97 | 0.58 | 4.70 | 6.88 |
| 95th-Percentile Queue Length [ft/ln] | 88.09 | 143.85 | 180.67 | 75.08 | 72.73 | 20.78 | 63.79 | 105.20 | 49.35 | 14.54 | 117.49 | 172.11 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 29.77 | 24.62 | 27.82 | 29.38 | 22.89 | 21.66 | 29.24 | 22.13 | 21.07 | 31.61 | 25.60 | 28.97 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.83 | | | 25.70 | | | 24.07 | | | 27.24 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.07 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.489 | | | | | | | | | | | |

**Emissions**

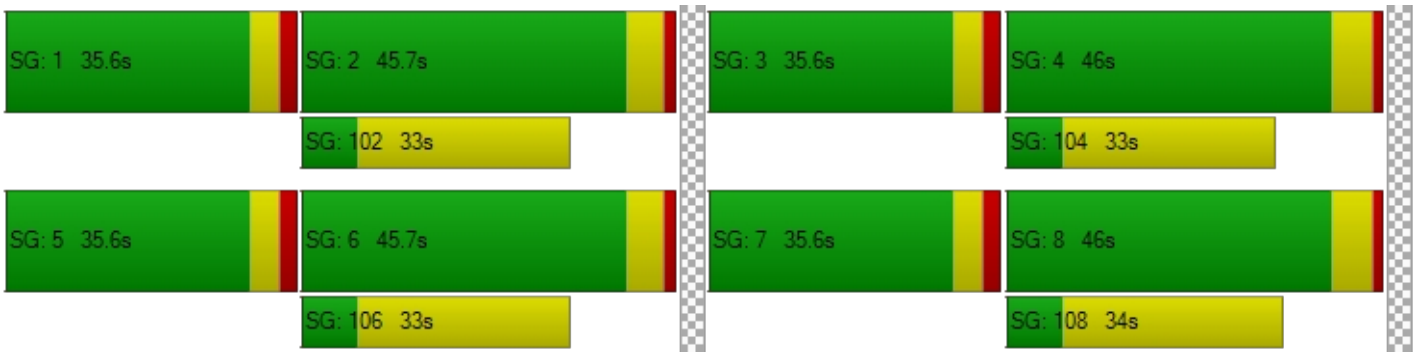
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 255.55 | 456.12 | 259.62 | 213.97 | 232.57 | 33.08 | 94.15 | 181.78 | 44.07 | 19.55 | 172.45 | 114.30 |
| Stops [stops/h] | 185.31 | 302.60 | 190.03 | 157.94 | 153.00 | 21.86 | 134.19 | 221.29 | 51.91 | 30.58 | 247.15 | 181.02 |
| Fuel consumption [US gal/h] | 12.58 | 21.64 | 12.71 | 10.92 | 11.47 | 1.62 | 6.33 | 11.12 | 2.65 | 1.22 | 10.26 | 7.05 |
| CO [g/h] | 879.64 | 1512.79 | 888.13 | 763.20 | 801.59 | 113.48 | 442.56 | 777.22 | 185.22 | 85.60 | 716.95 | 492.77 |
| NOx [g/h] | 171.15 | 294.33 | 172.80 | 148.49 | 155.96 | 22.08 | 86.11 | 151.22 | 36.04 | 16.66 | 139.49 | 95.88 |
| VOC [g/h] | 203.87 | 350.60 | 205.83 | 176.88 | 185.78 | 26.30 | 102.57 | 180.13 | 42.93 | 19.84 | 166.16 | 114.20 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 5298.37 | 0.00 | 5154.67 |
| d_p, Pedestrian Delay [s] | 27.83 | 27.83 | 27.83 | 27.83 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.955 | 2.878 | 2.973 | 2.891 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1052 | 1052 | 1052 | 1052 |
| d_b, Bicycle Delay [s] | 8.55 | 8.55 | 8.55 | 8.55 |
| l_b,int, Bicycle LOS Score for Intersection | 2.347 | 1.942 | 2.087 | 2.064 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 10: Clovis Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 330.00 | 100.00 | 95.00 | 265.00 | 100.00 | 145.00 | 230.00 | 100.00 | 100.00 | 55.00 | 100.00 | 60.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 92 | 906 | 46 | 67 | 492 | 27 | 42 | 757 | 126 | 36 | 712 | 225 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.40 | 3.80 | 0.60 | 0.80 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 1.10 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 92 | 906 | 46 | 67 | 492 | 27 | 42 | 757 | 126 | 36 | 712 | 225 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 238 | 12 | 18 | 129 | 7 | 11 | 199 | 33 | 9 | 187 | 59 |
| Total Analysis Volume [veh/h] | 97 | 954 | 48 | 71 | 518 | 28 | 44 | 797 | 133 | 38 | 749 | 237 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 30 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.1 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 31 | 31 | 8 | 30 | 30 | 7 | 26 | 26 | 6 | 26 | 26 |
| g / C, Green / Cycle | 0.10 | 0.35 | 0.35 | 0.09 | 0.34 | 0.34 | 0.08 | 0.30 | 0.30 | 0.07 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.26 | 0.03 | 0.04 | 0.14 | 0.02 | 0.02 | 0.22 | 0.08 | 0.02 | 0.21 | 0.15 |
| s, saturation flow rate [veh/h] | 1810 | 3606 | 1564 | 1801 | 3595 | 1614 | 1810 | 3612 | 1606 | 1810 | 3586 | 1615 |
| c, Capacity [veh/h] | 187 | 1269 | 550 | 170 | 1232 | 553 | 136 | 1091 | 485 | 125 | 1062 | 478 |
| d1, Uniform Delay [s] | 37.23 | 25.03 | 18.99 | 37.46 | 22.14 | 19.28 | 38.42 | 27.40 | 23.28 | 38.80 | 27.47 | 25.47 |
| k, delay calibration | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 | 0.04 | 0.16 | 0.16 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.82 | 1.40 | 0.10 | 0.61 | 0.35 | 0.06 | 0.50 | 1.46 | 0.46 | 0.50 | 1.28 | 1.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.52 | 0.75 | 0.09 | 0.42 | 0.42 | 0.05 | 0.32 | 0.73 | 0.27 | 0.30 | 0.71 | 0.50 |
| d, Delay for Lane Group [s/veh] | 38.06 | 26.43 | 19.10 | 38.07 | 22.49 | 19.34 | 38.92 | 28.86 | 23.74 | 39.30 | 28.75 | 26.64 |
| Lane Group LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.91 | 8.15 | 0.62 | 1.39 | 3.82 | 0.36 | 0.87 | 7.08 | 2.01 | 0.76 | 6.61 | 3.92 |
| 50th-Percentile Queue Length [ft/ln] | 47.78 | 203.87 | 15.49 | 34.83 | 95.48 | 9.07 | 21.80 | 176.90 | 50.16 | 18.94 | 165.15 | 98.03 |
| 95th-Percentile Queue Length [veh/ln] | 3.44 | 12.84 | 1.12 | 2.51 | 6.87 | 0.65 | 1.57 | 11.44 | 3.61 | 1.36 | 10.82 | 7.06 |
| 95th-Percentile Queue Length [ft/ln] | 86.01 | 320.96 | 27.88 | 62.70 | 171.86 | 16.33 | 39.25 | 285.96 | 90.28 | 34.09 | 270.53 | 176.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 38.06 | 26.43 | 19.10 | 38.07 | 22.49 | 19.34 | 38.92 | 28.86 | 23.74 | 39.30 | 28.75 | 26.64 |
| Movement LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.14 | | | 24.14 | | | 28.61 | | | 28.65 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.45 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.632 | | | | | | | | | | | |

**Emissions**

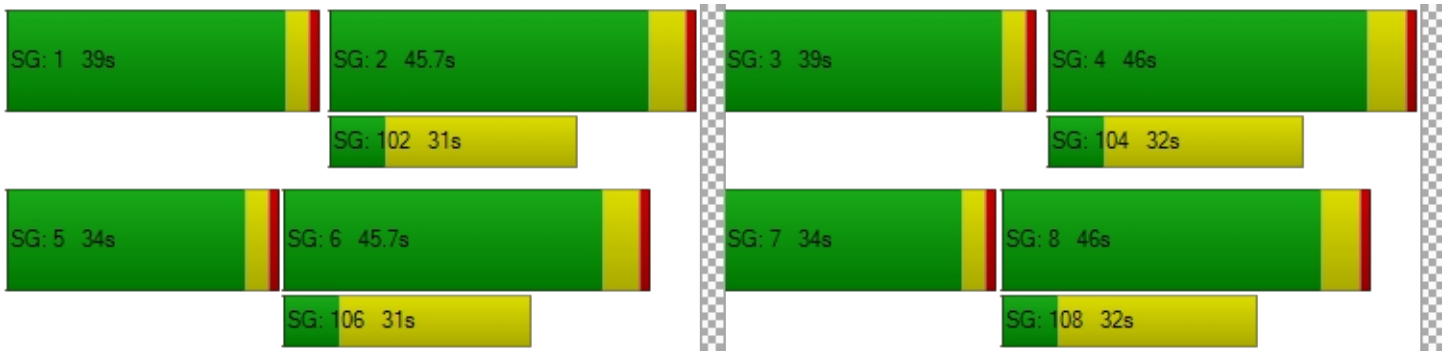
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 50.93 | 500.88 | 25.20 | 72.29 | 527.39 | 28.51 | 3.81 | 68.94 | 11.50 | 22.87 | 450.76 | 142.63 |
| Stops [stops/h] | 78.61 | 670.80 | 25.48 | 57.30 | 314.16 | 14.92 | 35.87 | 582.05 | 82.52 | 31.16 | 543.39 | 161.27 |
| Fuel consumption [US gal/h] | 3.47 | 30.64 | 1.37 | 3.74 | 24.35 | 1.27 | 0.92 | 14.28 | 2.06 | 1.48 | 26.59 | 8.18 |
| CO [g/h] | 242.86 | 2141.82 | 95.57 | 261.45 | 1702.39 | 88.98 | 64.65 | 998.17 | 144.20 | 103.12 | 1858.61 | 571.72 |
| NOx [g/h] | 47.25 | 416.72 | 18.59 | 50.87 | 331.22 | 17.31 | 12.58 | 194.21 | 28.06 | 20.06 | 361.62 | 111.24 |
| VOC [g/h] | 56.28 | 496.39 | 22.15 | 60.59 | 394.55 | 20.62 | 14.98 | 231.34 | 33.42 | 23.90 | 430.75 | 132.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.46 | 33.46 | 33.46 | 33.46 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.966 | 2.979 | 2.901 | 2.924 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 914 | 914 | 914 | 914 |
| d_b, Bicycle Delay [s] | 12.90 | 12.90 | 12.90 | 12.90 |
| l_b,int, Bicycle LOS Score for Intersection | 2.466 | 2.069 | 2.363 | 2.404 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Clovis Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.666 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 240.00 | 100.00 | 100.00 | 150.00 | 100.00 | 100.00 | 165.00 | 100.00 | 105.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 106 | 805 | 206 | 56 | 472 | 13 | 22 | 369 | 203 | 35 | 180 | 149 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.50 | 0.00 | 0.00 | 1.70 | 0.00 | 0.00 | 1.70 | 0.80 | 3.40 | 1.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 106 | 805 | 206 | 56 | 472 | 13 | 22 | 369 | 203 | 35 | 180 | 149 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 219 | 56 | 15 | 128 | 4 | 6 | 100 | 55 | 10 | 49 | 40 |
| Total Analysis Volume [veh/h] | 115 | 875 | 224 | 61 | 513 | 14 | 24 | 401 | 221 | 38 | 196 | 162 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 8 | | | 4 | | | 8 | | | 3 | | |
| v_di, Inbound Pedestrian Volume crossing m | 8 | | | 3 | | | 8 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 8 | | | 3 | | | 3 | | | 9 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 9 | | | 3 | | | 3 | | | 8 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 2 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 23 | 31 | 0 | 13 | 31 | 0 | 15 | 31 | 0 | 15 | 31 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 24 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 29 | 0 | 0 | 27 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 9 | 0 | 12 | 9 | 0 | 10 | 9 | 0 | 10 | 9 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 11 | 31 | 31 | 9 | 29 | 29 | 5 | 25 | 25 | 6 | 27 | 27 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.35 | 0.11 | 0.33 | 0.33 | 0.05 | 0.29 | 0.29 | 0.07 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.30 | 0.30 | 0.03 | 0.14 | 0.14 | 0.01 | 0.21 | 0.14 | 0.02 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1810 | 1892 | 1741 | 1810 | 1874 | 1856 | 1810 | 1874 | 1578 | 1761 | 1876 | 1582 |
| c, Capacity [veh/h] | 234 | 664 | 611 | 193 | 615 | 609 | 96 | 539 | 454 | 126 | 575 | 485 |
| d1, Uniform Delay [s] | 35.36 | 26.31 | 26.49 | 36.08 | 22.96 | 22.96 | 39.67 | 28.18 | 25.69 | 38.47 | 23.47 | 23.36 |
| k, delay calibration | 0.11 | 0.34 | 0.35 | 0.11 | 0.11 | 0.11 | 0.11 | 0.16 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.60 | 9.51 | 11.44 | 0.93 | 0.48 | 0.48 | 1.33 | 3.01 | 0.81 | 1.32 | 0.35 | 0.40 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.49 | 0.86 | 0.87 | 0.32 | 0.43 | 0.43 | 0.25 | 0.74 | 0.49 | 0.30 | 0.34 | 0.33 |
| d, Delay for Lane Group [s/veh] | 36.96 | 35.82 | 37.93 | 37.01 | 23.43 | 23.45 | 41.01 | 31.19 | 26.50 | 39.79 | 23.82 | 23.77 |
| Lane Group LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 2.25 | 11.62 | 11.23 | 1.19 | 4.00 | 3.97 | 0.51 | 7.43 | 3.61 | 0.78 | 2.95 | 2.44 |
| 50th-Percentile Queue Length [ft/ln] | 56.37 | 290.54 | 280.69 | 29.76 | 99.90 | 99.17 | 12.66 | 185.80 | 90.23 | 19.52 | 73.82 | 60.94 |
| 95th-Percentile Queue Length [veh/ln] | 4.06 | 17.21 | 16.72 | 2.14 | 7.19 | 7.14 | 0.91 | 11.90 | 6.50 | 1.41 | 5.32 | 4.39 |
| 95th-Percentile Queue Length [ft/ln] | 101.46 | 430.31 | 418.07 | 53.57 | 179.82 | 178.50 | 22.80 | 297.57 | 162.41 | 35.14 | 132.88 | 109.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.96 | 36.56 | 37.93 | 37.01 | 23.44 | 23.45 | 41.01 | 31.19 | 26.50 | 39.79 | 23.82 | 23.77 |
| Movement LOS | D | D | D | D | C | C | D | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 36.85 | | | 24.85 | | | 29.95 | | | 25.33 | | |
| Approach LOS | D | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.666 | | | | | | | | | | | |

**Emissions**

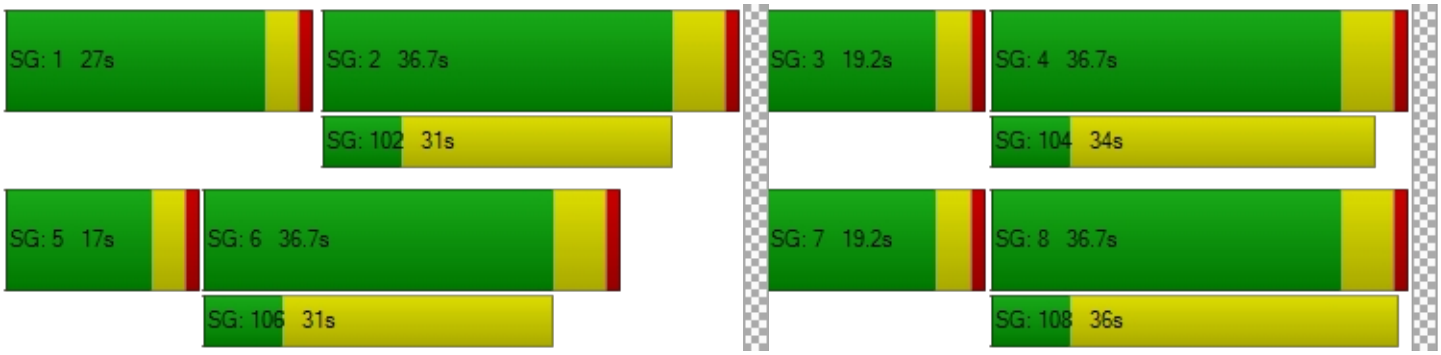
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 61.10 | 301.81 | 282.09 | 32.03 | 138.89 | 137.80 | 2.41 | 40.20 | 22.16 | 18.09 | 93.28 | 77.10 |
| Stops [stops/h] | 93.12 | 479.99 | 463.71 | 49.16 | 165.04 | 163.83 | 20.92 | 306.95 | 149.06 | 32.25 | 121.96 | 100.67 |
| Fuel consumption [US gal/h] | 4.12 | 20.45 | 19.53 | 2.17 | 8.07 | 8.01 | 0.54 | 7.74 | 3.80 | 1.33 | 5.66 | 4.68 |
| CO [g/h] | 287.79 | 1429.70 | 1365.36 | 151.57 | 564.40 | 560.09 | 37.95 | 541.03 | 265.94 | 92.87 | 395.92 | 327.00 |
| NOx [g/h] | 55.99 | 278.17 | 265.65 | 29.49 | 109.81 | 108.97 | 7.38 | 105.26 | 51.74 | 18.07 | 77.03 | 63.62 |
| VOC [g/h] | 66.70 | 331.35 | 316.44 | 35.13 | 130.81 | 129.81 | 8.79 | 125.39 | 61.63 | 21.52 | 91.76 | 75.79 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 33.28 | 33.28 | 33.28 | 33.28 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.935 | 2.780 | 2.484 | 2.525 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 711 | 711 | 711 | 711 |
| d_b, Bicycle Delay [s] | 18.09 | 18.09 | 18.09 | 18.11 |
| l_b,int, Bicycle LOS Score for Intersection | 2.561 | 2.045 | 2.626 | 2.213 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 12: Clovis Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 57.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.956 |

**Intersection Setup**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 230.00 | 100.00 | 185.00 | 240.00 | 100.00 | 240.00 | 250.00 | 100.00 | 150.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 449.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Clovis | | | Clovis | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 680 | 526 | 300 | 213 | 323 | 415 | 682 | 1685 | 464 | 349 | 1443 | 161 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 42.00 | 1.10 | 0.70 | 1.90 | 0.70 | 2.20 | 1.30 | 0.70 | 0.80 | 0.70 | 0.60 | 0.60 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 341 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 680 | 526 | 300 | 213 | 323 | 74 | 682 | 1685 | 464 | 349 | 1443 | 161 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 179 | 138 | 79 | 56 | 85 | 19 | 179 | 443 | 122 | 92 | 380 | 42 |
| Total Analysis Volume [veh/h] | 716 | 554 | 316 | 224 | 340 | 78 | 718 | 1774 | 488 | 367 | 1519 | 169 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 1 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 1 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 2 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 80.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Overlap | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 7 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | 6,7 | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 30 | 40 | 35 | 30 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 3.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 31 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 39 | 44 | 0 | 18 | 23 | 0 | 24 | 51 | 39 | 19 | 46 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 13 | 10 | 14 | 13 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 1.9 | 0.0 | 2.0 | 3.3 | 0.0 | 2.0 | 3.0 | 2.0 | 2.0 | 2.6 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | No | No | No | |
| Maximum Recall | No | No | | No | No | | No | Yes | No | No | Yes | |
| Pedestrian Recall | No | No | | No | No | | No | No | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 35 | 35 | 35 | 14 | 14 | 14 | 30 | 57 | 96 | 15 | 42 | 42 |
| g / C, Green / Cycle | 0.26 | 0.25 | 0.25 | 0.10 | 0.10 | 0.10 | 0.22 | 0.42 | 0.70 | 0.11 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.30 | 0.15 | 0.20 | 0.06 | 0.07 | 0.03 | 0.21 | 0.34 | 0.30 | 0.11 | 0.29 | 0.11 |
| s, saturation flow rate [veh/h] | 2348 | 3586 | 1599 | 3461 | 5147 | 2763 | 3478 | 5147 | 1605 | 3495 | 5151 | 1604 |
| c, Capacity [veh/h] | 601 | 911 | 406 | 357 | 520 | 279 | 760 | 2140 | 1125 | 385 | 1583 | 493 |
| d1, Uniform Delay [s] | 50.84 | 44.97 | 47.39 | 58.79 | 59.14 | 56.81 | 52.60 | 35.61 | 8.78 | 60.46 | 46.50 | 36.64 |
| k, delay calibration | 0.10 | 0.04 | 0.17 | 0.04 | 0.12 | 0.12 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 89.40 | 0.24 | 5.07 | 0.68 | 1.58 | 0.61 | 2.91 | 3.89 | 1.22 | 5.96 | 14.85 | 1.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.19 | 0.61 | 0.78 | 0.63 | 0.65 | 0.28 | 0.94 | 0.83 | 0.43 | 0.95 | 0.96 | 0.34 |
| d, Delay for Lane Group [s/veh] | 140.25 | 45.22 | 52.46 | 59.48 | 60.71 | 57.42 | 55.50 | 39.49 | 10.00 | 66.42 | 61.35 | 38.53 |
| Lane Group LOS | F | D | D | E | E | E | E | D | A | E | E | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 17.52 | 8.21 | 10.40 | 3.68 | 3.78 | 1.25 | 12.11 | 17.55 | 5.83 | 6.51 | 18.49 | 4.55 |
| 50th-Percentile Queue Length [ft/ln] | 438.08 | 205.26 | 260.11 | 92.10 | 94.61 | 31.24 | 302.75 | 438.77 | 145.64 | 162.81 | 462.19 | 113.73 |
| 95th-Percentile Queue Length [veh/ln] | 26.79 | 12.91 | 15.69 | 6.63 | 6.81 | 2.25 | 17.82 | 24.42 | 9.78 | 10.70 | 25.54 | 8.05 |
| 95th-Percentile Queue Length [ft/ln] | 669.63 | 322.74 | 392.36 | 165.79 | 170.31 | 56.23 | 445.43 | 610.54 | 244.60 | 267.44 | 638.48 | 201.17 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 140.25 | 45.22 | 52.46 | 59.48 | 60.71 | 57.42 | 55.50 | 39.49 | 10.00 | 66.42 | 61.35 | 38.53 |
| Movement LOS | F | D | D | E | E | E | E | D | A | E | E | D |
| d_A, Approach Delay [s/veh] | 89.56 | | | 59.88 | | | 38.52 | | | 60.38 | | |
| Approach LOS | F | | | E | | | D | | | E | | |
| d_I, Intersection Delay [s/veh] | 57.74 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.956 | | | | | | | | | | | |

**Emissions**

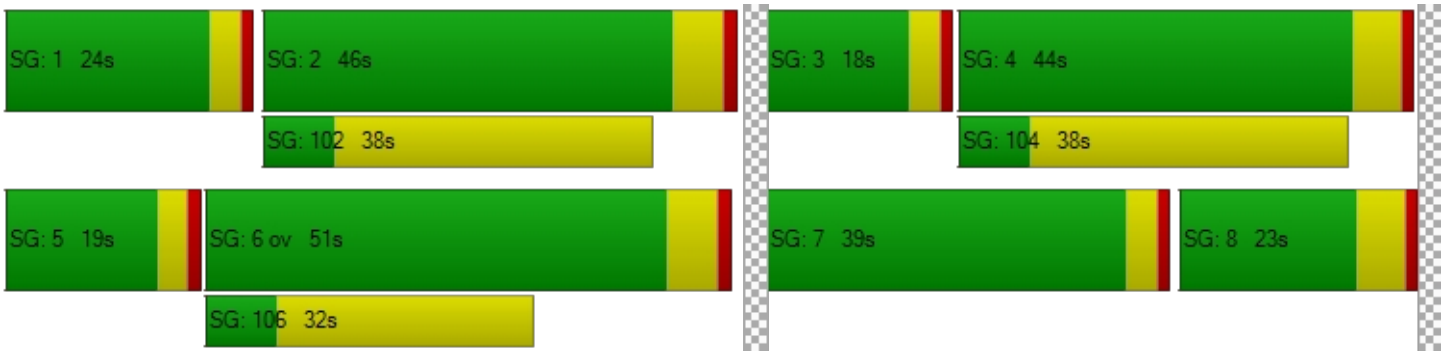
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 52.34 | 40.50 | 23.10 | 119.01 | 180.64 | 41.44 | 81.70 | 201.86 | 55.53 | 183.16 | 758.09 | 84.34 |
| Stops [stops/h] | 923.54 | 432.72 | 274.17 | 194.17 | 299.19 | 65.85 | 638.24 | 1387.50 | 153.51 | 343.22 | 1461.55 | 119.87 |
| Fuel consumption [US gal/h] | 31.38 | 10.80 | 6.89 | 9.20 | 14.11 | 3.15 | 18.84 | 38.43 | 4.81 | 15.51 | 63.12 | 5.71 |
| CO [g/h] | 2193.34 | 754.84 | 481.87 | 643.39 | 986.45 | 220.23 | 1317.26 | 2686.04 | 335.88 | 1083.86 | 4412.06 | 398.90 |
| NOx [g/h] | 426.74 | 146.86 | 93.76 | 125.18 | 191.93 | 42.85 | 256.29 | 522.61 | 65.35 | 210.88 | 858.43 | 77.61 |
| VOC [g/h] | 508.33 | 174.94 | 111.68 | 149.11 | 228.62 | 51.04 | 305.29 | 622.52 | 77.84 | 251.20 | 1022.54 | 92.45 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 17.3 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 57.75 | 57.75 | 52.10 | 57.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.197 | 3.985 | 3.887 | 3.579 |
| Crosswalk LOS | C | D | D | D |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 561 | 253 | 659 | 586 |
| d_b, Bicycle Delay [s] | 35.38 | 52.15 | 30.72 | 34.16 |
| l_b,int, Bicycle LOS Score for Intersection | 2.432 | 2.100 | 3.199 | 2.690 |
| Bicycle LOS | B | B | C | B |

## Sequence

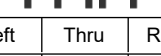
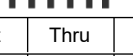
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 13: SR 168 EB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 45.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.825 |

**Intersection Setup**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | | | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 410.00 | 100.00 | 410.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 760.00 | 0.00 | 0.00 | 470.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 55.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | SR 168 EB Off-Ramp | | | SR 168 EB On-Ramp | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 676 | 0 | 1203 | 0 | 0 | 0 | 0 | 1636 | 383 | 0 | 2194 | 238 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 25.00 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.60 | 0.40 | 2.00 | 0.40 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 676 | 0 | 1203 | 0 | 0 | 0 | 0 | 1636 | 383 | 0 | 2194 | 238 |
| Peak Hour Factor | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 180 | 0 | 320 | 0 | 0 | 0 | 0 | 435 | 102 | 0 | 584 | 63 |
| Total Analysis Volume [veh/h] | 719 | 0 | 1280 | 0 | 0 | 0 | 0 | 1740 | 407 | 0 | 2334 | 253 |
| Presence of On-Street Parking | No | | No | | | | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 103.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 75 | 0 |
| Lead / Lag | Lag | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | No | | | | | | | Yes | | | Yes | |
| Maximum Recall | No | | | | | | | No | | | No | |
| Pedestrian Recall | No | | | | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 7.30 | 7.30 | | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.30 | 5.30 | | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | 50 | 50 | | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.38 | 0.38 | | 0.52 | 0.52 | 0.52 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.45 | | 0.34 | 0.27 | 0.16 |
| s, saturation flow rate [veh/h] | 4230 | 2845 | | 5151 | 8599 | 1602 |
| c, Capacity [veh/h] | 1592 | 1071 | | 2661 | 4442 | 828 |
| d1, Uniform Delay [s] | 30.86 | 41.07 | | 23.24 | 21.12 | 18.27 |
| k, delay calibration | 0.27 | 0.29 | | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.50 | 93.51 | | 1.27 | 0.45 | 0.95 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 1.20 | | 0.65 | 0.53 | 0.31 |
| d, Delay for Lane Group [s/veh] | 31.36 | 134.58 | | 24.51 | 21.57 | 19.23 |
| Lane Group LOS | C | F | | C | C | B |
| Critical Lane Group | No | Yes | | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 5.51 | 30.06 | | 12.70 | 9.17 | 4.47 |
| 50th-Percentile Queue Length [ft/ln] | 137.69 | 751.48 | | 317.41 | 229.24 | 111.69 |
| 95th-Percentile Queue Length [veh/ln] | 9.36 | 43.81 | | 18.54 | 14.14 | 7.93 |
| 95th-Percentile Queue Length [ft/ln] | 233.90 | 1095.29 | | 463.50 | 353.39 | 198.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 31.36 | 0.00 | 134.58 | 0.00 | 0.00 | 0.00 | 0.00 | 24.51 | 0.00 | 0.00 | 21.57 | 19.23 |
| Movement LOS | C | | F | | | | | C | | | C | B |
| d_A, Approach Delay [s/veh] | 97.45 | | | 0.00 | | | 20.09 | | | 21.34 | | |
| Approach LOS | F | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 45.05 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.825 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 94.25 | 167.79 | | 273.80 | 265.58 | 28.79 |
| Stops [stops/h] | 451.09 | 1641.37 | | 1039.90 | 1251.75 | 121.97 |
| Fuel consumption [US gal/h] | 16.12 | 71.15 | | 30.99 | 34.91 | 3.49 |
| CO [g/h] | 1126.77 | 4973.32 | | 2166.36 | 2440.34 | 244.18 |
| NOx [g/h] | 219.23 | 967.63 | | 421.50 | 474.80 | 47.51 |
| VOC [g/h] | 261.14 | 1152.62 | | 502.08 | 565.57 | 56.59 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 55.39 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.067 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | C | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 754 | 0 | 1034 | 1034 | |
| d_b, Bicycle Delay [s] | 25.60 | 65.93 | 15.37 | 15.37 | |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 4.132 | 2.517 | 2.413 | |
| Bicycle LOS | A | D | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 14: SR 168 WB Ramps & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.559 |

**Intersection Setup**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 230.00 | 100.00 | 240.00 | 100.00 | 100.00 | 360.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | | | | SR 168 WB Ramps | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 75 | 0 | 380 | 0 | 1955 | 586 | 0 | 2090 | 841 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.30 | 2.00 | 1.10 | 1.80 | 2.00 | 0.30 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 75 | 0 | 380 | 0 | 1955 | 586 | 0 | 2090 | 841 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 20 | 0 | 101 | 0 | 520 | 156 | 0 | 556 | 224 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 80 | 0 | 404 | 0 | 2080 | 623 | 0 | 2223 | 895 |
| Presence of On-Street Parking | | | | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 130 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 70.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Unsigna |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| All red [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | | | No | | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 81 | 0 | 0 | 81 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 6.7 | 0.0 |
| Minimum Recall | | | | No | | | | Yes | | | Yes | |
| Maximum Recall | | | | No | | | | No | | | No | |
| Pedestrian Recall | | | | No | | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | | L | R | C | R | C |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | | 130 | 130 | 130 | 130 | 130 |
| L, Total Lost Time per Cycle [s] | | 6.80 | 6.80 | 6.80 | 6.80 | 6.80 |
| l1_p, Permitted Start-Up Lost Time [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| g_i, Effective Green Time [s] | | 24 | 24 | 92 | 92 | 92 |
| g / C, Green / Cycle | | 0.18 | 0.18 | 0.71 | 0.71 | 0.71 |
| (v / s)_i Volume / Saturation Flow Rate | | 0.02 | 0.14 | 0.30 | 0.39 | 0.32 |
| s, saturation flow rate [veh/h] | | 3514 | 2852 | 6841 | 1592 | 6884 |
| c, Capacity [veh/h] | | 641 | 520 | 4876 | 1135 | 4907 |
| d1, Uniform Delay [s] | | 44.36 | 50.51 | 7.69 | 8.80 | 7.91 |
| k, delay calibration | | 0.27 | 0.27 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | | 0.21 | 6.09 | 0.27 | 1.91 | 0.30 |
| d3, Initial Queue Delay [s] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | | 0.12 | 0.78 | 0.43 | 0.55 | 0.45 |
| d, Delay for Lane Group [s/veh] | | 44.58 | 56.59 | 7.97 | 10.71 | 8.21 |
| Lane Group LOS | | D | E | A | B | A |
| Critical Lane Group | | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | | 1.11 | 6.70 | 5.18 | 7.58 | 5.70 |
| 50th-Percentile Queue Length [ft/ln] | | 27.69 | 167.42 | 129.59 | 189.42 | 142.39 |
| 95th-Percentile Queue Length [veh/ln] | | 1.99 | 10.94 | 8.92 | 12.09 | 9.61 |
| 95th-Percentile Queue Length [ft/ln] | | 49.83 | 273.52 | 222.94 | 302.27 | 240.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 0.00 | 44.58 | 0.00 | 56.59 | 0.00 | 7.97 | 10.71 | 0.00 | 8.21 | 0.00 |
| Movement LOS | | | | D | | E | | A | B | | A | |
| d_A, Approach Delay [s/veh] | 0.00 | | | 54.61 | | | 8.60 | | | 5.96 | | |
| Approach LOS | A | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 11.63 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.559 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | | 12.33 | 62.26 | 201.41 | 60.33 | 349.81 |
| Stops [stops/h] | | 61.40 | 371.30 | 574.81 | 210.04 | 631.58 |
| Fuel consumption [US gal/h] | | 1.57 | 9.27 | 17.42 | 6.04 | 23.56 |
| CO [g/h] | | 109.91 | 647.72 | 1217.89 | 422.00 | 1646.68 |
| NOx [g/h] | | 21.38 | 126.02 | 236.96 | 82.11 | 320.38 |
| VOC [g/h] | | 25.47 | 150.12 | 282.26 | 97.80 | 381.63 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 54.40 | 0.00 | 0.00 | 0.00 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.036 | 0.000 | 0.000 | 0.000 | |
| Crosswalk LOS | B | F | F | F | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 650 | 1143 | 1143 | |
| d_b, Bicycle Delay [s] | 64.93 | 29.59 | 11.93 | 11.93 | |
| l_b,int, Bicycle LOS Score for Intersection | 4.132 | 1.560 | 2.675 | 2.477 | |
| Bicycle LOS | D | A | B | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 15: Behymer Ave & Sunnyside Ave**

| | | | |
|---|---|---|---|
| Control Type: | Unknown | Delay (sec / veh): | ? |
| Analysis Method: | ? | Level Of Service: | ? |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | ? |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Level Of Service Report**
**Intersection 16: Sunnyside Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.477 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 50.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 117 | 167 | 66 | 32 | 131 | 83 | 173 | 485 | 125 | 31 | 452 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 117 | 167 | 66 | 32 | 131 | 83 | 173 | 485 | 125 | 31 | 452 | 33 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 44 | 18 | 9 | 35 | 22 | 46 | 129 | 33 | 8 | 120 | 9 |
| Total Analysis Volume [veh/h] | 124 | 178 | 70 | 34 | 139 | 88 | 184 | 516 | 133 | 33 | 481 | 35 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 14 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lag | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 10 | 15 | 15 | 5 | 10 | 10 | 11 | 20 | 20 | 5 | 15 | 15 |
| g / C, Green / Cycle | 0.16 | 0.24 | 0.24 | 0.08 | 0.16 | 0.16 | 0.17 | 0.34 | 0.34 | 0.08 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.10 | 0.04 | 0.02 | 0.07 | 0.06 | 0.10 | 0.14 | 0.08 | 0.02 | 0.14 | 0.02 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1589 | 1781 | 1870 | 1589 | 1781 | 3560 | 1589 | 1781 | 3560 | 1589 |
| c, Capacity [veh/h] | 285 | 452 | 384 | 144 | 304 | 258 | 309 | 1195 | 533 | 141 | 858 | 383 |
| d1, Uniform Delay [s] | 23.07 | 19.34 | 18.30 | 26.20 | 23.05 | 22.58 | 23.16 | 15.71 | 14.66 | 26.28 | 20.26 | 17.92 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 0.61 | 0.24 | 0.31 | 1.53 | 1.10 | 0.68 | 0.38 | 0.37 | 0.31 | 0.95 | 0.17 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.44 | 0.39 | 0.18 | 0.24 | 0.46 | 0.34 | 0.59 | 0.43 | 0.25 | 0.23 | 0.56 | 0.09 |
| d, Delay for Lane Group [s/veh] | 23.46 | 19.94 | 18.55 | 26.51 | 24.57 | 23.69 | 23.84 | 16.08 | 15.03 | 26.60 | 21.21 | 18.09 |
| Lane Group LOS | C | B | B | C | C | C | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.44 | 1.89 | 0.70 | 0.43 | 1.71 | 1.06 | 2.14 | 2.30 | 1.13 | 0.43 | 2.81 | 0.36 |
| 50th-Percentile Queue Length [ft/ln] | 36.06 | 47.17 | 17.50 | 10.65 | 42.81 | 26.54 | 53.42 | 57.40 | 28.23 | 10.74 | 70.19 | 9.12 |
| 95th-Percentile Queue Length [veh/ln] | 2.60 | 3.40 | 1.26 | 0.77 | 3.08 | 1.91 | 3.85 | 4.13 | 2.03 | 0.77 | 5.05 | 0.66 |
| 95th-Percentile Queue Length [ft/ln] | 64.91 | 84.90 | 31.50 | 19.17 | 77.05 | 47.77 | 96.15 | 103.32 | 50.81 | 19.34 | 126.33 | 16.41 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.46 | 19.94 | 18.55 | 26.51 | 24.57 | 23.69 | 23.84 | 16.08 | 15.03 | 26.60 | 21.21 | 18.09 |
| Movement LOS | C | B | B | C | C | C | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 20.85 | | | 24.53 | | | 17.63 | | | 21.34 | | |
| Approach LOS | C | | | C | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 20.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.477 | | | | | | | | | | | |

**Emissions**

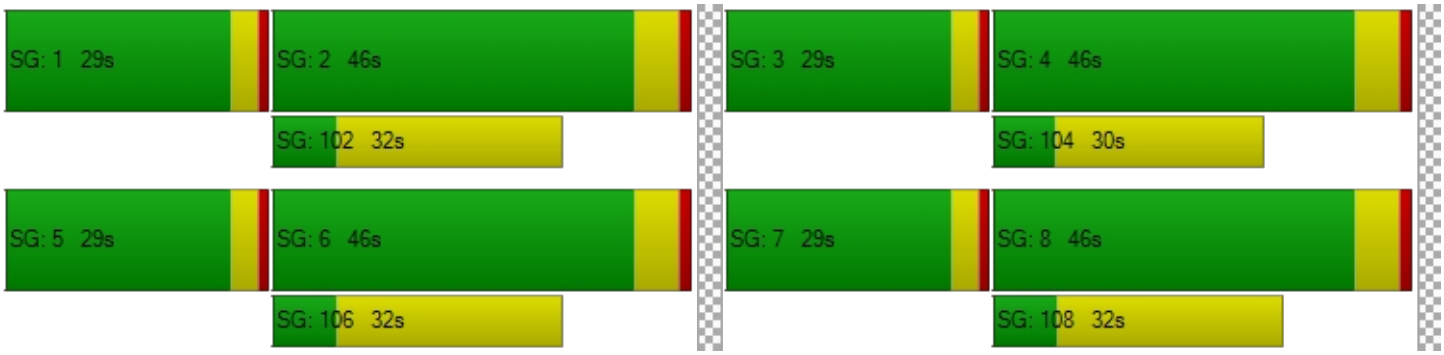
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 124.84 | 179.21 | 70.48 | 34.07 | 139.30 | 88.19 | 92.24 | 258.67 | 66.67 | 16.26 | 237.05 | 17.25 |
| Stops [stops/h] | 85.62 | 111.99 | 41.55 | 25.28 | 101.64 | 63.01 | 126.83 | 272.57 | 67.02 | 25.51 | 333.29 | 21.65 |
| Fuel consumption [US gal/h] | 5.94 | 8.26 | 3.20 | 1.67 | 6.73 | 4.23 | 5.93 | 14.54 | 3.67 | 0.99 | 13.62 | 0.95 |
| CO [g/h] | 414.93 | 577.22 | 223.44 | 116.43 | 470.68 | 295.71 | 414.42 | 1016.05 | 256.42 | 69.22 | 951.94 | 66.34 |
| NOx [g/h] | 80.73 | 112.31 | 43.47 | 22.65 | 91.58 | 57.53 | 80.63 | 197.69 | 49.89 | 13.47 | 185.21 | 12.91 |
| VOC [g/h] | 96.16 | 133.78 | 51.79 | 26.98 | 109.08 | 68.53 | 96.05 | 235.48 | 59.43 | 16.04 | 220.62 | 15.38 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 20.32 | 20.32 | 20.32 | 20.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.357 | 2.350 | 2.844 | 2.653 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1319 | 1319 | 1319 | 1319 |
| d_b, Bicycle Delay [s] | 3.51 | 3.51 | 3.51 | 3.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.173 | 1.990 | 2.247 | 2.013 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 17: Sunnyside Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 43.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.790 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 65.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 380 | 309 | 66 | 17 | 331 | 35 | 61 | 500 | 265 | 33 | 551 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 4.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 380 | 309 | 66 | 17 | 331 | 35 | 61 | 500 | 265 | 33 | 551 | 30 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 103 | 84 | 18 | 5 | 90 | 10 | 17 | 136 | 72 | 9 | 150 | 8 |
| Total Analysis Volume [veh/h] | 413 | 336 | 72 | 18 | 360 | 38 | 66 | 543 | 288 | 36 | 599 | 33 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 3 | | | 0 | | | 2 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 0 | | | 3 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 48 | 48 | 5 | 27 | 9 | 32 | 32 | 7 | 29 | 29 |
| g / C, Green / Cycle | 0.23 | 0.45 | 0.45 | 0.04 | 0.26 | 0.09 | 0.29 | 0.29 | 0.07 | 0.27 | 0.27 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.18 | 0.04 | 0.01 | 0.21 | 0.04 | 0.23 | 0.23 | 0.02 | 0.17 | 0.17 |
| s, saturation flow rate [veh/h] | 1762 | 1900 | 1615 | 1810 | 1869 | 1810 | 1892 | 1668 | 1752 | 1900 | 1865 |
| c, Capacity [veh/h] | 410 | 847 | 720 | 78 | 478 | 160 | 558 | 491 | 119 | 521 | 511 |
| d1, Uniform Delay [s] | 41.23 | 20.05 | 17.28 | 49.71 | 37.79 | 46.34 | 34.85 | 34.90 | 47.67 | 34.03 | 34.04 |
| k, delay calibration | 0.44 | 0.12 | 0.12 | 0.04 | 0.19 | 0.04 | 0.23 | 0.23 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 43.44 | 0.33 | 0.07 | 0.56 | 6.36 | 0.63 | 5.30 | 6.13 | 0.53 | 1.92 | 1.97 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.01 | 0.40 | 0.10 | 0.23 | 0.83 | 0.41 | 0.79 | 0.79 | 0.30 | 0.61 | 0.61 |
| d, Delay for Lane Group [s/veh] | 84.67 | 20.38 | 17.34 | 50.27 | 44.14 | 46.97 | 40.15 | 41.04 | 48.20 | 35.95 | 36.00 |
| Lane Group LOS | F | C | B | D | D | D | D | D | D | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 15.26 | 5.36 | 0.99 | 0.47 | 10.26 | 1.64 | 10.85 | 9.73 | 0.91 | 7.20 | 7.09 |
| 50th-Percentile Queue Length [ft/ln] | 381.38 | 134.04 | 24.72 | 11.65 | 256.47 | 41.12 | 271.36 | 243.36 | 22.69 | 179.98 | 177.22 |
| 95th-Percentile Queue Length [veh/ln] | 21.75 | 9.16 | 1.78 | 0.84 | 15.51 | 2.96 | 16.26 | 14.85 | 1.63 | 11.60 | 11.46 |
| 95th-Percentile Queue Length [ft/ln] | 543.84 | 228.97 | 44.49 | 20.96 | 387.79 | 74.02 | 406.44 | 371.27 | 40.84 | 289.99 | 286.38 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 84.67 | 20.38 | 17.34 | 50.27 | 44.14 | 44.14 | 46.97 | 40.32 | 41.04 | 48.20 | 35.97 | 36.00 |
| Movement LOS | F | C | B | D | D | D | D | D | D | D | D | D |
| d_A, Approach Delay [s/veh] | 52.46 | | | 44.41 | | | 41.04 | | | 36.63 | | |
| Approach LOS | D | | | D | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 43.83 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.790 | | | | | | | | | | | |

**Emissions**

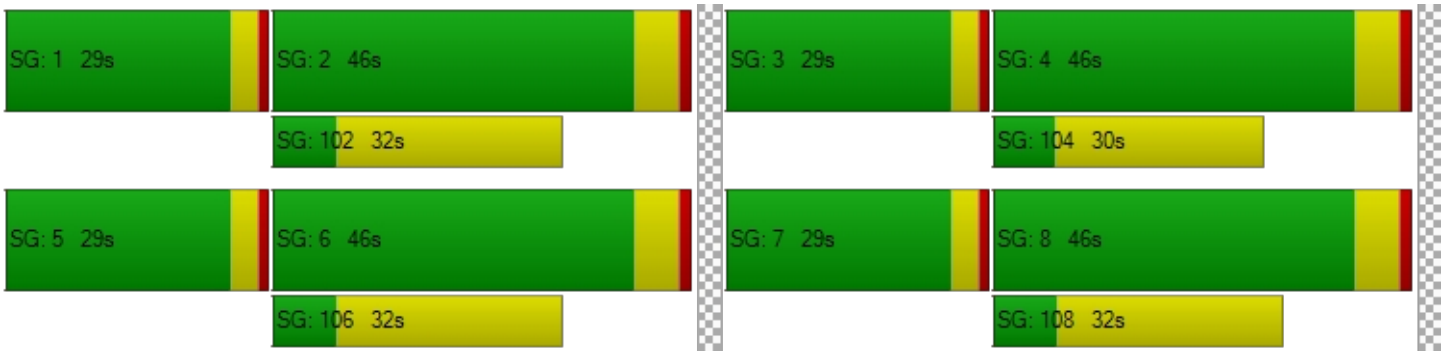
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 205.36 | 167.07 | 35.80 | 18.12 | 400.70 | 39.72 | 265.26 | 234.86 | 17.96 | 158.92 | 156.31 |
| Stops [stops/h] | 511.89 | 179.91 | 33.17 | 15.63 | 344.24 | 55.19 | 364.22 | 326.63 | 30.45 | 241.57 | 237.87 |
| Fuel consumption [US gal/h] | 20.52 | 9.36 | 1.89 | 1.00 | 21.59 | 2.68 | 17.22 | 15.37 | 1.35 | 10.78 | 10.61 |
| CO [g/h] | 1434.31 | 654.07 | 132.37 | 69.88 | 1509.16 | 187.23 | 1203.81 | 1074.39 | 94.17 | 753.65 | 741.72 |
| NOx [g/h] | 279.07 | 127.26 | 25.76 | 13.60 | 293.63 | 36.43 | 234.22 | 209.04 | 18.32 | 146.63 | 144.31 |
| VOC [g/h] | 332.42 | 151.59 | 30.68 | 16.19 | 349.76 | 43.39 | 278.99 | 249.00 | 21.82 | 174.67 | 171.90 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 43.21 | 43.21 | 43.21 | 43.21 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.748 | 2.363 | 2.878 | 2.689 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 746 | 746 | 746 | 746 |
| d_b, Bicycle Delay [s] | 21.10 | 21.10 | 21.10 | 21.10 |
| l_b,int, Bicycle LOS Score for Intersection | 2.914 | 2.246 | 2.300 | 2.111 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 18: Sunnyside Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 26.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.688 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 115.00 | 100.00 | 100.00 | 140.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 140.00 | 100.00 | 50.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 46 | 647 | 118 | 99 | 417 | 67 | 171 | 297 | 172 | 47 | 359 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.70 | 2.30 | 0.00 | 0.00 | 2.10 | 0.00 | 0.00 | 0.50 | 3.60 | 0.00 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 46 | 647 | 118 | 99 | 417 | 67 | 171 | 297 | 172 | 47 | 359 | 57 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 170 | 31 | 26 | 110 | 18 | 45 | 78 | 45 | 12 | 94 | 15 |
| Total Analysis Volume [veh/h] | 48 | 681 | 124 | 104 | 439 | 71 | 180 | 313 | 181 | 49 | 378 | 60 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 4 | | | 0 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 4 | | | 0 | | | 4 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 1 | | | 1 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 1 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 | 18 | 32 | 0 |
| Amber [s] | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 | 3.2 | 4.7 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 18 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 22 | 22 | 9 | 24 | 24 | 10 | 23 | 23 | 7 | 20 | 20 |
| g / C, Green / Cycle | 0.09 | 0.28 | 0.28 | 0.12 | 0.32 | 0.32 | 0.13 | 0.30 | 0.30 | 0.09 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.22 | 0.22 | 0.06 | 0.14 | 0.14 | 0.10 | 0.17 | 0.12 | 0.03 | 0.20 | 0.04 |
| s, saturation flow rate [veh/h] | 1785 | 1865 | 1765 | 1810 | 1868 | 1765 | 1810 | 1892 | 1549 | 1810 | 1874 | 1580 |
| c, Capacity [veh/h] | 154 | 531 | 502 | 214 | 592 | 559 | 235 | 572 | 469 | 158 | 488 | 411 |
| d1, Uniform Delay [s] | 33.13 | 25.40 | 25.42 | 31.84 | 20.96 | 21.01 | 32.49 | 22.52 | 21.25 | 33.06 | 26.48 | 21.95 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.13 | 2.57 | 2.76 | 1.69 | 0.52 | 0.56 | 5.21 | 0.82 | 0.52 | 1.10 | 2.68 | 0.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.31 | 0.78 | 0.78 | 0.48 | 0.44 | 0.45 | 0.77 | 0.55 | 0.39 | 0.31 | 0.77 | 0.15 |
| d, Delay for Lane Group [s/veh] | 34.26 | 27.97 | 28.18 | 33.54 | 21.48 | 21.57 | 37.70 | 23.34 | 21.77 | 34.16 | 29.15 | 22.12 |
| Lane Group LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.85 | 6.74 | 6.42 | 1.79 | 3.43 | 3.30 | 3.35 | 4.39 | 2.39 | 0.85 | 6.18 | 0.78 |
| 50th-Percentile Queue Length [ft/ln] | 21.22 | 168.60 | 160.53 | 44.75 | 85.86 | 82.62 | 83.78 | 109.86 | 59.86 | 21.32 | 154.43 | 19.59 |
| 95th-Percentile Queue Length [veh/ln] | 1.53 | 11.00 | 10.58 | 3.22 | 6.18 | 5.95 | 6.03 | 7.83 | 4.31 | 1.54 | 10.25 | 1.41 |
| 95th-Percentile Queue Length [ft/ln] | 38.20 | 275.07 | 264.43 | 80.54 | 154.55 | 148.72 | 150.80 | 195.81 | 107.76 | 38.38 | 256.33 | 35.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.26 | 28.05 | 28.18 | 33.54 | 21.51 | 21.57 | 37.70 | 23.34 | 21.77 | 34.16 | 29.15 | 22.12 |
| Movement LOS | C | C | C | C | C | C | D | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 28.42 | | | 23.56 | | | 26.75 | | | 28.79 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 26.92 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.688 | | | | | | | | | | | |

**Emissions**

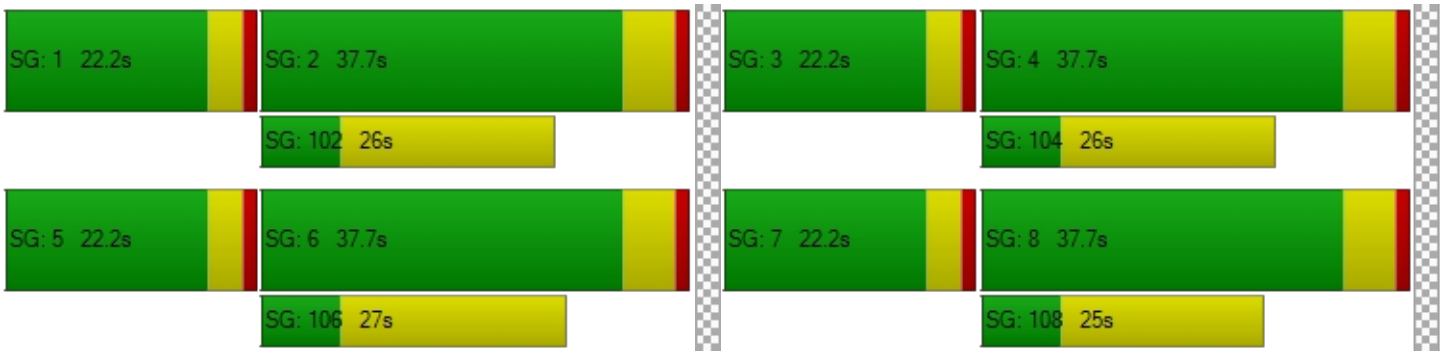
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 25.94 | 223.32 | 211.68 | 51.71 | 129.49 | 124.11 | 85.67 | 148.97 | 86.14 | 24.15 | 186.27 | 29.57 |
| Stops [stops/h] | 39.65 | 314.99 | 299.91 | 83.60 | 160.41 | 154.36 | 156.51 | 205.26 | 111.84 | 39.84 | 288.52 | 36.61 |
| Fuel consumption [US gal/h] | 1.65 | 13.45 | 12.77 | 3.52 | 7.57 | 7.27 | 6.26 | 9.14 | 5.15 | 1.66 | 12.21 | 1.74 |
| CO [g/h] | 115.56 | 939.92 | 892.96 | 246.17 | 529.22 | 508.10 | 437.82 | 639.22 | 359.65 | 116.29 | 853.81 | 121.53 |
| NOx [g/h] | 22.48 | 182.87 | 173.74 | 47.90 | 102.97 | 98.86 | 85.18 | 124.37 | 69.97 | 22.63 | 166.12 | 23.65 |
| VOC [g/h] | 26.78 | 217.84 | 206.95 | 57.05 | 122.65 | 117.76 | 101.47 | 148.14 | 83.35 | 26.95 | 197.88 | 28.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.32 | 28.32 | 28.32 | 28.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.687 | 2.740 | 2.551 | 2.498 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 830 | 830 | 830 | 830 |
| d_b, Bicycle Delay [s] | 13.18 | 13.19 | 13.19 | 13.19 |
| l_b,int, Bicycle LOS Score for Intersection | 2.263 | 2.066 | 2.672 | 2.363 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 19: Sunnyside Ave & Herndon Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 47.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.856 |

**Intersection Setup**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 150.00 | 100.00 | 60.00 | 180.00 | 100.00 | 75.00 | 200.00 | 100.00 | 100.00 | 300.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Sunnyside | | | Sunnyside | | | Herndon | | | Herndon | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 322 | 493 | 159 | 296 | 288 | 192 | 179 | 1357 | 623 | 149 | 1224 | 120 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 68.00 | 2.30 | 1.90 | 0.50 | 0.00 | 0.00 | 0.00 | 0.10 | 0.70 | 0.90 | 0.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 322 | 493 | 159 | 296 | 288 | 192 | 179 | 1357 | 623 | 149 | 1224 | 120 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 84 | 128 | 41 | 77 | 75 | 50 | 47 | 353 | 162 | 39 | 319 | 31 |
| Total Analysis Volume [veh/h] | 335 | 514 | 166 | 308 | 300 | 200 | 186 | 1414 | 649 | 155 | 1275 | 125 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 132 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 22.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 1 | 6 | 0 | 5 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 |
| All red [s] | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 | 2.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 24 | 0 | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 28 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 25 | 43 | 0 | 18 | 36 | 0 | 17 | 54 | 0 | 17 | 54 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 12 | 11 | 0 | 12 | 11 | 0 | 12 | 10 | 0 | 12 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 2.6 | 0.0 | 2.0 | 2.6 | 0.0 | 2.0 | 2.9 | 0.0 | 2.0 | 2.9 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 | 132 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 21 | 28 | 28 | 14 | 21 | 21 | 13 | 62 | 62 | 13 | 61 | 61 |
| g / C, Green / Cycle | 0.16 | 0.21 | 0.21 | 0.11 | 0.16 | 0.16 | 0.10 | 0.47 | 0.47 | 0.10 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.14 | 0.10 | 0.09 | 0.08 | 0.12 | 0.05 | 0.27 | 0.40 | 0.04 | 0.25 | 0.08 |
| s, saturation flow rate [veh/h] | 1626 | 3552 | 1591 | 3500 | 3618 | 1615 | 3514 | 5172 | 1606 | 3489 | 5151 | 1614 |
| c, Capacity [veh/h] | 260 | 743 | 333 | 373 | 564 | 252 | 348 | 2402 | 746 | 345 | 2392 | 749 |
| d1, Uniform Delay [s] | 55.56 | 48.35 | 46.17 | 57.86 | 51.35 | 53.75 | 56.67 | 26.10 | 31.82 | 56.19 | 25.22 | 20.57 |
| k, delay calibration | 0.04 | 0.09 | 0.09 | 0.04 | 0.09 | 0.09 | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 132.85 | 0.94 | 0.93 | 1.79 | 0.62 | 4.53 | 0.48 | 1.07 | 13.18 | 0.34 | 0.86 | 0.48 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.29 | 0.69 | 0.50 | 0.83 | 0.53 | 0.79 | 0.53 | 0.59 | 0.87 | 0.45 | 0.53 | 0.17 |
| d, Delay for Lane Group [s/veh] | 188.41 | 49.28 | 47.10 | 59.66 | 51.98 | 58.28 | 57.15 | 27.16 | 44.99 | 56.54 | 26.07 | 21.05 |
| Lane Group LOS | F | D | D | E | D | E | E | C | D | E | C | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 9.04 | 7.82 | 4.85 | 5.14 | 4.65 | 6.73 | 2.99 | 11.09 | 20.95 | 2.41 | 9.26 | 2.28 |
| 50th-Percentile Queue Length [ft/ln] | 226.10 | 195.52 | 121.26 | 128.60 | 116.16 | 168.34 | 74.70 | 277.26 | 523.80 | 60.26 | 231.47 | 56.89 |
| 95th-Percentile Queue Length [veh/ln] | 15.44 | 12.41 | 8.46 | 8.86 | 8.18 | 10.99 | 5.38 | 16.55 | 28.46 | 4.34 | 14.25 | 4.10 |
| 95th-Percentile Queue Length [ft/ln] | 386.06 | 310.18 | 211.55 | 221.58 | 204.53 | 274.73 | 134.45 | 413.80 | 711.47 | 108.47 | 356.23 | 102.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 188.41 | 49.28 | 47.10 | 59.66 | 51.98 | 58.28 | 57.15 | 27.16 | 44.99 | 56.54 | 26.07 | 21.05 |
| Movement LOS | F | D | D | E | D | E | E | C | D | E | C | C |
| d_A, Approach Delay [s/veh] | 94.84 | | | 56.46 | | | 34.79 | | | 28.70 | | |
| Approach LOS | F | | | E | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 47.05 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.856 | | | | | | | | | | | |

**Emissions**

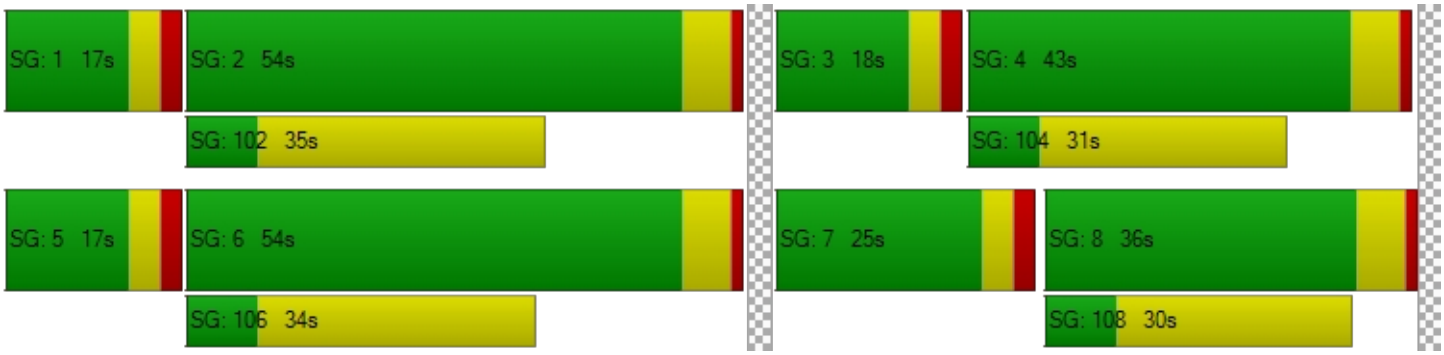
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 35.06 | 53.80 | 17.37 | 166.44 | 162.11 | 108.07 | 92.83 | 705.69 | 323.90 | 17.87 | 146.96 | 14.41 |
| Stops [stops/h] | 492.88 | 426.22 | 132.16 | 280.33 | 253.22 | 183.48 | 162.83 | 906.62 | 570.92 | 131.37 | 756.88 | 62.01 |
| Fuel consumption [US gal/h] | 18.94 | 11.27 | 3.51 | 12.14 | 11.25 | 7.83 | 6.88 | 41.87 | 22.43 | 4.03 | 21.21 | 1.80 |
| CO [g/h] | 1323.86 | 787.68 | 245.46 | 848.51 | 786.05 | 547.64 | 481.18 | 2927.06 | 1567.85 | 281.61 | 1482.74 | 125.83 |
| NOx [g/h] | 257.58 | 153.25 | 47.76 | 165.09 | 152.94 | 106.55 | 93.62 | 569.50 | 305.05 | 54.79 | 288.49 | 24.48 |
| VOC [g/h] | 306.82 | 182.55 | 56.89 | 196.65 | 182.17 | 126.92 | 111.52 | 678.37 | 363.37 | 65.27 | 343.64 | 29.16 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 55.52 | 55.52 | 55.52 | 55.52 |
| l_p,int, Pedestrian LOS Score for Intersectio | 3.006 | 2.840 | 3.307 | 3.427 |
| Crosswalk LOS | C | C | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 565 | 459 | 731 | 731 |
| d_b, Bicycle Delay [s] | 34.02 | 39.23 | 26.59 | 26.59 |
| l_b,int, Bicycle LOS Score for Intersection | 2.397 | 2.226 | 2.797 | 2.415 |
| Bicycle LOS | B | B | C | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 20: Fowler Ave & Behymer Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 47.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.831 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Behymer | | | Behymer | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 435 | 59 | 7 | 7 | 75 | 24 | 35 | 70 | 473 | 0 | 13 | 12 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 15.00 | 1.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 435 | 59 | 7 | 7 | 75 | 24 | 35 | 70 | 473 | 0 | 13 | 12 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 118 | 16 | 2 | 2 | 20 | 7 | 10 | 19 | 129 | 0 | 4 | 3 |
| Total Analysis Volume [veh/h] | 473 | 64 | 8 | 8 | 82 | 26 | 38 | 76 | 514 | 0 | 14 | 13 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | L | C | L | C |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 32 | 2 | 9 | 7 | 35 | 0 | 28 |
| g / C, Green / Cycle | 0.29 | 0.38 | 0.02 | 0.11 | 0.08 | 0.41 | 0.00 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.30 | 0.04 | 0.00 | 0.06 | 0.02 | 0.36 | 0.00 | 0.02 |
| s, saturation flow rate [veh/h] | 1595 | 1844 | 1810 | 1823 | 1810 | 1647 | 1810 | 1751 |
| c, Capacity [veh/h] | 467 | 701 | 41 | 201 | 139 | 675 | 0 | 583 |
| d1, Uniform Delay [s] | 30.23 | 17.08 | 41.00 | 35.96 | 37.18 | 23.19 | 0.00 | 19.31 |
| k, delay calibration | 0.44 | 0.12 | 0.04 | 0.15 | 0.04 | 0.32 | 0.04 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 42.68 | 0.07 | 0.86 | 3.16 | 0.39 | 10.02 | 0.00 | 0.05 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 1.01 | 0.10 | 0.20 | 0.54 | 0.27 | 0.87 | 0.00 | 0.05 |
| d, Delay for Lane Group [s/veh] | 72.91 | 17.15 | 41.86 | 39.13 | 37.57 | 33.20 | 0.00 | 19.36 |
| Lane Group LOS | F | B | D | D | D | C | A | B |
| Critical Lane Group | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 14.24 | 0.85 | 0.17 | 2.19 | 0.75 | 12.10 | 0.00 | 0.36 |
| 50th-Percentile Queue Length [ft/ln] | 356.03 | 21.17 | 4.18 | 54.74 | 18.82 | 302.48 | 0.00 | 9.09 |
| 95th-Percentile Queue Length [veh/ln] | 20.60 | 1.52 | 0.30 | 3.94 | 1.35 | 17.80 | 0.00 | 0.65 |
| 95th-Percentile Queue Length [ft/ln] | 515.06 | 38.11 | 7.53 | 98.54 | 33.87 | 445.10 | 0.00 | 16.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 72.91 | 17.15 | 17.15 | 41.86 | 39.13 | 39.13 | 37.57 | 33.20 | 33.20 | 0.00 | 19.36 | 19.36 |
| Movement LOS | F | B | B | D | D | D | D | C | C | A | B | B |
| d_A, Approach Delay [s/veh] | 65.54 | | | 39.31 | | | 33.47 | | | 19.36 | | |
| Approach LOS | E | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 46.98 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.831 | | | | | | | | | | | |

**Emissions**

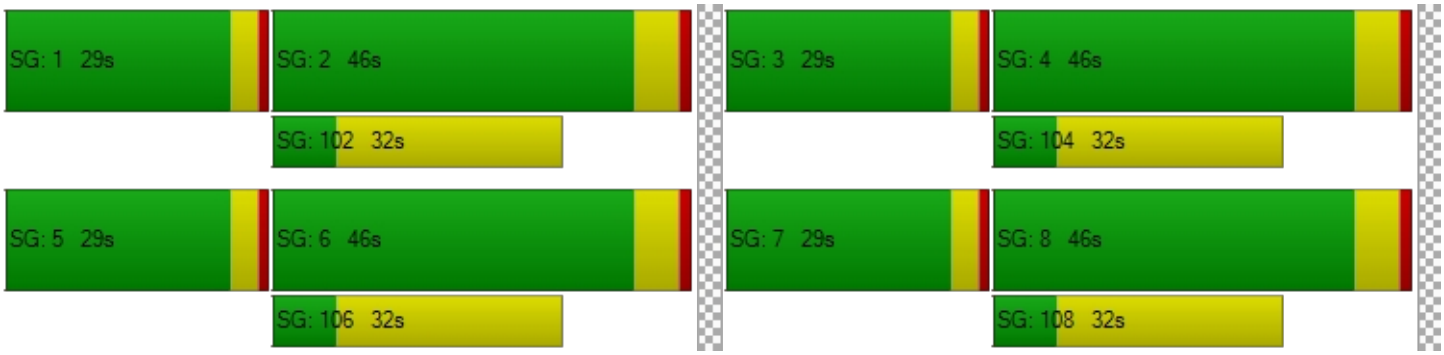
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 237.26 | 36.12 | 0.37 | 4.94 | 19.11 | 296.69 | 0.00 | 10.22 |
| Stops [stops/h] | 600.59 | 35.72 | 7.06 | 92.34 | 31.74 | 510.26 | 0.00 | 15.33 |
| Fuel consumption [US gal/h] | 22.62 | 1.93 | 0.17 | 2.18 | 1.25 | 19.02 | 0.00 | 0.61 |
| CO [g/h] | 1580.94 | 135.14 | 11.77 | 152.19 | 87.55 | 1329.43 | 0.00 | 42.76 |
| NOx [g/h] | 307.59 | 26.29 | 2.29 | 29.61 | 17.03 | 258.66 | 0.00 | 8.32 |
| VOC [g/h] | 366.40 | 31.32 | 2.73 | 35.27 | 20.29 | 308.11 | 0.00 | 9.91 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.39 | 32.39 | 32.39 | 32.39 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.493 | 2.050 | 2.308 | 1.976 |
| Crosswalk LOS | B | B | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 937 | 937 | 937 | 937 |
| d_b, Bicycle Delay [s] | 12.05 | 12.05 | 12.05 | 12.05 |
| l_b,int, Bicycle LOS Score for Intersection | 2.459 | 1.751 | 2.596 | 1.604 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 21: Fowler Ave & Perrin Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 38.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.662 |

**Intersection Setup**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Fowler | | Fowler | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 157 | 426 | 28 | 42 | 309 | 106 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 157 | 426 | 28 | 42 | 309 | 106 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 116 | 8 | 11 | 84 | 29 |
| Total Analysis Volume [veh/h] | 171 | 463 | 30 | 46 | 336 | 115 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.03 | 0.00 | 0.66 | 0.18 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.83 | 0.00 | 37.96 | 36.42 |
| Movement LOS | A | A | A | A | E | E |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.05 | 0.05 | 8.70 | 8.70 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 1.27 | 1.27 | 217.38 | 217.38 |
| d_A, Approach Delay [s/veh] | 0.00 | | 3.48 | | 37.56 | |
| Approach LOS | A | | A | | E | |
| d_I, Intersection Delay [s/veh] | 14.82 | | | | | |
| Intersection LOS | E | | | | | |

**Intersection Level Of Service Report**
**Intersection 22: Fowler Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.698 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 155.00 | 100.00 | 100.00 | 205.00 | 100.00 | 100.00 | 115.00 | 100.00 | 300.00 | 260.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 40.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 172 | 529 | 66 | 117 | 309 | 80 | 71 | 385 | 98 | 151 | 337 | 123 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.90 | 0.00 | 0.50 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 172 | 529 | 66 | 117 | 309 | 80 | 71 | 385 | 98 | 151 | 337 | 123 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 45 | 138 | 17 | 30 | 80 | 21 | 18 | 100 | 26 | 39 | 88 | 32 |
| Total Analysis Volume [veh/h] | 179 | 551 | 69 | 122 | 322 | 83 | 74 | 401 | 102 | 157 | 351 | 128 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 4.7 | 0.0 | 2.0 | 4.7 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | C | L | C | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 26 | 26 | 8 | 25 | 25 | 6 | 17 | 17 | 8 | 19 | 19 |
| g / C, Green / Cycle | 0.12 | 0.35 | 0.35 | 0.11 | 0.33 | 0.33 | 0.08 | 0.22 | 0.22 | 0.11 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.29 | 0.04 | 0.07 | 0.17 | 0.05 | 0.04 | 0.14 | 0.14 | 0.09 | 0.13 | 0.13 |
| s, saturation flow rate [veh/h] | 1810 | 1871 | 1615 | 1802 | 1885 | 1615 | 1810 | 1900 | 1769 | 1787 | 1900 | 1730 |
| c, Capacity [veh/h] | 224 | 649 | 560 | 198 | 627 | 537 | 151 | 423 | 394 | 198 | 475 | 432 |
| d1, Uniform Delay [s] | 32.43 | 23.01 | 16.96 | 32.35 | 20.43 | 17.85 | 33.31 | 26.61 | 26.65 | 32.99 | 24.64 | 24.68 |
| k, delay calibration | 0.04 | 0.13 | 0.11 | 0.04 | 0.11 | 0.11 | 0.04 | 0.20 | 0.20 | 0.04 | 0.20 | 0.20 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.52 | 3.96 | 0.10 | 1.17 | 0.65 | 0.13 | 0.91 | 2.66 | 2.94 | 2.74 | 1.68 | 1.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.80 | 0.85 | 0.12 | 0.62 | 0.51 | 0.15 | 0.49 | 0.61 | 0.62 | 0.79 | 0.53 | 0.53 |
| d, Delay for Lane Group [s/veh] | 34.95 | 26.97 | 17.06 | 33.52 | 21.08 | 17.99 | 34.23 | 29.27 | 29.59 | 35.73 | 26.32 | 26.57 |
| Lane Group LOS | C | C | B | C | C | B | C | C | C | D | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.12 | 8.69 | 0.75 | 2.05 | 4.19 | 0.94 | 1.27 | 4.23 | 4.01 | 2.73 | 3.68 | 3.41 |
| 50th-Percentile Queue Length [ft/ln] | 77.99 | 217.23 | 18.78 | 51.34 | 104.78 | 23.46 | 31.78 | 105.66 | 100.37 | 68.14 | 91.88 | 85.25 |
| 95th-Percentile Queue Length [veh/ln] | 5.62 | 13.52 | 1.35 | 3.70 | 7.54 | 1.69 | 2.29 | 7.60 | 7.23 | 4.91 | 6.62 | 6.14 |
| 95th-Percentile Queue Length [ft/ln] | 140.38 | 338.08 | 33.81 | 92.42 | 188.60 | 42.23 | 57.21 | 189.94 | 180.67 | 122.66 | 165.38 | 153.45 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.95 | 26.97 | 17.06 | 33.52 | 21.08 | 17.99 | 34.23 | 29.38 | 29.59 | 35.73 | 26.39 | 26.57 |
| Movement LOS | C | C | B | C | C | B | C | C | C | D | C | C |
| d_A, Approach Delay [s/veh] | 27.90 | | | 23.47 | | | 30.04 | | | 28.73 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.68 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.698 | | | | | | | | | | | |

**Emissions**

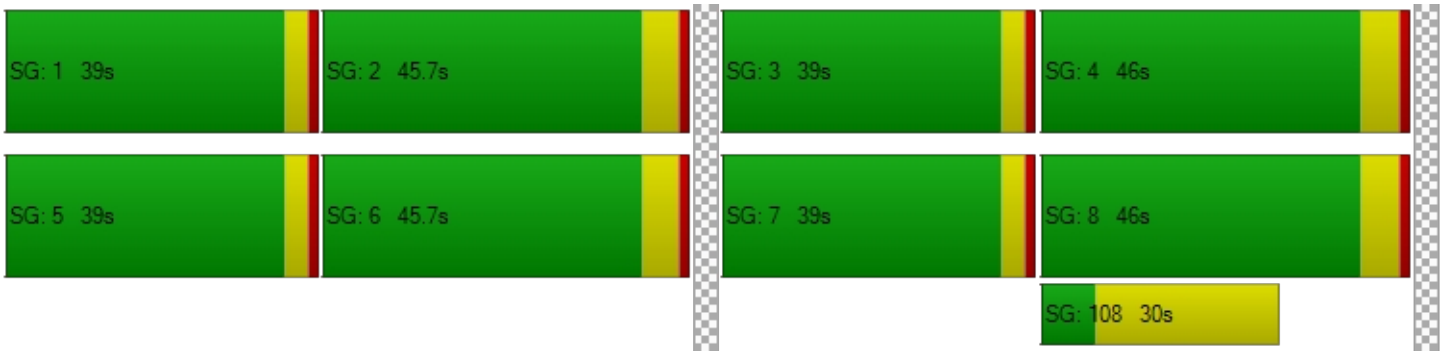
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 90.01 | 277.08 | 34.70 | 60.81 | 160.49 | 41.37 | 36.47 | 127.64 | 120.24 | 41.15 | 65.38 | 60.17 |
| Stops [stops/h] | 147.99 | 412.19 | 35.64 | 97.42 | 198.82 | 44.52 | 60.31 | 200.48 | 190.46 | 129.30 | 174.34 | 161.76 |
| Fuel consumption [US gal/h] | 6.20 | 17.65 | 1.87 | 4.13 | 9.35 | 2.28 | 2.41 | 8.08 | 7.65 | 4.50 | 6.20 | 5.74 |
| CO [g/h] | 433.28 | 1233.48 | 130.86 | 288.54 | 653.87 | 159.04 | 168.75 | 565.11 | 534.57 | 314.87 | 433.49 | 401.17 |
| NOx [g/h] | 84.30 | 239.99 | 25.46 | 56.14 | 127.22 | 30.94 | 32.83 | 109.95 | 104.01 | 61.26 | 84.34 | 78.05 |
| VOC [g/h] | 100.42 | 285.87 | 30.33 | 66.87 | 151.54 | 36.86 | 39.11 | 130.97 | 123.89 | 72.97 | 100.47 | 92.97 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 8.0 | 8.3 | 8.3 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 27.74 | 30.37 | 30.10 | 30.10 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.780 | 2.593 | 2.603 | 2.693 |
| Crosswalk LOS | C | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1054 | 1054 | 1054 | 1054 |
| d_b, Bicycle Delay [s] | 8.49 | 8.49 | 8.49 | 8.49 |
| l_b,int, Bicycle LOS Score for Intersection | 2.878 | 2.429 | 2.036 | 2.084 |
| Bicycle LOS | C | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 23: Fowler Ave & Teague Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.359 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 255.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Teague | | | Teague | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 9 | 737 | 0 | 19 | 552 | 7 | 3 | 3 | 5 | 3 | 18 | 30 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.60 | 0.60 | 0.00 | 8.30 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 737 | 0 | 19 | 552 | 7 | 3 | 3 | 5 | 3 | 18 | 30 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 192 | 0 | 5 | 144 | 2 | 1 | 1 | 1 | 1 | 5 | 8 |
| Total Analysis Volume [veh/h] | 9 | 768 | 0 | 20 | 575 | 7 | 3 | 3 | 5 | 3 | 19 | 31 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 14 | 14 | 2 | 15 | 15 | 0 | 6 | 6 | 0 | 6 | 6 |
| g / C, Green / Cycle | 0.03 | 0.36 | 0.36 | 0.06 | 0.39 | 0.39 | 0.01 | 0.15 | 0.15 | 0.01 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.21 | 0.00 | 0.01 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 |
| s, saturation flow rate [veh/h] | 1729 | 3600 | 1615 | 1691 | 3603 | 1615 | 1810 | 1900 | 1615 | 1810 | 1900 | 1615 |
| c, Capacity [veh/h] | 47 | 1309 | 587 | 96 | 1417 | 635 | 17 | 288 | 245 | 17 | 288 | 245 |
| d1, Uniform Delay [s] | 18.18 | 9.84 | 0.00 | 17.21 | 8.38 | 7.07 | 18.78 | 13.77 | 13.80 | 18.78 | 13.89 | 14.02 |
| k, delay calibration | 0.04 | 0.12 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.73 | 0.46 | 0.00 | 0.40 | 0.27 | 0.01 | 1.79 | 0.02 | 0.05 | 1.79 | 0.16 | 0.38 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.59 | 0.00 | 0.21 | 0.41 | 0.01 | 0.18 | 0.01 | 0.02 | 0.18 | 0.07 | 0.13 |
| d, Delay for Lane Group [s/veh] | 18.91 | 10.30 | 0.00 | 17.61 | 8.64 | 7.08 | 20.57 | 13.80 | 13.85 | 20.57 | 14.05 | 14.40 |
| Lane Group LOS | B | B | A | B | A | A | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.08 | 1.96 | 0.00 | 0.15 | 1.26 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.13 | 0.22 |
| 50th-Percentile Queue Length [ft/ln] | 1.91 | 49.05 | 0.00 | 3.85 | 31.58 | 0.67 | 0.78 | 0.50 | 0.85 | 0.78 | 3.24 | 5.45 |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 3.53 | 0.00 | 0.28 | 2.27 | 0.05 | 0.06 | 0.04 | 0.06 | 0.06 | 0.23 | 0.39 |
| 95th-Percentile Queue Length [ft/ln] | 3.44 | 88.29 | 0.00 | 6.94 | 56.85 | 1.20 | 1.41 | 0.90 | 1.53 | 1.41 | 5.82 | 9.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 18.91 | 10.30 | 0.00 | 17.61 | 8.64 | 7.08 | 20.57 | 13.80 | 13.85 | 20.57 | 14.05 | 14.40 |
| Movement LOS | B | B | A | B | A | A | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 10.40 | | | 8.92 | | | 15.67 | | | 14.62 | | |
| Approach LOS | B | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.98 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.359 | | | | | | | | | | | |

**Emissions**

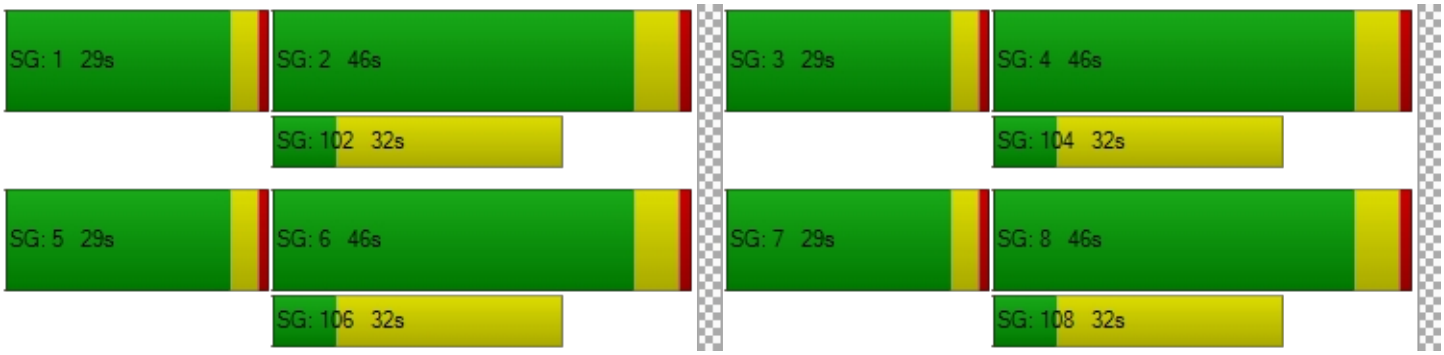
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.51 | 384.64 | 0.00 | 10.06 | 289.15 | 3.52 | 0.38 | 0.38 | 0.63 | 0.32 | 2.03 | 3.31 |
| Stops [stops/h] | 7.23 | 371.24 | 0.00 | 14.58 | 239.05 | 2.52 | 2.96 | 1.90 | 3.21 | 2.96 | 12.24 | 20.64 |
| Fuel consumption [US gal/h] | 0.26 | 19.49 | 0.00 | 0.57 | 14.24 | 0.17 | 0.04 | 0.03 | 0.06 | 0.04 | 0.21 | 0.34 |
| CO [g/h] | 18.19 | 1362.68 | 0.00 | 39.58 | 995.07 | 11.81 | 3.11 | 2.41 | 4.04 | 2.94 | 14.36 | 23.83 |
| NOx [g/h] | 3.54 | 265.13 | 0.00 | 7.70 | 193.60 | 2.30 | 0.61 | 0.47 | 0.79 | 0.57 | 2.79 | 4.64 |
| VOC [g/h] | 4.21 | 315.81 | 0.00 | 9.17 | 230.62 | 2.74 | 0.72 | 0.56 | 0.94 | 0.68 | 3.33 | 5.52 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 9.62 | 9.62 | 9.62 | 9.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.731 | 2.629 | 2.090 | 2.098 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2102 | 2102 | 2102 | 2102 |
| d_b, Bicycle Delay [s] | 0.05 | 0.05 | 0.05 | 0.05 |
| l_b,int, Bicycle LOS Score for Intersection | 2.201 | 2.056 | 1.578 | 1.647 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 24: Fowler Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.574 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 200.00 | 100.00 | 100.00 | 85.00 | 100.00 | 100.00 | 235.00 | 100.00 | 100.00 | 145.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 |
| Speed [mph] | 45.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 212 | 496 | 127 | 37 | 439 | 76 | 52 | 406 | 114 | 67 | 372 | 77 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.20 | 0.00 | 0.00 | 0.40 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 212 | 496 | 127 | 37 | 439 | 76 | 52 | 406 | 114 | 67 | 372 | 77 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 58 | 135 | 35 | 10 | 119 | 21 | 14 | 110 | 31 | 18 | 101 | 21 |
| Total Analysis Volume [veh/h] | 230 | 539 | 138 | 40 | 477 | 83 | 57 | 441 | 124 | 73 | 404 | 84 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 1 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 1 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 20 | 30 | 0 | 20 | 30 | 0 | 20 | 25 | 0 | 20 | 25 | 0 |
| Amber [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 4 | 7 | 0 | 4 | 7 | 0 | 4 | 4 | 0 | 4 | 4 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 2.5 | 0.0 | 2.0 | 2.5 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 17 | 17 | 2 | 11 | 11 | 2 | 8 | 8 | 2 | 9 | 9 |
| g / C, Green / Cycle | 0.16 | 0.37 | 0.37 | 0.04 | 0.25 | 0.25 | 0.05 | 0.18 | 0.18 | 0.05 | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.15 | 0.09 | 0.02 | 0.13 | 0.05 | 0.03 | 0.12 | 0.08 | 0.04 | 0.11 | 0.05 |
| s, saturation flow rate [veh/h] | 1810 | 3583 | 1595 | 1810 | 3606 | 1584 | 1810 | 3618 | 1591 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 296 | 1341 | 597 | 64 | 887 | 390 | 83 | 666 | 293 | 97 | 694 | 310 |
| d1, Uniform Delay [s] | 18.18 | 10.45 | 9.71 | 21.59 | 14.87 | 13.61 | 21.33 | 17.21 | 16.37 | 21.17 | 16.68 | 15.63 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.04 | 0.08 | 0.08 | 0.04 | 0.08 | 0.08 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.66 | 0.28 | 0.28 | 3.66 | 0.72 | 0.38 | 3.75 | 0.85 | 0.72 | 4.33 | 0.58 | 0.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.40 | 0.23 | 0.62 | 0.54 | 0.21 | 0.69 | 0.66 | 0.42 | 0.75 | 0.58 | 0.27 |
| d, Delay for Lane Group [s/veh] | 19.84 | 10.73 | 9.99 | 25.25 | 15.59 | 13.99 | 25.08 | 18.06 | 17.09 | 25.50 | 17.26 | 15.98 |
| Lane Group LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.97 | 1.42 | 0.70 | 0.44 | 1.90 | 0.62 | 0.58 | 1.76 | 0.96 | 0.75 | 1.55 | 0.61 |
| 50th-Percentile Queue Length [ft/ln] | 49.18 | 35.41 | 17.39 | 11.07 | 47.53 | 15.46 | 14.55 | 43.97 | 23.94 | 18.75 | 38.87 | 15.35 |
| 95th-Percentile Queue Length [veh/ln] | 3.54 | 2.55 | 1.25 | 0.80 | 3.42 | 1.11 | 1.05 | 3.17 | 1.72 | 1.35 | 2.80 | 1.11 |
| 95th-Percentile Queue Length [ft/ln] | 88.53 | 63.74 | 31.30 | 19.93 | 85.55 | 27.84 | 26.20 | 79.14 | 43.09 | 33.76 | 69.96 | 27.63 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 19.84 | 10.73 | 9.99 | 25.25 | 15.59 | 13.99 | 25.08 | 18.06 | 17.09 | 25.50 | 17.26 | 15.98 |
| Movement LOS | B | B | A | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 12.93 | | | 16.01 | | | 18.51 | | | 18.14 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.99 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.574 | | | | | | | | | | | |

**Emissions**

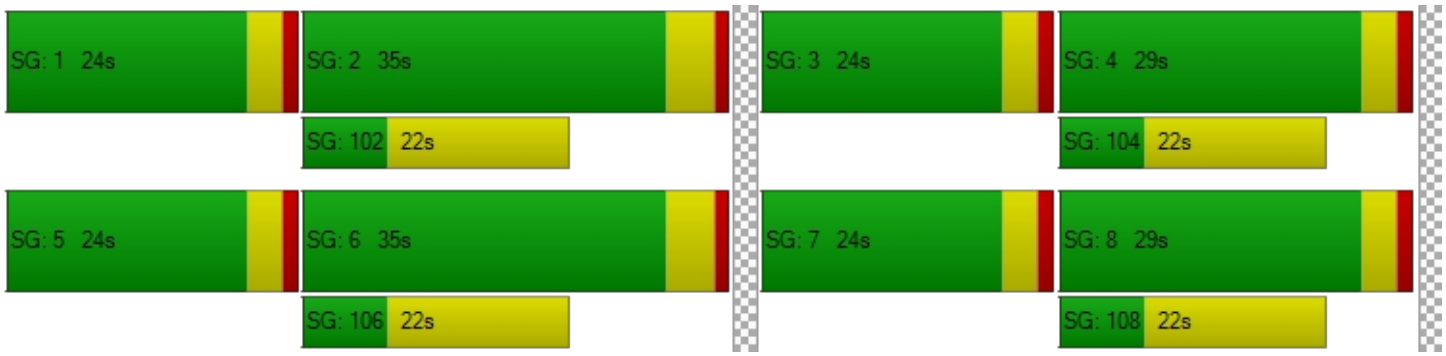
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 114.73 | 268.86 | 68.84 | 20.03 | 238.90 | 41.57 | 28.43 | 219.96 | 61.85 | 73.12 | 404.66 | 84.14 |
| Stops [stops/h] | 156.58 | 225.48 | 55.36 | 35.26 | 302.61 | 49.23 | 46.34 | 279.95 | 76.21 | 59.70 | 247.48 | 48.86 |
| Fuel consumption [US gal/h] | 6.81 | 13.20 | 3.33 | 1.23 | 13.02 | 2.22 | 1.84 | 12.64 | 3.50 | 3.63 | 18.37 | 3.76 |
| CO [g/h] | 475.87 | 922.45 | 232.65 | 85.63 | 910.11 | 155.15 | 128.73 | 883.61 | 244.57 | 253.56 | 1283.84 | 263.15 |
| NOx [g/h] | 92.59 | 179.47 | 45.27 | 16.66 | 177.07 | 30.19 | 25.05 | 171.92 | 47.59 | 49.33 | 249.79 | 51.20 |
| VOC [g/h] | 110.29 | 213.79 | 53.92 | 19.85 | 210.93 | 35.96 | 29.83 | 204.79 | 56.68 | 58.76 | 297.54 | 60.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.95 | 12.95 | 12.95 | 12.95 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.798 | 2.621 | 2.739 | 2.800 |
| Crosswalk LOS | C | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1327 | 1327 | 1105 | 1105 |
| d_b, Bicycle Delay [s] | 2.57 | 2.57 | 4.53 | 4.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.308 | 2.055 | 2.073 | 2.022 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 25: Fowler Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.682 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 | 130.00 | 100.00 | 135.00 | 145.00 | 100.00 | 70.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 49.21 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 73 | 870 | 94 | 21 | 579 | 49 | 44 | 453 | 72 | 93 | 286 | 24 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 0.70 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.80 | 1.30 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 73 | 870 | 94 | 21 | 579 | 49 | 44 | 453 | 72 | 93 | 286 | 24 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 19 | 227 | 24 | 5 | 151 | 13 | 11 | 118 | 19 | 24 | 74 | 6 |
| Total Analysis Volume [veh/h] | 76 | 906 | 98 | 22 | 603 | 51 | 46 | 472 | 75 | 97 | 298 | 25 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 1 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 1 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 1 | | | 0 | | | 1 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 20 | 0 | 0 | 19 | 0 | 0 | 22 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 7 | 23 | 23 | 3 | 19 | 19 | 5 | 22 | 22 | 8 | 24 | 24 |
| g / C, Green / Cycle | 0.10 | 0.32 | 0.32 | 0.04 | 0.27 | 0.27 | 0.08 | 0.30 | 0.30 | 0.11 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.25 | 0.06 | 0.01 | 0.17 | 0.03 | 0.03 | 0.25 | 0.05 | 0.05 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1790 | 3598 | 1607 | 1810 | 3595 | 1594 | 1810 | 1888 | 1598 | 1810 | 1900 | 1593 |
| c, Capacity [veh/h] | 176 | 1160 | 518 | 81 | 967 | 429 | 137 | 570 | 482 | 195 | 634 | 532 |
| d1, Uniform Delay [s] | 30.46 | 22.02 | 17.54 | 33.13 | 23.04 | 19.80 | 31.44 | 23.32 | 18.35 | 30.19 | 18.89 | 16.18 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.67 | 1.18 | 0.17 | 1.76 | 0.66 | 0.12 | 1.42 | 3.77 | 0.15 | 1.96 | 0.54 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.43 | 0.78 | 0.19 | 0.27 | 0.62 | 0.12 | 0.33 | 0.83 | 0.16 | 0.50 | 0.47 | 0.05 |
| d, Delay for Lane Group [s/veh] | 32.13 | 23.20 | 17.71 | 34.88 | 23.70 | 19.92 | 32.86 | 27.09 | 18.50 | 32.14 | 19.44 | 16.22 |
| Lane Group LOS | C | C | B | C | C | B | C | C | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.22 | 6.19 | 1.06 | 0.40 | 4.31 | 0.63 | 0.78 | 7.52 | 0.89 | 1.56 | 3.52 | 0.25 |
| 50th-Percentile Queue Length [ft/ln] | 30.52 | 154.73 | 26.47 | 9.96 | 107.76 | 15.70 | 19.62 | 187.96 | 22.14 | 38.95 | 87.94 | 6.28 |
| 95th-Percentile Queue Length [veh/ln] | 2.20 | 10.27 | 1.91 | 0.72 | 7.72 | 1.13 | 1.41 | 12.02 | 1.59 | 2.80 | 6.33 | 0.45 |
| 95th-Percentile Queue Length [ft/ln] | 54.94 | 256.73 | 47.65 | 17.92 | 192.88 | 28.27 | 35.32 | 300.38 | 39.84 | 70.11 | 158.29 | 11.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 32.13 | 23.20 | 17.71 | 34.88 | 23.70 | 19.92 | 32.86 | 27.09 | 18.50 | 32.14 | 19.44 | 16.22 |
| Movement LOS | C | C | B | C | C | B | C | C | B | C | B | B |
| d_A, Approach Delay [s/veh] | 23.33 | | | 23.78 | | | 26.45 | | | 22.18 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.93 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.682 | | | | | | | | | | | |

**Emissions**

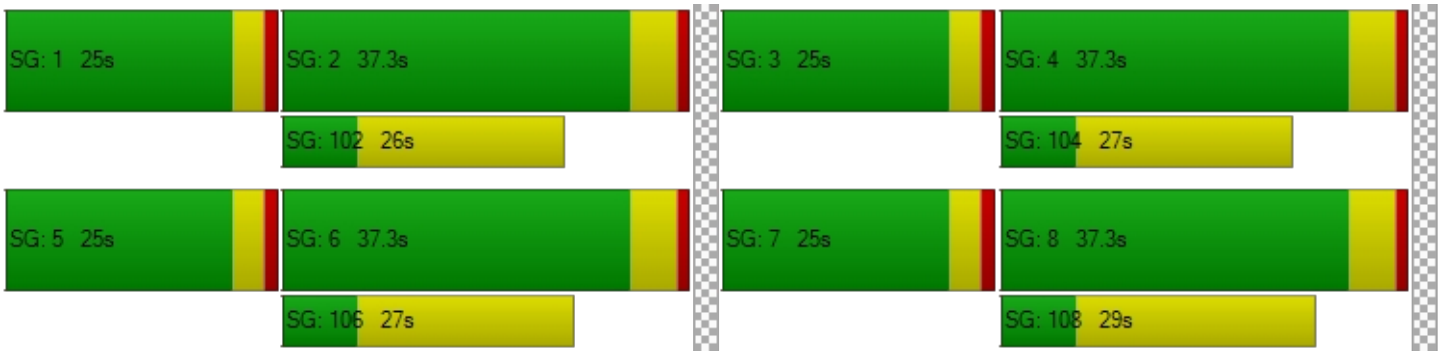
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 15.19 | 181.10 | 19.59 | 10.97 | 300.78 | 25.44 | 22.67 | 232.59 | 36.96 | 10.01 | 30.77 | 2.58 |
| Stops [stops/h] | 61.42 | 622.80 | 53.27 | 20.04 | 433.72 | 31.61 | 39.49 | 378.28 | 44.55 | 78.39 | 176.98 | 12.64 |
| Fuel consumption [US gal/h] | 1.78 | 18.23 | 1.69 | 0.72 | 17.69 | 1.43 | 1.46 | 14.27 | 2.05 | 1.95 | 4.43 | 0.33 |
| CO [g/h] | 124.51 | 1274.23 | 117.93 | 50.23 | 1236.31 | 99.86 | 101.98 | 997.24 | 143.29 | 136.48 | 309.93 | 22.94 |
| NOx [g/h] | 24.23 | 247.92 | 22.95 | 9.77 | 240.54 | 19.43 | 19.84 | 194.03 | 27.88 | 26.55 | 60.30 | 4.46 |
| VOC [g/h] | 28.86 | 295.31 | 27.33 | 11.64 | 286.53 | 23.14 | 23.63 | 231.12 | 33.21 | 31.63 | 71.83 | 5.32 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 25.62 | 25.62 | 25.62 | 25.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.892 | 2.812 | 2.486 | 2.488 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 894 | 894 | 894 | 894 |
| d_b, Bicycle Delay [s] | 10.93 | 10.94 | 10.93 | 10.94 |
| l_b,int, Bicycle LOS Score for Intersection | 2.451 | 2.117 | 2.538 | 2.253 |
| Bicycle LOS | B | B | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 26: Fowler Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 11.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.494 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 325 | 1066 | 0 | 0 | 381 | 348 | 0 | 0 | 0 | 119 | 0 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.80 | 2.00 | 2.00 | 1.10 | 1.60 | 2.00 | 2.00 | 2.00 | 1.60 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 325 | 1066 | 0 | 0 | 381 | 348 | 0 | 0 | 0 | 119 | 0 | 2 |
| Peak Hour Factor | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 86 | 284 | 0 | 0 | 101 | 93 | 0 | 0 | 0 | 32 | 0 | 1 |
| Total Analysis Volume [veh/h] | 346 | 1134 | 0 | 0 | 405 | 370 | 0 | 0 | 0 | 127 | 0 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 1 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 1 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 45 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| Amber [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.7 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 6 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | R | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 5.70 | 6.80 | 6.80 | 6.80 | | 6.30 | 6.30 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.70 | 4.80 | 4.80 | 4.80 | | 4.30 | 4.30 |
| g_i, Effective Green Time [s] | 7 | 30 | 17 | 17 | | 7 | 7 |
| g / C, Green / Cycle | 0.14 | 0.60 | 0.34 | 0.34 | | 0.13 | 0.13 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.32 | 0.11 | 0.24 | | 0.07 | 0.00 |
| s, saturation flow rate [veh/h] | 3495 | 3595 | 3586 | 1573 | | 1787 | 1615 |
| c, Capacity [veh/h] | 508 | 2171 | 1236 | 542 | | 240 | 217 |
| d1, Uniform Delay [s] | 20.28 | 5.73 | 12.10 | 13.98 | | 20.19 | 18.78 |
| k, delay calibration | 0.04 | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.61 | 0.36 | 0.29 | 2.82 | | 3.85 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.52 | 0.33 | 0.68 | | 0.53 | 0.01 |
| d, Delay for Lane Group [s/veh] | 20.88 | 6.09 | 12.39 | 16.80 | | 24.04 | 18.81 |
| Lane Group LOS | C | A | B | B | | C | B |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.63 | 1.71 | 1.31 | 3.09 | | 1.35 | 0.02 |
| 50th-Percentile Queue Length [ft/ln] | 40.86 | 42.74 | 32.75 | 77.15 | | 33.70 | 0.45 |
| 95th-Percentile Queue Length [veh/ln] | 2.94 | 3.08 | 2.36 | 5.55 | | 2.43 | 0.03 |
| 95th-Percentile Queue Length [ft/ln] | 73.55 | 76.93 | 58.96 | 138.87 | | 60.67 | 0.82 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.88 | 6.09 | 0.00 | 0.00 | 12.39 | 16.80 | 0.00 | 0.00 | 0.00 | 24.04 | 0.00 | 18.81 |
| Movement LOS | C | A | | | B | B | | | | C | | B |
| d_A, Approach Delay [s/veh] | 9.55 | | | 14.49 | | | 0.00 | | | 23.96 | | |
| Approach LOS | A | | | B | | | A | | | C | | |
| d_I, Intersection Delay [s/veh] | 11.94 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.494 | | | | | | | | | | | |

**Emissions**

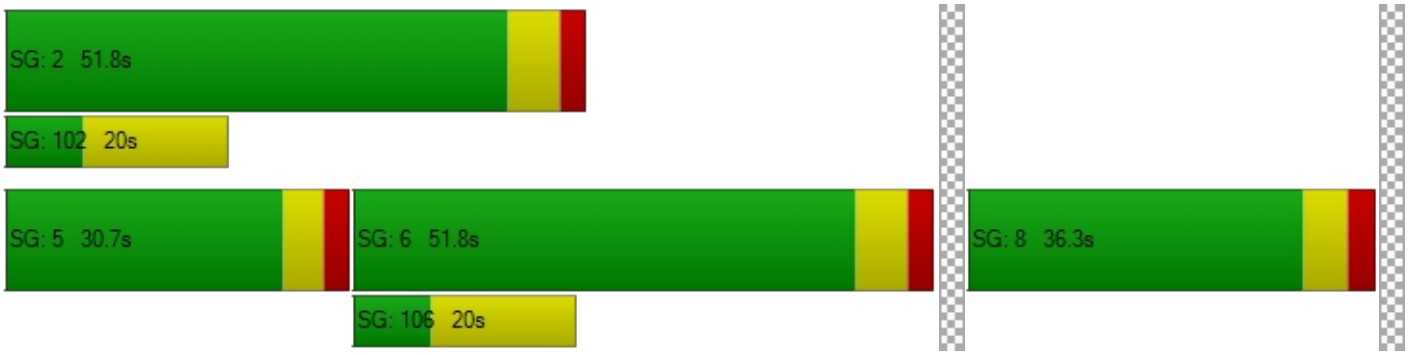
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.40 | 122.58 | 80.96 | 73.96 | | 10.91 | 0.17 |
| Stops [stops/h] | 235.77 | 246.63 | 189.00 | 222.59 | | 97.24 | 1.31 |
| Fuel consumption [US gal/h] | 5.68 | 8.67 | 6.15 | 6.57 | | 2.79 | 0.04 |
| CO [g/h] | 397.31 | 606.35 | 429.62 | 459.08 | | 195.20 | 2.64 |
| NOx [g/h] | 77.30 | 117.97 | 83.59 | 89.32 | | 37.98 | 0.51 |
| VOC [g/h] | 92.08 | 140.53 | 99.57 | 106.40 | | 45.24 | 0.61 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 2.7 | 2.7 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.33 | 22.33 | 15.17 | 15.17 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.925 | 2.841 | 2.030 | 1.797 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1803 | 1803 | 0 | 1202 |
| d_b, Bicycle Delay [s] | 0.24 | 0.24 | 24.96 | 3.97 |
| l_b,int, Bicycle LOS Score for Intersection | 2.781 | 2.199 | 4.132 | 1.560 |
| Bicycle LOS | C | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 27: Fowler Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.817 |

**Intersection Setup**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Fowler | | | Fowler | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1104 | 309 | 17 | 486 | 0 | 544 | 0 | 483 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.70 | 0.00 | 4.30 | 1.90 | 2.00 | 1.30 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1104 | 309 | 17 | 486 | 0 | 544 | 0 | 483 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 0.9600 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 288 | 80 | 4 | 127 | 0 | 142 | 0 | 126 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1150 | 322 | 18 | 506 | 0 | 567 | 0 | 503 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 1 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 15.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 15 | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 22 | 64 | 0 | 36 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 5.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 6.10 | 6.10 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 4.10 | 4.10 | |
| g_i, Effective Green Time [s] | 49 | 49 | 2 | 57 | 30 | 30 | |
| g / C, Green / Cycle | 0.49 | 0.49 | 0.02 | 0.57 | 0.30 | 0.30 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.39 | 0.42 | 0.01 | 0.14 | 0.16 | 0.31 | |
| s, saturation flow rate [veh/h] | 1889 | 1754 | 1748 | 3563 | 3478 | 1602 | |
| c, Capacity [veh/h] | 928 | 861 | 43 | 2040 | 1037 | 478 | |
| d1, Uniform Delay [s] | 21.20 | 22.29 | 48.03 | 10.63 | 29.39 | 35.06 | |
| k, delay calibration | 0.50 | 0.50 | 0.04 | 0.50 | 0.23 | 0.46 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 6.93 | 10.57 | 2.42 | 0.29 | 0.96 | 53.96 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.85 | 0.42 | 0.25 | 0.55 | 1.05 | |
| d, Delay for Lane Group [s/veh] | 28.12 | 32.86 | 50.45 | 10.92 | 30.35 | 89.02 | |
| Lane Group LOS | C | C | D | B | C | F | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 14.79 | 16.21 | 0.46 | 2.53 | 5.37 | 17.69 | |
| 50th-Percentile Queue Length [ft/ln] | 369.80 | 405.21 | 11.42 | 63.32 | 134.32 | 442.16 | |
| 95th-Percentile Queue Length [veh/ln] | 21.10 | 22.81 | 0.82 | 4.56 | 9.17 | 25.38 | |
| 95th-Percentile Queue Length [ft/ln] | 527.49 | 570.28 | 20.55 | 113.97 | 229.36 | 634.60 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 29.83 | 32.86 | 50.45 | 10.92 | 0.00 | 30.35 | 0.00 | 89.02 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | C | D | B | | C | | F | | | |
| d_A, Approach Delay [s/veh] | 30.49 | | | 12.28 | | | 57.93 | | | 0.00 | | |
| Approach LOS | C | | | B | | | E | | | A | | |
| d_I, Intersection Delay [s/veh] | 36.96 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.817 | | | | | | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.84 | 48.84 | 1.95 | 54.70 | 67.39 | 59.78 | |
| Stops [stops/h] | 532.75 | 583.77 | 16.45 | 182.44 | 387.03 | 637.00 | |
| Fuel consumption [US gal/h] | 11.20 | 12.41 | 0.46 | 5.27 | 12.95 | 22.94 | |
| CO [g/h] | 782.54 | 867.16 | 31.88 | 368.25 | 904.88 | 1603.68 | |
| NOx [g/h] | 152.25 | 168.72 | 6.20 | 71.65 | 176.06 | 312.02 | |
| VOC [g/h] | 181.36 | 200.97 | 7.39 | 85.35 | 209.72 | 371.67 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 29.9 | 29.9 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 24.55 | 24.55 | 39.58 | 39.58 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.923 | 2.941 | 2.583 | 1.885 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 704 | 1145 | 598 | 0 |
| d_b, Bicycle Delay [s] | 20.98 | 9.14 | 24.55 | 49.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.774 | 1.992 | 1.560 | 4.132 |
| Bicycle LOS | C | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 28: Perrin Rd & Burgan Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.017 |

**Intersection Setup**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Perrin | | Perrin | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 5 | 4 | 454 | 4 | 2 | 415 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 5 | 4 | 454 | 4 | 2 | 415 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 123 | 1 | 1 | 113 |
| Total Analysis Volume [veh/h] | 5 | 4 | 493 | 4 | 2 | 451 |
| Pedestrian Volume [ped/h] | 2 | | 1 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 17.84 | 11.54 | 0.00 | 0.00 | 8.39 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.08 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.88 | 1.88 | 0.00 | 0.00 | 0.08 | 0.08 |
| d_A, Approach Delay [s/veh] | 15.04 | | 0.00 | | 0.04 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.16 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 29: Burgan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.008 |

**Intersection Setup**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Burgan | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 2 | 14 | 19 | 428 | 632 | 3 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.60 | 0.60 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 14 | 19 | 428 | 632 | 3 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 4 | 5 | 116 | 172 | 1 |
| Total Analysis Volume [veh/h] | 2 | 15 | 21 | 465 | 687 | 3 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.01 | 0.02 | 0.02 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 19.55 | 10.69 | 9.09 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.07 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.38 | 2.38 | 1.79 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.73 | | 0.39 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.33 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 30: Armstrong Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.055 |

**Intersection Setup**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 70.00 | 110.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Armstrong | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 18 | 12 | 407 | 62 | 5 | 608 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.60 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 18 | 12 | 407 | 62 | 5 | 608 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 3 | 107 | 16 | 1 | 160 |
| Total Analysis Volume [veh/h] | 19 | 13 | 428 | 65 | 5 | 640 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 16.03 | 10.13 | 0.00 | 0.00 | 8.35 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.23 | 0.23 | 0.00 | 0.00 | 0.01 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 5.73 | 5.73 | 0.00 | 0.00 | 0.35 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.63 | | 0.00 | | 0.06 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.41 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 31: Temperance Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 23.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.444 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 280.00 | 100.00 | 130.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 233 | 79 | 129 | 30 | 103 | 0 | 78 | 245 | 51 | 155 | 424 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 10.50 | 0.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 233 | 79 | 129 | 30 | 103 | 0 | 78 | 245 | 51 | 155 | 424 | 33 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 21 | 34 | 8 | 27 | 0 | 21 | 64 | 13 | 41 | 112 | 9 |
| Total Analysis Volume [veh/h] | 245 | 83 | 136 | 32 | 108 | 0 | 82 | 258 | 54 | 163 | 446 | 35 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 2 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 0 | 30 | 0 | 30 | 40 | 0 | 35 | 40 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 3.0 | 5.5 | 0.0 | 3.0 | 5.5 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 8 | 8 | 0 | 10 | 8 | 0 |
| Vehicle Extension [s] | 0.0 | 2.0 | 0.0 | 0.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | Yes | | No | Yes | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 14 | 14 | 14 | 12 | 12 | 7 | 13 | 13 | 11 | 16 | 16 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.21 | 0.19 | 0.19 | 0.11 | 0.20 | 0.20 | 0.16 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.04 | 0.08 | 0.02 | 0.06 | 0.05 | 0.07 | 0.03 | 0.10 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1800 | 1900 | 1615 | 1810 | 1900 | 1810 | 3600 | 1590 | 1659 | 3606 | 1615 |
| c, Capacity [veh/h] | 383 | 404 | 344 | 337 | 354 | 200 | 714 | 315 | 265 | 894 | 400 |
| d1, Uniform Delay [s] | 23.65 | 21.37 | 22.31 | 22.23 | 23.15 | 27.33 | 22.82 | 21.92 | 25.80 | 21.29 | 19.07 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.67 | 0.09 | 0.27 | 0.26 | 1.03 | 0.50 | 0.66 | 0.54 | 0.86 | 0.92 | 0.20 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.64 | 0.21 | 0.40 | 0.09 | 0.31 | 0.41 | 0.36 | 0.17 | 0.61 | 0.50 | 0.09 |
| d, Delay for Lane Group [s/veh] | 24.32 | 21.46 | 22.59 | 22.49 | 24.18 | 27.83 | 23.48 | 22.47 | 26.66 | 22.21 | 19.27 |
| Lane Group LOS | C | C | C | C | C | C | C | C | C | C | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.33 | 1.01 | 1.73 | 0.41 | 1.47 | 1.10 | 1.57 | 0.65 | 2.15 | 2.65 | 0.38 |
| 50th-Percentile Queue Length [ft/ln] | 83.29 | 25.21 | 43.34 | 10.35 | 36.79 | 27.43 | 39.33 | 16.35 | 53.74 | 66.14 | 9.45 |
| 95th-Percentile Queue Length [veh/ln] | 6.00 | 1.81 | 3.12 | 0.75 | 2.65 | 1.97 | 2.83 | 1.18 | 3.87 | 4.76 | 0.68 |
| 95th-Percentile Queue Length [ft/ln] | 149.93 | 45.37 | 78.02 | 18.64 | 66.23 | 49.37 | 70.80 | 29.43 | 96.73 | 119.05 | 17.01 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.32 | 21.46 | 22.59 | 22.49 | 24.18 | 24.18 | 27.83 | 23.48 | 22.47 | 26.66 | 22.21 | 19.27 |
| Movement LOS | C | C | C | C | C | C | C | C | C | C | C | B |
| d_A, Approach Delay [s/veh] | 23.30 | | | 23.79 | | | 24.25 | | | 23.18 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.52 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.444 | | | | | | | | | | | |

**Emissions**

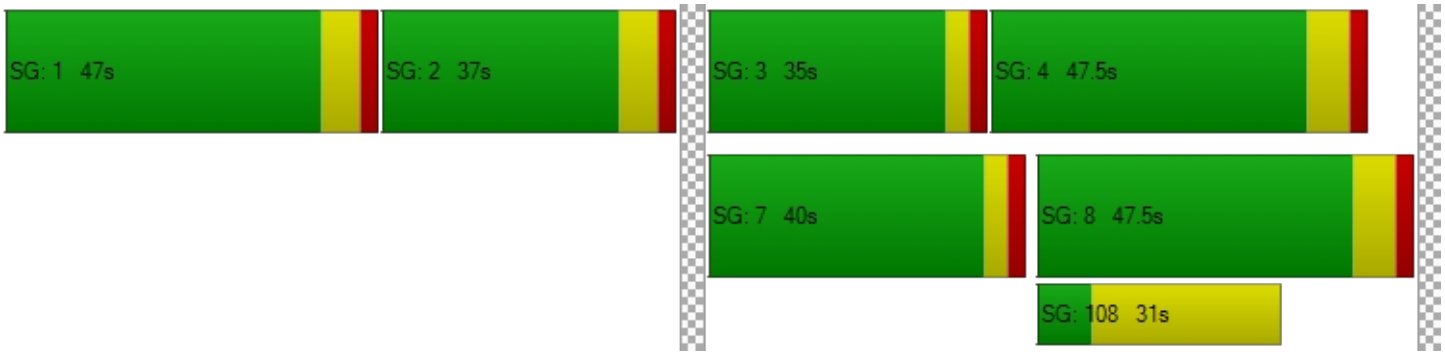
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 244.13 | 82.70 | 135.52 | 0.90 | 3.04 | 30.24 | 95.14 | 19.91 | 82.35 | 225.33 | 17.68 |
| Stops [stops/h] | 182.50 | 55.23 | 94.96 | 22.68 | 80.61 | 60.09 | 172.37 | 35.83 | 117.75 | 289.82 | 20.70 |
| Fuel consumption [US gal/h] | 12.27 | 4.07 | 6.73 | 0.31 | 1.10 | 2.40 | 7.06 | 1.46 | 5.45 | 14.01 | 1.05 |
| CO [g/h] | 857.72 | 284.65 | 470.32 | 21.59 | 77.03 | 167.72 | 493.83 | 102.31 | 380.94 | 979.35 | 73.20 |
| NOx [g/h] | 166.88 | 55.38 | 91.51 | 4.20 | 14.99 | 32.63 | 96.08 | 19.91 | 74.12 | 190.55 | 14.24 |
| VOC [g/h] | 198.78 | 65.97 | 109.00 | 5.00 | 17.85 | 38.87 | 114.45 | 23.71 | 88.29 | 226.97 | 16.96 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 6.5 | 7.0 | 7.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 22.78 | 26.68 | 26.23 | 26.23 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.436 | 2.040 | 2.834 | 2.731 |
| Crosswalk LOS | B | B | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1217 | 913 | 1217 | 1217 |
| d_b, Bicycle Delay [s] | 5.03 | 9.71 | 5.04 | 5.03 |
| l_b,int, Bicycle LOS Score for Intersection | 2.325 | 1.791 | 1.885 | 2.091 |
| Bicycle LOS | B | A | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 32: Nees Ave & Temperance Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.495 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 240.00 | 100.00 | 120.00 | 250.00 | 100.00 | 95.00 | 240.00 | 100.00 | 80.00 | 100.00 | 100.00 | 25.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 50.00 | | | 50.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 7 | 615 | 13 | 14 | 478 | 78 | 181 | 201 | 120 | 1 | 240 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.80 | 0.20 | 0.80 | 0.00 | 0.90 | 0.00 | 1.30 | 1.40 | 0.90 | 0.00 | 2.20 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 615 | 13 | 14 | 478 | 78 | 181 | 201 | 120 | 1 | 240 | 5 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 167 | 4 | 4 | 130 | 21 | 49 | 55 | 33 | 0 | 65 | 1 |
| Total Analysis Volume [veh/h] | 8 | 668 | 14 | 15 | 520 | 85 | 197 | 218 | 130 | 1 | 261 | 5 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 26 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 | 21 | 32 | 0 |
| Amber [s] | 3.0 | 4.7 | 0.0 | 3.0 | 4.7 | 0.0 | 3.0 | 4.3 | 0.0 | 3.0 | 4.3 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 26 | 0 | 0 | 23 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 | 9 | 8 | 0 |
| Vehicle Extension [s] | 2.0 | 3.8 | 0.0 | 2.0 | 3.8 | 0.0 | 2.0 | 3.6 | 0.0 | 2.0 | 3.6 | 0.0 |
| Minimum Recall | No | Yes | | No | Yes | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 15 | 15 | 2 | 16 | 16 | 8 | 17 | 17 | 0 | 9 | 9 |
| g / C, Green / Cycle | 0.02 | 0.30 | 0.30 | 0.03 | 0.31 | 0.31 | 0.17 | 0.35 | 0.35 | 0.00 | 0.18 | 0.18 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.18 | 0.01 | 0.01 | 0.14 | 0.05 | 0.11 | 0.06 | 0.08 | 0.00 | 0.07 | 0.00 |
| s, saturation flow rate [veh/h] | 1798 | 3612 | 1605 | 1810 | 3592 | 1615 | 1791 | 3578 | 1604 | 1810 | 3555 | 1615 |
| c, Capacity [veh/h] | 35 | 1081 | 480 | 63 | 1129 | 508 | 301 | 1239 | 555 | 5 | 643 | 292 |
| d1, Uniform Delay [s] | 24.36 | 15.20 | 12.50 | 23.71 | 13.87 | 12.52 | 19.63 | 11.48 | 11.74 | 25.11 | 18.26 | 16.98 |
| k, delay calibration | 0.04 | 0.14 | 0.14 | 0.04 | 0.14 | 0.14 | 0.04 | 0.13 | 0.13 | 0.04 | 0.13 | 0.13 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.21 | 0.77 | 0.03 | 0.72 | 0.39 | 0.21 | 0.91 | 0.08 | 0.27 | 7.23 | 0.51 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.62 | 0.03 | 0.24 | 0.46 | 0.17 | 0.65 | 0.18 | 0.23 | 0.20 | 0.41 | 0.02 |
| d, Delay for Lane Group [s/veh] | 25.57 | 15.97 | 12.53 | 24.43 | 14.26 | 12.72 | 20.53 | 11.57 | 12.00 | 32.33 | 18.78 | 17.01 |
| Lane Group LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.09 | 2.58 | 0.09 | 0.16 | 1.83 | 0.55 | 2.01 | 0.74 | 0.93 | 0.02 | 1.16 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 2.29 | 64.50 | 2.23 | 3.99 | 45.64 | 13.74 | 50.31 | 18.51 | 23.15 | 0.51 | 28.91 | 1.05 |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 4.64 | 0.16 | 0.29 | 3.29 | 0.99 | 3.62 | 1.33 | 1.67 | 0.04 | 2.08 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 4.12 | 116.11 | 4.02 | 7.18 | 82.15 | 24.73 | 90.57 | 33.31 | 41.66 | 0.91 | 52.03 | 1.88 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 25.57 | 15.97 | 12.53 | 24.43 | 14.26 | 12.72 | 20.53 | 11.57 | 12.00 | 32.33 | 18.78 | 17.01 |
| Movement LOS | C | B | B | C | B | B | C | B | B | C | B | B |
| d_A, Approach Delay [s/veh] | 16.01 | | | 14.29 | | | 14.91 | | | 18.80 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 15.58 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.495 | | | | | | | | | | | |

**Emissions**

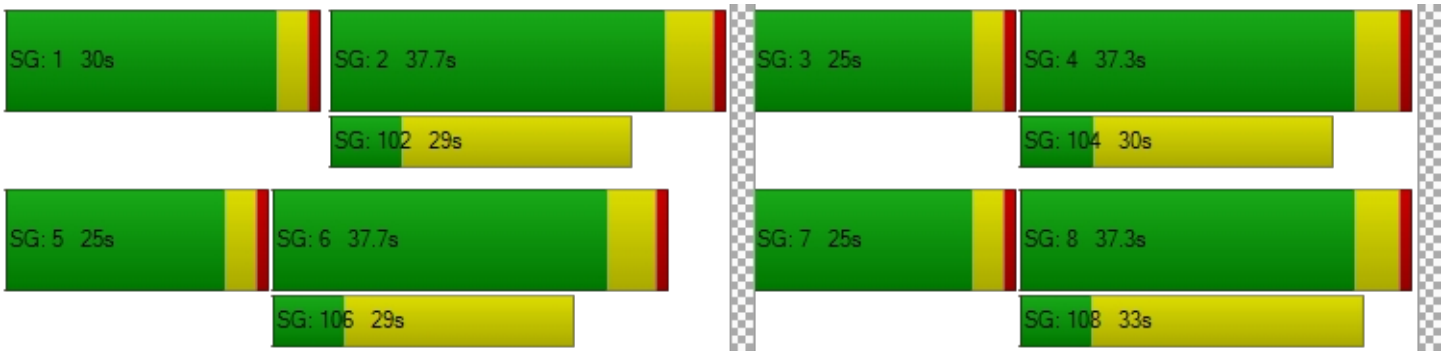
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 3.66 | 305.78 | 6.41 | 14.95 | 518.15 | 84.70 | 197.32 | 218.35 | 130.21 | 0.50 | 130.92 | 2.51 |
| Stops [stops/h] | 6.54 | 369.05 | 6.38 | 11.40 | 261.12 | 39.31 | 143.93 | 105.88 | 66.21 | 1.45 | 165.39 | 3.00 |
| Fuel consumption [US gal/h] | 0.26 | 18.08 | 0.35 | 0.75 | 22.87 | 3.66 | 9.74 | 10.09 | 6.04 | 0.04 | 7.54 | 0.14 |
| CO [g/h] | 18.50 | 1263.53 | 24.35 | 52.44 | 1598.54 | 255.82 | 680.92 | 705.08 | 422.45 | 2.93 | 527.14 | 9.82 |
| NOx [g/h] | 3.60 | 245.84 | 4.74 | 10.20 | 311.02 | 49.77 | 132.48 | 137.18 | 82.19 | 0.57 | 102.56 | 1.91 |
| VOC [g/h] | 4.29 | 292.83 | 5.64 | 12.15 | 370.48 | 59.29 | 157.81 | 163.41 | 97.91 | 0.68 | 122.17 | 2.28 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 15.37 | 15.37 | 15.37 | 15.37 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.783 | 2.823 | 2.566 | 2.668 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1271 | 1271 | 1271 | 1271 |
| d_b, Bicycle Delay [s] | 3.34 | 3.34 | 3.34 | 3.34 |
| l_b,int, Bicycle LOS Score for Intersection | 2.129 | 2.071 | 2.009 | 1.780 |
| Bicycle LOS | B | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 33: Temperance Ave & Alluvial Ave**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 12.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | Alluvial | | | Alluvial | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 132 | 534 | 593 | 66 | 421 | 35 | 46 | 203 | 248 | 390 | 119 | 86 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 2.50 | 3.40 | 1.60 | 0.00 | 2.30 | 3.30 | 2.00 | 4.30 | 4.20 | 1.20 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 534 | 593 | 66 | 421 | 35 | 46 | 203 | 248 | 390 | 119 | 86 |
| Peak Hour Factor | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 | 0.9300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 144 | 159 | 18 | 113 | 9 | 12 | 55 | 67 | 105 | 32 | 23 |
| Total Analysis Volume [veh/h] | 142 | 574 | 638 | 71 | 453 | 38 | 49 | 218 | 267 | 419 | 128 | 92 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 1 | | | 1 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 2 | | | 2 | | | 2 | | |
| Circulating Flow Rate [veh/h] | 349 | | | 712 | | | 971 | | | 770 | | |
| Exiting Flow Rate [veh/h] | 1170 | | | 721 | | | 313 | | | 953 | | |
| Demand Flow Rate [veh/h] | 132 | 534 | 593 | 66 | 421 | 35 | 46 | 203 | 248 | 390 | 119 | 86 |
| Adjusted Demand Flow Rate [veh/h] | 142 | 574 | 638 | 71 | 453 | 38 | 49 | 218 | 267 | 419 | 128 | 92 |

**Lanes**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1420.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 | 1350.00 | 1420.00 |
| B (coefficient) | 0.00091 | 0.00091 | 0.00092 | 0.00085 | 0.00092 | 0.00085 | 0.00092 | 0.00085 |
| HV Adjustment Factor | 0.99 | 0.98 | 0.98 | 0.99 | 0.97 | 0.98 | 0.96 | 0.96 |
| Entry Flow Rate [veh/h] | 640 | 730 | 270 | 303 | 276 | 273 | 354 | 312 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1034 | 1034 | 701 | 776 | 553 | 623 | 665 | 738 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1028 | 1017 | 689 | 764 | 537 | 611 | 638 | 711 |
| X, volume / capacity | 0.62 | 0.71 | 0.38 | 0.39 | 0.50 | 0.44 | 0.53 | 0.42 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lane LOS | B | C | B | A | C | B | B | B |
| 95th-Percentile Queue Length [veh] | 4.47 | 6.18 | 1.81 | 1.86 | 2.75 | 2.22 | 3.14 | 2.11 |
| 95th-Percentile Queue Length [ft] | 111.86 | 154.57 | 45.17 | 46.47 | 68.81 | 55.50 | 78.50 | 52.74 |
| Approach Delay [s/veh] | 13.70 | | 9.99 | | 14.14 | | 12.80 | |
| Approach LOS | B | | A | | B | | B | |
| Intersection Delay [s/veh] | 12.91 | | | | | | | |
| Intersection LOS | B | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 34: Temperance Ave & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 4.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.435 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 160.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 55.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 WB Ramps | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1163 | 650 | 0 | 656 | 368 | 0 | 0 | 0 | 37 | 0 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.80 | 0.90 | 2.00 | 1.20 | 0.80 | 2.00 | 2.00 | 2.00 | 2.10 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1163 | 650 | 0 | 656 | 368 | 0 | 0 | 0 | 37 | 0 | 22 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 316 | 177 | 0 | 178 | 100 | 0 | 0 | 0 | 10 | 0 | 6 |
| Total Analysis Volume [veh/h] | 0 | 1264 | 707 | 0 | 713 | 400 | 0 | 0 | 0 | 40 | 0 | 24 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 1 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 6.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Unsigna | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.7 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | | Yes | | | | | No | | |
| Maximum Recall | | No | | | No | | | | | No | | |
| Pedestrian Recall | | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | R | | L | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 43 | 43 | 43 | | 43 | 43 |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 6.80 | | 5.90 | 5.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 4.80 | | 3.90 | 3.90 |
| g_i, Effective Green Time [s] | 26 | 26 | 26 | | 4 | 4 |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.60 | | 0.10 | 0.10 |
| (v / s)_i Volume / Saturation Flow Rate | 0.35 | 0.20 | 0.25 | | 0.02 | 0.01 |
| s, saturation flow rate [veh/h] | 3595 | 3583 | 1605 | | 1780 | 1615 |
| c, Capacity [veh/h] | 2165 | 2158 | 966 | | 181 | 164 |
| d1, Uniform Delay [s] | 5.23 | 4.24 | 4.52 | | 17.71 | 17.57 |
| k, delay calibration | 0.20 | 0.20 | 0.20 | | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.47 | 0.17 | 0.53 | | 1.30 | 0.87 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.58 | 0.33 | 0.41 | | 0.22 | 0.15 |
| d, Delay for Lane Group [s/veh] | 5.70 | 4.40 | 5.05 | | 19.01 | 18.44 |
| Lane Group LOS | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.27 | 0.57 | 0.76 | | 0.34 | 0.20 |
| 50th-Percentile Queue Length [ft/ln] | 31.81 | 14.16 | 19.01 | | 8.45 | 5.04 |
| 95th-Percentile Queue Length [veh/ln] | 2.29 | 1.02 | 1.37 | | 0.61 | 0.36 |
| 95th-Percentile Queue Length [ft/ln] | 57.26 | 25.48 | 34.22 | | 15.21 | 9.08 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 5.70 | 0.00 | 0.00 | 4.40 | 5.05 | 0.00 | 0.00 | 0.00 | 19.01 | 0.00 | 18.44 |
| Movement LOS | | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 3.77 | | | 4.63 | | | 0.00 | | | 18.79 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 4.56 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.435 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 144.59 | 70.34 | 39.46 | | 2.83 | 1.70 |
| Stops [stops/h] | 214.23 | 95.34 | 64.02 | | 28.45 | 16.99 |
| Fuel consumption [US gal/h] | 9.09 | 4.24 | 2.56 | | 0.78 | 0.46 |
| CO [g/h] | 635.14 | 296.04 | 178.91 | | 54.37 | 32.32 |
| NOx [g/h] | 123.58 | 57.60 | 34.81 | | 10.58 | 6.29 |
| VOC [g/h] | 147.20 | 68.61 | 41.46 | | 12.60 | 7.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 3.1 | 3.1 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 18.40 | 18.40 | 11.80 | 11.80 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.864 | 2.976 | 1.866 | 1.935 |
| Crosswalk LOS | C | C | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1637 | 1637 | 0 | 935 |
| d_b, Bicycle Delay [s] | 0.71 | 0.71 | 21.38 | 6.06 |
| l_b,int, Bicycle LOS Score for Intersection | 2.602 | 2.478 | 4.132 | 1.560 |
| Bicycle LOS | B | B | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 35: Temperance Ave & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 260.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 55.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Temperance | | | Temperance | | | SR 168 EB Ramps | | | SR 168 EB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 1229 | 83 | 23 | 687 | 0 | 557 | 0 | 718 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.50 | 0.00 | 0.00 | 0.80 | 2.00 | 0.60 | 2.00 | 0.60 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 1229 | 83 | 23 | 687 | 0 | 557 | 0 | 718 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 334 | 23 | 6 | 187 | 0 | 151 | 0 | 195 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 1336 | 90 | 25 | 747 | 0 | 605 | 0 | 780 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 1 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 45 | 0 | 15 | 35 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.8 | 0.0 | 3.7 | 4.8 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 6 | 10 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.6 | 0.0 | 2.0 | 4.6 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 101 | 101 | 101 | 101 | 101 | |
| L, Total Lost Time per Cycle [s] | 6.80 | 6.80 | 5.70 | 6.80 | 5.70 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.80 | 4.80 | 3.70 | 4.80 | 3.70 | |
| g_i, Effective Green Time [s] | 43 | 43 | 3 | 52 | 37 | |
| g / C, Green / Cycle | 0.43 | 0.43 | 0.03 | 0.51 | 0.36 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.38 | 0.39 | 0.01 | 0.21 | 0.34 | |
| s, saturation flow rate [veh/h] | 1892 | 1851 | 1810 | 3595 | 1801 | |
| c, Capacity [veh/h] | 807 | 790 | 55 | 1845 | 654 | |
| d1, Uniform Delay [s] | 26.67 | 27.04 | 48.21 | 15.12 | 30.89 | |
| k, delay calibration | 0.36 | 0.37 | 0.04 | 0.19 | 0.38 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 10.06 | 12.15 | 2.18 | 0.26 | 17.17 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.88 | 0.90 | 0.46 | 0.40 | 0.93 | |
| d, Delay for Lane Group [s/veh] | 36.74 | 39.19 | 50.38 | 15.37 | 48.06 | |
| Lane Group LOS | D | D | D | B | D | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 16.57 | 17.17 | 0.63 | 4.82 | 15.73 | |
| 50th-Percentile Queue Length [ft/ln] | 414.18 | 429.29 | 15.80 | 120.44 | 393.27 | |
| 95th-Percentile Queue Length [veh/ln] | 23.24 | 23.97 | 1.14 | 8.42 | 22.24 | |
| 95th-Percentile Queue Length [ft/ln] | 581.06 | 599.19 | 28.44 | 210.43 | 555.88 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 37.88 | 39.19 | 50.38 | 15.37 | 0.00 | 48.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | D | D | D | B | | D | | | | | |
| d_A, Approach Delay [s/veh] | 37.96 | | | 16.51 | | | 48.06 | | | 0.00 | | |
| Approach LOS | D | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 34.23 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.807 | | | | | | | | | | | |

**Emissions**

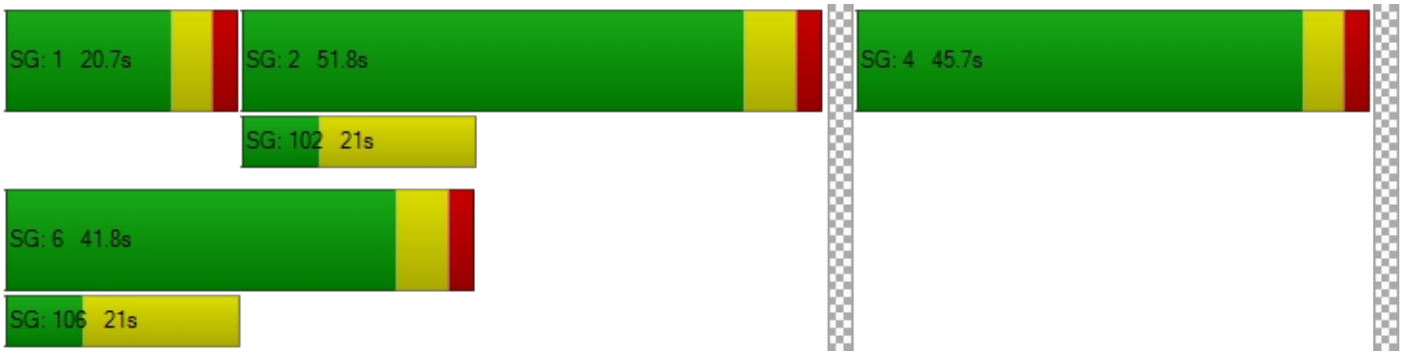
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 57.75 | 57.75 | 2.86 | 85.45 | 47.31 | |
| Stops [stops/h] | 590.92 | 612.48 | 22.55 | 343.66 | 561.09 | |
| Fuel consumption [US gal/h] | 14.66 | 15.28 | 0.63 | 9.54 | 17.92 | |
| CO [g/h] | 1024.53 | 1068.13 | 44.36 | 666.78 | 1252.69 | |
| NOx [g/h] | 199.34 | 207.82 | 8.63 | 129.73 | 243.73 | |
| VOC [g/h] | 237.44 | 247.55 | 10.28 | 154.53 | 290.32 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 50.46 | 50.46 | 40.06 | 40.06 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.940 | 3.129 | 2.261 | 1.776 |
| Crosswalk LOS | C | C | B | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 892 | 694 | 793 | 0 |
| d_b, Bicycle Delay [s] | 15.50 | 21.53 | 18.39 | 50.46 |
| l_b,int, Bicycle LOS Score for Intersection | 2.736 | 2.197 | 1.560 | 4.132 |
| Bicycle LOS | B | B | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 36: Locan Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.579 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 245.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 30.00 | | | 50.00 | | | 50.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Shepherd | | | Shepherd | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 260 | 0 | 14 | 149 | 50 | 10 | 107 | 242 | 25 | 7 | 387 | 68 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 260 | 0 | 14 | 149 | 50 | 10 | 107 | 242 | 25 | 7 | 387 | 68 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 71 | 0 | 4 | 40 | 14 | 3 | 29 | 66 | 7 | 2 | 105 | 18 |
| Total Analysis Volume [veh/h] | 283 | 0 | 15 | 162 | 54 | 11 | 116 | 263 | 27 | 8 | 421 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 1 | | | 0 | | | 1 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.2 | 0.0 |
| Minimum Recall | Yes | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | R | L | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 24 | 10 | 10 | 12 | 9 | 21 | 21 | 1 | 13 | 13 |
| g / C, Green / Cycle | 0.42 | 0.17 | 0.18 | 0.21 | 0.16 | 0.36 | 0.36 | 0.02 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.21 | 0.01 | 0.11 | 0.04 | 0.06 | 0.07 | 0.02 | 0.00 | 0.12 | 0.05 |
| s, saturation flow rate [veh/h] | 1380 | 1615 | 1440 | 1845 | 1810 | 3603 | 1610 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 513 | 277 | 123 | 388 | 291 | 1283 | 573 | 43 | 792 | 354 |
| d1, Uniform Delay [s] | 17.01 | 20.28 | 21.86 | 18.93 | 22.02 | 13.09 | 12.34 | 28.01 | 20.20 | 18.70 |
| k, delay calibration | 0.15 | 0.12 | 0.04 | 0.04 | 0.04 | 0.17 | 0.17 | 0.04 | 0.17 | 0.17 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.32 | 0.09 | 146.64 | 0.08 | 0.33 | 0.12 | 0.05 | 0.76 | 0.85 | 0.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.55 | 0.05 | 1.32 | 0.17 | 0.40 | 0.21 | 0.05 | 0.19 | 0.53 | 0.21 |
| d, Delay for Lane Group [s/veh] | 18.33 | 20.37 | 168.50 | 19.00 | 22.35 | 13.21 | 12.39 | 28.77 | 21.04 | 19.15 |
| Lane Group LOS | B | C | F | B | C | B | B | C | C | B |
| Critical Lane Group | Yes | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.86 | 0.16 | 6.44 | 0.68 | 1.24 | 0.97 | 0.19 | 0.11 | 2.21 | 0.73 |
| 50th-Percentile Queue Length [ft/ln] | 71.44 | 3.90 | 160.90 | 16.92 | 31.09 | 24.14 | 4.77 | 2.65 | 55.22 | 18.31 |
| 95th-Percentile Queue Length [veh/ln] | 5.14 | 0.28 | 11.58 | 1.22 | 2.24 | 1.74 | 0.34 | 0.19 | 3.98 | 1.32 |
| 95th-Percentile Queue Length [ft/ln] | 128.60 | 7.03 | 289.61 | 30.46 | 55.96 | 43.45 | 8.59 | 4.77 | 99.39 | 32.95 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 18.33 | 18.33 | 20.37 | 168.50 | 19.00 | 19.00 | 22.35 | 13.21 | 12.39 | 28.77 | 21.04 | 19.15 |
| Movement LOS | B | B | C | F | B | B | C | B | B | C | C | B |
| d_A, Approach Delay [s/veh] | 18.43 | | | 125.69 | | | 15.77 | | | 20.89 | | |
| Approach LOS | B | | | F | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.52 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.579 | | | | | | | | | | | |

**Emissions**

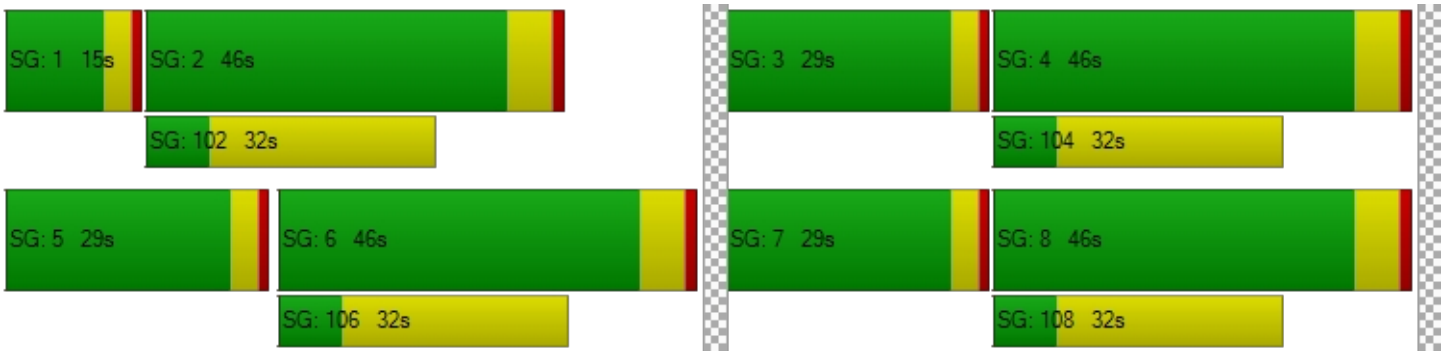
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 14.73 | 0.78 | 4.05 | 1.62 | 58.61 | 132.87 | 13.64 | 4.00 | 210.64 | 37.02 |
| Stops [stops/h] | 176.24 | 9.63 | 396.91 | 41.75 | 76.70 | 119.11 | 11.78 | 6.53 | 272.43 | 45.16 |
| Fuel consumption [US gal/h] | 3.75 | 0.21 | 7.91 | 0.55 | 3.67 | 6.99 | 0.71 | 0.28 | 13.04 | 2.22 |
| CO [g/h] | 262.24 | 14.58 | 553.16 | 38.36 | 256.36 | 488.26 | 49.33 | 19.65 | 911.41 | 155.28 |
| NOx [g/h] | 51.02 | 2.84 | 107.62 | 7.46 | 49.88 | 95.00 | 9.60 | 3.82 | 177.33 | 30.21 |
| VOC [g/h] | 60.78 | 3.38 | 128.20 | 8.89 | 59.41 | 113.16 | 11.43 | 4.55 | 211.23 | 35.99 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 19.22 | 19.22 | 19.22 | 19.22 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.105 | 2.052 | 3.066 | 2.915 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2364 | 1370 | 1370 | 1370 |
| d_b, Bicycle Delay [s] | 0.97 | 2.89 | 2.89 | 2.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.051 | 1.934 | 1.895 | 1.975 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 37: Locan Ave & Nees Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.518 |

**Intersection Setup**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 45.00 | | | 45.00 | | | 30.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Locan | | | Locan | | | Nees | | | Nees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 498 | 0 | 11 | 132 | 81 | 168 | 69 | 0 | 2 | 16 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 498 | 0 | 11 | 132 | 81 | 168 | 69 | 0 | 2 | 16 | 9 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 135 | 0 | 3 | 36 | 22 | 46 | 19 | 0 | 1 | 4 | 2 |
| Total Analysis Volume [veh/h] | 0 | 541 | 0 | 12 | 143 | 88 | 183 | 75 | 0 | 2 | 17 | 10 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 1 | | | 0 | | | 0 | | | 2 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 2 | | | 0 | | | 0 | | | 1 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 | 25 | 40 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 11 | 8 | 0 | 11 | 9 | 0 | 11 | 9 | 0 |
| Vehicle Extension [s] | 2.0 | 3.2 | 0.0 | 2.0 | 4.0 | 0.0 | 2.0 | 4.2 | 0.0 | 2.0 | 4.4 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | C | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 0 | 19 | 2 | 21 | 21 | 10 | 15 | 15 | 0 | 5 | 5 |
| g / C, Green / Cycle | 0.00 | 0.37 | 0.03 | 0.40 | 0.40 | 0.20 | 0.28 | 0.28 | 0.01 | 0.09 | 0.09 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.28 | 0.01 | 0.06 | 0.07 | 0.10 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| s, saturation flow rate [veh/h] | 1810 | 1900 | 1810 | 1900 | 1669 | 1804 | 3618 | 1615 | 1810 | 3618 | 1615 |
| c, Capacity [veh/h] | 0 | 704 | 62 | 768 | 675 | 353 | 1028 | 459 | 11 | 343 | 153 |
| d1, Uniform Delay [s] | 0.00 | 14.54 | 24.63 | 9.92 | 9.97 | 18.88 | 13.72 | 0.00 | 25.93 | 21.59 | 21.63 |
| k, delay calibration | 0.04 | 0.12 | 0.04 | 0.15 | 0.15 | 0.04 | 0.17 | 0.17 | 0.04 | 0.18 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 1.96 | 0.56 | 0.13 | 0.16 | 0.44 | 0.05 | 0.00 | 2.80 | 0.10 | 0.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.77 | 0.19 | 0.15 | 0.17 | 0.52 | 0.07 | 0.00 | 0.18 | 0.05 | 0.07 |
| d, Delay for Lane Group [s/veh] | 0.00 | 16.50 | 25.19 | 10.05 | 10.13 | 19.32 | 13.76 | 0.00 | 28.73 | 21.69 | 21.92 |
| Lane Group LOS | A | B | C | B | B | B | B | A | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 4.61 | 0.14 | 0.68 | 0.64 | 1.84 | 0.29 | 0.00 | 0.03 | 0.09 | 0.11 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 115.37 | 3.41 | 16.88 | 16.09 | 45.90 | 7.36 | 0.00 | 0.76 | 2.17 | 2.73 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 8.14 | 0.25 | 1.22 | 1.16 | 3.31 | 0.53 | 0.00 | 0.05 | 0.16 | 0.20 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 203.44 | 6.13 | 30.38 | 28.97 | 82.63 | 13.25 | 0.00 | 1.37 | 3.90 | 4.91 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 16.50 | 16.50 | 25.19 | 10.07 | 10.13 | 19.32 | 13.76 | 0.00 | 28.73 | 21.69 | 21.92 |
| Movement LOS | A | B | B | C | B | B | B | B | A | C | C | C |
| d_A, Approach Delay [s/veh] | 16.50 | | | 10.84 | | | 17.70 | | | 22.26 | | |
| Approach LOS | B | | | B | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 15.66 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.518 | | | | | | | | | | | |

**Emissions**

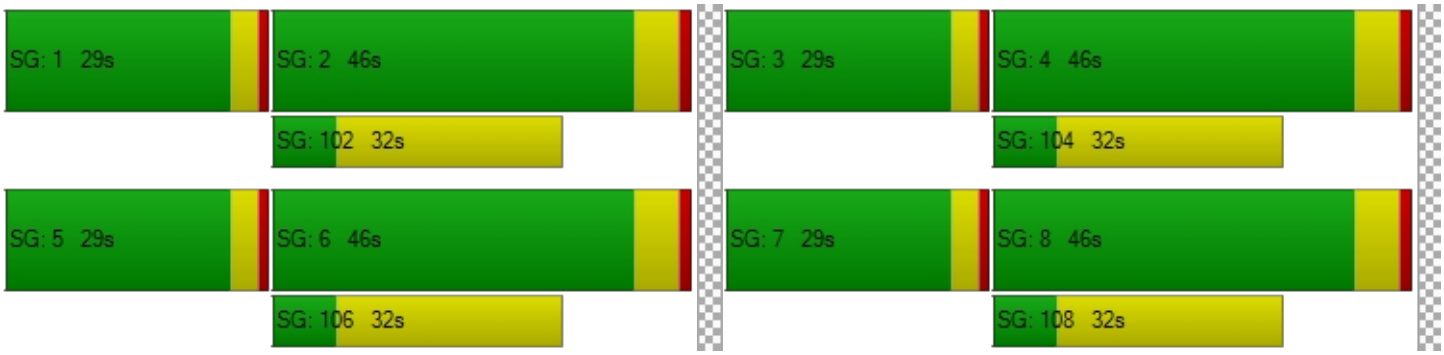
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 151.79 | 0.51 | 5.10 | 4.81 | 91.79 | 37.62 | 0.00 | 0.11 | 0.97 | 0.57 |
| Stops [stops/h] | 0.00 | 317.47 | 9.37 | 46.45 | 44.29 | 126.32 | 40.51 | 0.00 | 2.10 | 11.92 | 7.50 |
| Fuel consumption [US gal/h] | 0.00 | 10.97 | 0.20 | 1.00 | 0.95 | 5.20 | 1.98 | 0.00 | 0.04 | 0.26 | 0.16 |
| CO [g/h] | 0.00 | 766.57 | 13.68 | 69.59 | 66.17 | 363.21 | 138.58 | 0.00 | 2.91 | 17.93 | 11.01 |
| NOx [g/h] | 0.00 | 149.15 | 2.66 | 13.54 | 12.87 | 70.67 | 26.96 | 0.00 | 0.57 | 3.49 | 2.14 |
| VOC [g/h] | 0.00 | 177.66 | 3.17 | 16.13 | 15.34 | 84.18 | 32.12 | 0.00 | 0.68 | 4.16 | 2.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 16.32 | 16.32 | 16.32 | 16.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.351 | 2.458 | 2.614 | 2.450 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1529 | 1529 | 1529 | 1529 |
| d_b, Bicycle Delay [s] | 1.45 | 1.45 | 1.45 | 1.45 |
| l_b,int, Bicycle LOS Score for Intersection | 2.452 | 1.760 | 1.772 | 1.584 |
| Bicycle LOS | B | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 38: Locan Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 14.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.517 |

**Intersection Setup**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Locan | | Owens Mountain | | Owens Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 132 | 498 | 17 | 27 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 132 | 498 | 17 | 27 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 36 | 135 | 5 | 7 | 0 |
| Total Analysis Volume [veh/h] | 0 | 143 | 541 | 18 | 29 | 0 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Permissive |
|---|---|---|---|---|---|---|
| Signal Group | 3 | 0 | 1 | 6 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Maximum Green [s] | 25 | 0 | 25 | 40 | 40 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 5.0 | 5.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 25 | 0 | 0 | 25 | 25 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 14 | 0 |
| Lead / Lag | Lead | - | Lead | - | - | - |
| Minimum Green [s] | 11 | 0 | 11 | 8 | 8 | 0 |
| Vehicle Extension [s] | 4.0 | 0.0 | 4.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | Yes | Yes | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | C | R |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 41 | 41 | 41 | 41 | 41 | 41 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 15 | 24 | 4 | 4 |
| g / C, Green / Cycle | 0.22 | 0.22 | 0.38 | 0.58 | 0.11 | 0.11 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.09 | 0.30 | 0.01 | 0.01 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 1589 | 1781 | 3560 | 3560 | 1589 |
| c, Capacity [veh/h] | 389 | 347 | 678 | 2082 | 375 | 167 |
| d1, Uniform Delay [s] | 0.00 | 13.64 | 11.18 | 3.52 | 16.40 | 0.00 |
| k, delay calibration | 0.15 | 0.15 | 0.15 | 0.04 | 0.04 | 0.04 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.00 | 1.11 | 3.11 | 0.00 | 0.03 | 0.00 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.00 | 0.41 | 0.80 | 0.01 | 0.08 | 0.00 |
| d, Delay for Lane Group [s/veh] | 0.00 | 14.75 | 14.29 | 3.52 | 16.43 | 0.00 |
| Lane Group LOS | A | B | B | A | B | A |
| Critical Lane Group | No | Yes | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.00 | 1.04 | 3.76 | 0.02 | 0.11 | 0.00 |
| 50th-Percentile Queue Length [ft/ln] | 0.00 | 25.90 | 94.07 | 0.41 | 2.67 | 0.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.87 | 6.77 | 0.03 | 0.19 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 46.63 | 169.33 | 0.74 | 4.80 | 0.00 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 14.75 | 14.29 | 3.52 | 16.43 | 0.00 |
| Movement LOS | A | B | B | A | B | A |
| d_A, Approach Delay [s/veh] | 14.75 | | 13.95 | | 16.43 | |
| Approach LOS | B | | B | | B | |
| d_I, Intersection Delay [s/veh] | 14.20 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.517 | | | | | |

**Emissions**

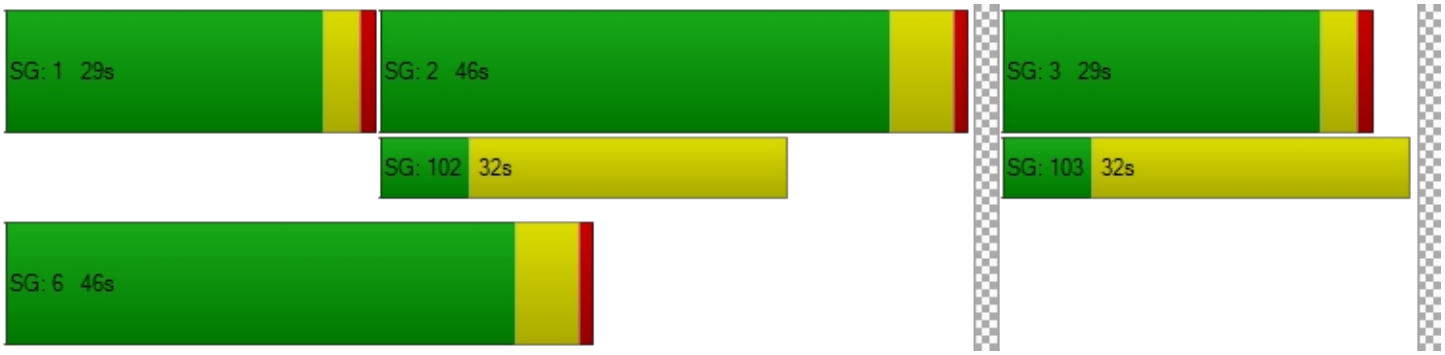
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 0.00 | 40.12 | 56.56 | 1.88 | 0.69 | 0.00 |
| Stops [stops/h] | 0.00 | 92.09 | 334.41 | 2.92 | 18.97 | 0.00 |
| Fuel consumption [US gal/h] | 0.00 | 2.59 | 5.75 | 0.11 | 0.23 | 0.00 |
| CO [g/h] | 0.00 | 181.03 | 401.91 | 7.44 | 16.09 | 0.00 |
| NOx [g/h] | 0.00 | 35.22 | 78.20 | 1.45 | 3.13 | 0.00 |
| VOC [g/h] | 0.00 | 41.95 | 93.15 | 1.73 | 3.73 | 0.00 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 10.75 | 10.75 | 10.75 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.115 | 2.395 | 2.262 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1234 | 1975 | 1975 |
| d_b, Bicycle Delay [s] | 2.97 | 0.00 | 0.00 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 2.021 | 1.584 |
| Bicycle LOS | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 39: De Wolf Ave & Shepherd Ave**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.333 |

**Intersection Setup**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | | Westbound | |
| Lane Configuration |  | |  | | |  | |
| Turning Movement | Left | Right | U-turn | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 240.00 | 100.00 | 115.00 | 255.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | | 0.00 | |
| Curb Present | No | | No | | | No | |
| Crosswalk | Yes | | Yes | | | Yes | |

**Volumes**

| Name | De Wolf | | Shepherd | | | Shepherd | |
|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 223 | 3 | 1 | 200 | 115 | 2 | 328 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 1.30 | 0.00 | 1.30 |
| Proportion of CAVs [%] | 0.00 | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 223 | 3 | 1 | 200 | 115 | 2 | 328 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 1 | 0 | 54 | 31 | 1 | 89 |
| Total Analysis Volume [veh/h] | 242 | 3 | 1 | 217 | 125 | 2 | 357 |
| Presence of On-Street Parking | No | No | No | | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Split | Split | Protected | Permissive | Permissive | Protected | Permissive |
|---|---|---|---|---|---|---|---|
| Signal Group | 6 | 0 | 3 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | | | | | | |
| Maximum Green [s] | 22 | 0 | 10 | 32 | 0 | 17 | 32 |
| Amber [s] | 4.3 | 0.0 | 3.0 | 5.0 | 0.0 | 3.0 | 5.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 |
| Walk [s] | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | | | No |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 0 | 9 | 14 | 0 | 9 | 14 |
| Lead / Lag | Lead | - | Lead | - | - | Lead | - |
| Minimum Green [s] | 8 | 0 | 5 | 8 | 0 | 8 | 8 |
| Vehicle Extension [s] | 2.0 | 0.0 | 2.0 | 3.9 | 0.0 | 2.0 | 3.9 |
| Minimum Recall | No | | No | No | | No | No |
| Maximum Recall | No | | No | No | | No | No |
| Pedestrian Recall | No | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | R | L | C | R | L | C |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 8 | 8 | 0 | 10 | 10 | 0 | 10 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.00 | 0.32 | 0.32 | 0.01 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.00 | 0.06 | 0.08 | 0.00 | 0.10 |
| s, saturation flow rate [veh/h] | 1810 | 1615 | 1810 | 3618 | 1598 | 1810 | 3580 |
| c, Capacity [veh/h] | 504 | 450 | 5 | 1156 | 511 | 12 | 1159 |
| d1, Uniform Delay [s] | 9.13 | 7.92 | 15.12 | 7.49 | 7.63 | 15.01 | 7.72 |
| k, delay calibration | 0.04 | 0.04 | 0.04 | 0.15 | 0.15 | 0.04 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.00 | 7.13 | 0.11 | 0.34 | 2.22 | 0.21 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.48 | 0.01 | 0.20 | 0.19 | 0.24 | 0.16 | 0.31 |
| d, Delay for Lane Group [s/veh] | 9.39 | 7.92 | 22.25 | 7.59 | 7.97 | 17.22 | 7.93 |
| Lane Group LOS | A | A | C | A | A | B | A |
| Critical Lane Group | Yes | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.92 | 0.01 | 0.01 | 0.24 | 0.31 | 0.02 | 0.59 |
| 50th-Percentile Queue Length [ft/ln] | 23.08 | 0.25 | 0.36 | 5.96 | 7.70 | 0.46 | 14.68 |
| 95th-Percentile Queue Length [veh/ln] | 1.66 | 0.02 | 0.03 | 0.43 | 0.55 | 0.03 | 1.06 |
| 95th-Percentile Queue Length [ft/ln] | 41.55 | 0.44 | 0.65 | 10.73 | 13.86 | 0.84 | 26.43 |

**Movement, Approach, & Intersection Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.39 | 7.92 | 22.25 | 7.59 | 7.97 | 17.22 | 7.93 |
| Movement LOS | A | A | C | A | A | B | A |
| d_A, Approach Delay [s/veh] | 9.37 | | 7.77 | | | 7.98 | |
| Approach LOS | A | | A | | | A | |
| d_I, Intersection Delay [s/veh] | 8.27 | | | | | | |
| Intersection LOS | A | | | | | | |
| Intersection V/C | 0.333 | | | | | | |

**Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 181.11 | 2.25 | 0.50 | 108.57 | 62.54 | 2.47 | 441.03 |
| Stops [stops/h] | 110.11 | 1.17 | 1.72 | 56.86 | 36.74 | 2.21 | 140.07 |
| Fuel consumption [US gal/h] | 8.53 | 0.10 | 0.05 | 4.84 | 2.86 | 0.12 | 19.51 |
| CO [g/h] | 596.01 | 7.25 | 3.34 | 338.59 | 199.99 | 8.46 | 1363.43 |
| NOx [g/h] | 115.96 | 1.41 | 0.65 | 65.88 | 38.91 | 1.65 | 265.27 |
| VOC [g/h] | 138.13 | 1.68 | 0.77 | 78.47 | 46.35 | 1.96 | 315.99 |

**Other Modes**

| | | | |
|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 3.7 | 3.7 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.10 | 11.62 | 11.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.152 | 2.664 | 2.368 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1458 | 2120 | 2120 |
| d_b, Bicycle Delay [s] | 1.11 | 0.05 | 0.05 |
| l_b,int, Bicycle LOS Score for Intersection | 1.560 | 1.843 | 1.856 |
| Bicycle LOS | A | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | - | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 40: De Wolf Ave & Owens Mountain Pkwy**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 5.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |
| Speed [mph] | 40.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | De Wolf | | Owens Mountain | | Owen Mountain | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 226 | 46 | 61 | 62 | 45 | 538 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 6.70 | 2.90 | 0.20 |
| Proportion of CAVs [%] | 0.00 | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 226 | 46 | 61 | 62 | 45 | 538 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 60 | 12 | 16 | 16 | 12 | 143 |
| Total Analysis Volume [veh/h] | 240 | 49 | 65 | 66 | 48 | 572 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 2 | | 1 | | 1 | |
| Circulating Flow Rate [veh/h] | 49 | | 240 | | 65 | |
| Exiting Flow Rate [veh/h] | 638 | | 98 | | 310 | |
| Demand Flow Rate [veh/h] | 226 | 46 | 61 | 62 | 45 | 538 |
| Adjusted Demand Flow Rate [veh/h] | 240 | 49 | 65 | 66 | 48 | 572 |

**Lanes**

| | | | | | | |
|---|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1350.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 | 1420.00 |
| B (coefficient) | 0.00092 | 0.00085 | 0.00091 | 0.00091 | 0.00091 | 0.00091 |
| HV Adjustment Factor | 1.00 | 1.00 | 0.97 | 0.94 | 0.97 | 1.00 |
| Entry Flow Rate [veh/h] | 240 | 49 | 68 | 71 | 50 | 575 |
| Capacity of Entry and Bypass Lanes [veh/h] | 1291 | 1362 | 1142 | 1142 | 1339 | 1339 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 1291 | 1362 | 1106 | 1070 | 1301 | 1334 |
| X, volume / capacity | 0.19 | 0.04 | 0.06 | 0.06 | 0.04 | 0.43 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh] | 0.68 | 0.11 | 0.19 | 0.20 | 0.11 | 2.20 |
| 95th-Percentile Queue Length [ft] | 17.05 | 2.80 | 4.68 | 4.92 | 2.87 | 55.09 |
| Approach Delay [s/veh] | 4.11 | | 3.83 | | 6.57 | |
| Approach LOS | A | | A | | A | |
| Intersection Delay [s/veh] | 5.54 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 41: Owen Mountain Pkwy & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 32.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.483 |

**Intersection Setup**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Owen Mountain | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 75 | 12 | 12 | 43 | 197 | 472 | 505 | 102 | 3 | 319 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.50 | 0.00 | 0.00 | 5.00 | 0.80 | 0.00 | 1.70 | 3.20 | 0.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 77 | 75 | 12 | 12 | 43 | 197 | 472 | 505 | 102 | 3 | 319 | 2 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 20 | 3 | 3 | 11 | 52 | 126 | 134 | 27 | 1 | 85 | 1 |
| Total Analysis Volume [veh/h] | 82 | 80 | 13 | 13 | 46 | 210 | 502 | 537 | 109 | 3 | 339 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 5 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 15 | 15 | 40 | 0 | 15 | 40 | 0 |
| Amber [s] | 4.4 | 4.8 | 0.0 | 4.4 | 4.8 | 4.4 | 4.4 | 5.9 | 0.0 | 4.4 | 5.9 | 0.0 |
| All red [s] | 3.6 | 2.4 | 0.0 | 3.6 | 2.4 | 2.4 | 2.4 | 2.0 | 0.0 | 2.4 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 61 | 0 | 0 | 61 | 0 | 0 | 44 | 0 | 0 | 44 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 6.0 | 5.2 | 0.0 | 6.0 | 5.2 | 4.8 | 4.8 | 5.9 | 0.0 | 4.8 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 9 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 10 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 5.4 | 0.0 | 3.0 | 5.6 | 3.0 | 3.0 | 7.0 | 0.0 | 3.0 | 7.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| L, Total Lost Time per Cycle [s] | 8.00 | 7.20 | 7.20 | 8.00 | 7.20 | 7.20 | 6.80 | 7.90 | 7.90 | 6.80 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 6.00 | 5.20 | 5.20 | 6.00 | 5.20 | 5.20 | 4.80 | 5.90 | 5.90 | 4.80 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 9 | 24 | 24 | 3 | 18 | 18 | 14 | 28 | 28 | 1 | 14 | 14 |
| g / C, Green / Cycle | 0.10 | 0.28 | 0.28 | 0.03 | 0.21 | 0.21 | 0.17 | 0.33 | 0.33 | 0.01 | 0.17 | 0.17 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.02 | 0.01 | 0.01 | 0.03 | 0.13 | 0.14 | 0.15 | 0.07 | 0.00 | 0.10 | 0.00 |
| s, saturation flow rate [veh/h] | 1810 | 3432 | 1615 | 1810 | 1825 | 1605 | 3514 | 3569 | 1574 | 1810 | 3560 | 1615 |
| c, Capacity [veh/h] | 183 | 965 | 454 | 57 | 386 | 340 | 586 | 1165 | 514 | 15 | 599 | 272 |
| d1, Uniform Delay [s] | 35.92 | 22.46 | 22.12 | 40.09 | 27.07 | 30.36 | 34.39 | 22.67 | 20.69 | 41.81 | 32.46 | 29.40 |
| k, delay calibration | 0.11 | 0.28 | 0.28 | 0.11 | 0.31 | 0.31 | 0.11 | 0.69 | 0.69 | 0.11 | 0.69 | 0.69 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.71 | 0.10 | 0.07 | 1.97 | 0.40 | 5.25 | 3.76 | 1.82 | 1.30 | 6.07 | 5.28 | 0.07 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 0.08 | 0.03 | 0.23 | 0.12 | 0.62 | 0.86 | 0.46 | 0.21 | 0.20 | 0.57 | 0.01 |
| d, Delay for Lane Group [s/veh] | 37.63 | 22.56 | 22.18 | 42.07 | 27.47 | 35.61 | 38.15 | 24.48 | 21.99 | 47.88 | 37.74 | 29.47 |
| Lane Group LOS | D | C | C | D | C | D | D | C | C | D | D | C |
| Critical Lane Group | Yes | No | No | No | No | Yes | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.66 | 0.59 | 0.19 | 0.29 | 0.78 | 4.28 | 5.21 | 4.40 | 1.71 | 0.09 | 3.57 | 0.04 |
| 50th-Percentile Queue Length [ft/ln] | 41.44 | 14.69 | 4.81 | 7.31 | 19.56 | 107.09 | 130.26 | 109.97 | 42.67 | 2.18 | 89.26 | 0.97 |
| 95th-Percentile Queue Length [veh/ln] | 2.98 | 1.06 | 0.35 | 0.53 | 1.41 | 7.68 | 8.95 | 7.84 | 3.07 | 0.16 | 6.43 | 0.07 |
| 95th-Percentile Queue Length [ft/ln] | 74.59 | 26.45 | 8.65 | 13.16 | 35.21 | 191.94 | 223.84 | 195.97 | 76.81 | 3.93 | 160.68 | 1.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 37.63 | 22.56 | 22.18 | 42.07 | 27.47 | 35.61 | 38.15 | 24.48 | 21.99 | 47.88 | 37.74 | 29.47 |
| Movement LOS | D | C | C | D | C | D | D | C | C | D | D | C |
| d_A, Approach Delay [s/veh] | 29.59 | | | 34.53 | | | 30.22 | | | 37.78 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 32.11 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.483 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 6.44 | 6.28 | 1.02 | 0.89 | 3.15 | 14.39 | 69.38 | 74.21 | 15.06 | 3.74 | 422.81 | 2.49 |
| Stops [stops/h] | 70.38 | 49.90 | 8.16 | 12.41 | 33.22 | 181.87 | 442.44 | 373.54 | 72.47 | 3.71 | 303.20 | 1.64 |
| Fuel consumption [US gal/h] | 1.28 | 0.90 | 0.15 | 0.22 | 0.57 | 3.12 | 9.20 | 7.79 | 1.51 | 0.20 | 21.68 | 0.12 |
| CO [g/h] | 89.59 | 63.01 | 10.19 | 15.14 | 39.87 | 218.01 | 642.92 | 544.83 | 105.43 | 14.24 | 1515.71 | 8.65 |
| NOx [g/h] | 17.43 | 12.26 | 1.98 | 2.94 | 7.76 | 42.42 | 125.09 | 106.00 | 20.51 | 2.77 | 294.90 | 1.68 |
| VOC [g/h] | 20.76 | 14.60 | 2.36 | 3.51 | 9.24 | 50.53 | 149.00 | 126.27 | 24.43 | 3.30 | 351.28 | 2.00 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.11 | 32.11 | 32.11 | 32.11 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.503 | 2.588 | 2.838 | 2.944 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 472 | 472 | 944 | 944 |
| d_b, Bicycle Delay [s] | 24.75 | 24.75 | 11.83 | 11.83 |
| l_b,int, Bicycle LOS Score for Intersection | 1.704 | 2.003 | 2.507 | 1.843 |
| Bicycle LOS | A | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 42: Shepherd Ave & SR 168**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 27.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.321 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 65.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 | | | SR 168 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 231 | 2 | 53 | 69 | 52 | 144 | 363 | 31 | 0 | 224 | 62 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.40 | 0.00 | 0.00 | 3.40 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 231 | 2 | 53 | 69 | 52 | 144 | 363 | 31 | 0 | 224 | 62 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 63 | 1 | 14 | 19 | 14 | 39 | 99 | 8 | 0 | 61 | 17 |
| Total Analysis Volume [veh/h] | 18 | 251 | 2 | 58 | 75 | 57 | 157 | 395 | 34 | 0 | 243 | 67 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 12.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 3 | 8 | 0 | 7 | 4 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 15 | 20 | 0 | 15 | 20 | 0 | 15 | 30 | 0 | 15 | 30 | 0 |
| Amber [s] | 3.7 | 5.2 | 0.0 | 3.7 | 5.2 | 0.0 | 3.7 | 5.9 | 0.0 | 3.7 | 5.9 | 0.0 |
| All red [s] | 3.3 | 2.8 | 0.0 | 3.3 | 2.8 | 0.0 | 3.0 | 2.0 | 0.0 | 3.3 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 50 | 0 | 0 | 47 | 0 | 0 | 39 | 0 | 0 | 29 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 5.0 | 6.0 | 0.0 | 5.0 | 6.0 | 0.0 | 4.7 | 5.9 | 0.0 | 5.0 | 5.9 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 10 | 18 | 0 | 10 | 18 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Vehicle Extension [s] | 2.0 | 5.9 | 0.0 | 2.0 | 6.8 | 0.0 | 2.0 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | L | C | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| L, Total Lost Time per Cycle [s] | 7.00 | 8.00 | 7.00 | 8.00 | 8.00 | 6.70 | 7.90 | 7.90 | 7.00 | 7.90 | 7.90 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 5.00 | 6.00 | 5.00 | 6.00 | 6.00 | 4.70 | 5.90 | 5.90 | 5.00 | 5.90 | 5.90 |
| g_i, Effective Green Time [s] | 3 | 18 | 7 | 22 | 22 | 10 | 19 | 19 | 0 | 10 | 10 |
| g / C, Green / Cycle | 0.04 | 0.24 | 0.10 | 0.29 | 0.29 | 0.13 | 0.26 | 0.26 | 0.00 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.14 | 0.02 | 0.04 | 0.04 | 0.04 | 0.11 | 0.02 | 0.00 | 0.07 | 0.02 |
| s, saturation flow rate [veh/h] | 1810 | 1821 | 3514 | 1900 | 1615 | 3514 | 3578 | 1615 | 1810 | 3520 | 2859 |
| c, Capacity [veh/h] | 80 | 438 | 337 | 556 | 473 | 457 | 932 | 421 | 3 | 480 | 390 |
| d1, Uniform Delay [s] | 34.41 | 24.96 | 30.98 | 19.42 | 19.33 | 29.54 | 22.91 | 20.81 | 0.00 | 29.87 | 28.47 |
| k, delay calibration | 0.04 | 0.37 | 0.04 | 0.62 | 0.62 | 0.04 | 0.23 | 0.23 | 0.04 | 0.23 | 0.23 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.53 | 4.08 | 0.09 | 0.62 | 0.65 | 0.17 | 0.65 | 0.17 | 0.00 | 1.76 | 0.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.23 | 0.58 | 0.17 | 0.13 | 0.12 | 0.34 | 0.42 | 0.08 | 0.00 | 0.51 | 0.17 |
| d, Delay for Lane Group [s/veh] | 34.93 | 29.04 | 31.06 | 20.04 | 19.98 | 29.71 | 23.56 | 20.99 | 0.00 | 31.63 | 28.92 |
| Lane Group LOS | C | C | C | C | B | C | C | C | A | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.32 | 4.25 | 0.44 | 0.94 | 0.72 | 1.25 | 2.83 | 0.45 | 0.00 | 1.86 | 0.48 |
| 50th-Percentile Queue Length [ft/ln] | 7.96 | 106.31 | 11.08 | 23.49 | 18.07 | 31.24 | 70.84 | 11.26 | 0.00 | 46.56 | 12.07 |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 7.63 | 0.80 | 1.69 | 1.30 | 2.25 | 5.10 | 0.81 | 0.00 | 3.35 | 0.87 |
| 95th-Percentile Queue Length [ft/ln] | 14.33 | 190.85 | 19.94 | 42.28 | 32.52 | 56.24 | 127.52 | 20.27 | 0.00 | 83.81 | 21.72 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 34.93 | 29.04 | 29.04 | 31.06 | 20.04 | 19.98 | 29.71 | 23.56 | 20.99 | 0.00 | 31.63 | 28.92 |
| Movement LOS | C | C | C | C | C | B | C | C | C | A | C | C |
| d_A, Approach Delay [s/veh] | 29.43 | | | 23.39 | | | 25.06 | | | 31.04 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.06 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.321 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.01 | 14.19 | 3.61 | 4.67 | 3.55 | 195.81 | 492.65 | 42.41 | 0.00 | 42.03 | 11.59 |
| Stops [stops/h] | 15.42 | 205.97 | 42.93 | 45.50 | 35.01 | 121.07 | 274.52 | 21.81 | 0.00 | 180.43 | 46.75 |
| Fuel consumption [US gal/h] | 0.25 | 3.22 | 1.15 | 1.16 | 0.89 | 9.68 | 23.69 | 2.01 | 0.00 | 7.74 | 2.02 |
| CO [g/h] | 17.81 | 224.86 | 80.15 | 81.15 | 62.08 | 676.55 | 1656.01 | 140.60 | 0.00 | 541.24 | 141.21 |
| NOx [g/h] | 3.46 | 43.75 | 15.59 | 15.79 | 12.08 | 131.63 | 322.20 | 27.36 | 0.00 | 105.30 | 27.47 |
| VOC [g/h] | 4.13 | 52.11 | 18.58 | 18.81 | 14.39 | 156.80 | 383.80 | 32.58 | 0.00 | 125.44 | 32.73 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 26.98 | 26.98 | 26.98 | 26.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.213 | 2.622 | 2.937 | 2.814 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 538 | 538 | 807 | 807 |
| d_b, Bicycle Delay [s] | 19.85 | 19.85 | 13.22 | 13.22 |
| l_b,int, Bicycle LOS Score for Intersection | 2.007 | 1.873 | 2.043 | 1.815 |
| Bicycle LOS | B | A | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 43: Shepherd Ave & Project Access South**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.378 |

**Intersection Setup**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 50.00 | | 50.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access | | Shepherd | | Shepherd | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 233 | 0 | 0 | 602 | 361 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 233 | 0 | 0 | 602 | 361 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 63 | 0 | 0 | 164 | 98 |
| Total Analysis Volume [veh/h] | 0 | 253 | 0 | 0 | 654 | 392 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 13.62 | 10.45 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 44.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.62 | | 5.22 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.65 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 44: Behymer Ave & Project Access North**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.055 |

**Intersection Setup**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | Project Access North | | Behymer | | Behymer | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 46 | 0 | 0 | 167 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 46 | 0 | 0 | 167 | 0 | 0 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 13 | 0 | 0 | 45 | 0 | 0 |
| Total Analysis Volume [veh/h] | 50 | 0 | 0 | 182 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.19 | 8.95 | 0.00 | 0.00 | 7.58 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.17 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.36 | 4.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.19 | | 0.00 | | 3.79 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.98 | | | | | |
| Intersection LOS | A | | | | | |

**Intersection Level Of Service Report**
**Intersection 4101: Owens Mountain Parkway & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 3.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.278 |

**Intersection Setup**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Owen Mountain | | | Owen Mountain | | | | | | SR 168 WB Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 547 | 0 | 0 | 55 | 197 | 0 | 0 | 0 | 3 | 0 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 77 | 547 | 0 | 0 | 55 | 197 | 0 | 0 | 0 | 3 | 0 | 2 |
| Peak Hour Factor | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 21 | 149 | 0 | 0 | 15 | 54 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total Analysis Volume [veh/h] | 84 | 595 | 0 | 0 | 60 | 214 | 0 | 0 | 0 | 3 | 0 | 2 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 25 | 0 | 25 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 25 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 14 | 0 | 14 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lag | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 11 | 0 | 11 |
| Vehicle Extension [s] | 4.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 |
| Minimum Recall | No | Yes | | | Yes | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 18 | 9 | 9 | | 0 | 0 |
| g / C, Green / Cycle | 0.19 | 0.68 | 0.34 | 0.34 | | 0.02 | 0.02 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.17 | 0.03 | 0.13 | | 0.00 | 0.00 |
| s, saturation flow rate [veh/h] | 1781 | 3560 | 1870 | 1589 | | 1781 | 1589 |
| c, Capacity [veh/h] | 348 | 2435 | 633 | 538 | | 28 | 25 |
| d1, Uniform Delay [s] | 9.05 | 1.60 | 6.03 | 6.74 | | 12.93 | 12.92 |
| k, delay calibration | 0.15 | 0.04 | 0.04 | 0.04 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.51 | 0.02 | 0.02 | 0.18 | | 2.30 | 1.87 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.24 | 0.24 | 0.09 | 0.40 | | 0.11 | 0.08 |
| d, Delay for Lane Group [s/veh] | 9.56 | 1.62 | 6.05 | 6.92 | | 15.23 | 14.80 |
| Lane Group LOS | A | A | A | A | | B | B |
| Critical Lane Group | Yes | No | No | Yes | | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 0.32 | 0.01 | 0.13 | 0.52 | | 0.03 | 0.02 |
| 50th-Percentile Queue Length [ft/ln] | 7.97 | 0.16 | 3.20 | 12.99 | | 0.78 | 0.55 |
| 95th-Percentile Queue Length [veh/ln] | 0.57 | 0.01 | 0.23 | 0.94 | | 0.06 | 0.04 |
| 95th-Percentile Queue Length [ft/ln] | 14.34 | 0.29 | 5.75 | 23.39 | | 1.41 | 0.99 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 9.56 | 1.62 | 0.00 | 0.00 | 6.05 | 6.92 | 0.00 | 0.00 | 0.00 | 15.23 | 0.00 | 14.80 |
| Movement LOS | A | A | | | A | A | | | | B | | B |
| d_A, Approach Delay [s/veh] | 2.60 | | | 6.73 | | | 0.00 | | | 15.06 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 3.85 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.278 | | | | | | | | | | | |

**Emissions**

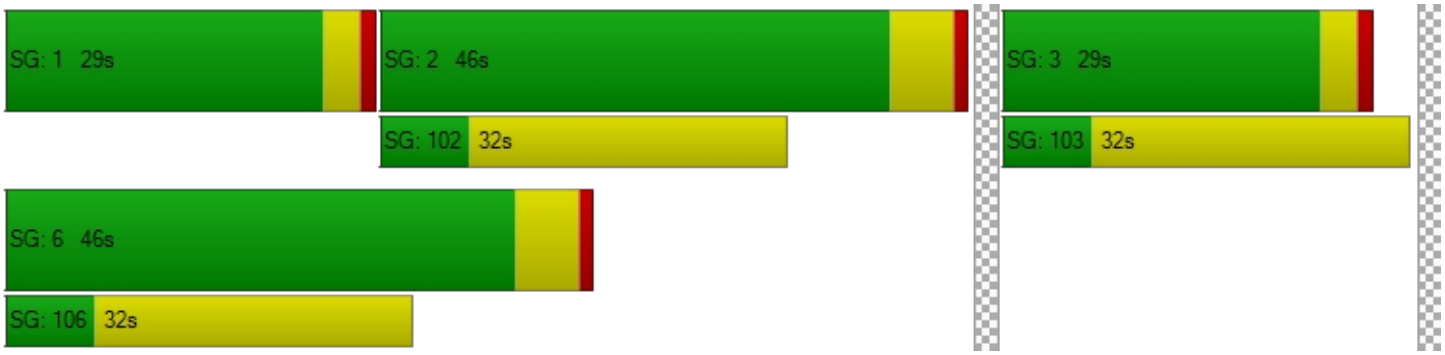
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 5.75 | 40.76 | 12.34 | 44.02 | | 0.31 | 0.20 |
| Stops [stops/h] | 43.20 | 1.76 | 17.34 | 70.48 | | 4.24 | 2.97 |
| Fuel consumption [US gal/h] | 0.64 | 1.88 | 0.68 | 2.50 | | 0.05 | 0.03 |
| CO [g/h] | 44.67 | 131.65 | 47.38 | 174.96 | | 3.17 | 2.16 |
| NOx [g/h] | 8.69 | 25.61 | 9.22 | 34.04 | | 0.62 | 0.42 |
| VOC [g/h] | 10.35 | 30.51 | 10.98 | 40.55 | | 0.73 | 0.50 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.55 | 4.55 | 4.55 | 4.55 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.492 | 2.261 | 1.632 | 1.860 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3013 | 3013 | 0 | 1883 |
| d_b, Bicycle Delay [s] | 3.41 | 3.41 | 13.27 | 0.05 |
| l_b,int, Bicycle LOS Score for Intersection | 2.120 | 1.786 | 4.132 | 1.560 |
| Bicycle LOS | B | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4102: Owens Mountain Parkway & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.196 |

**Intersection Setup**

| Name | Tollhouse | | | Tollhouse | | | SR 168 Ramps | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Tollhouse | | | Tollhouse | | | SR 168 Ramps | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 152 | 12 | 12 | 46 | 0 | 472 | 0 | 102 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 152 | 12 | 12 | 46 | 0 | 472 | 0 | 102 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 41 | 3 | 3 | 13 | 0 | 128 | 0 | 28 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 165 | 13 | 13 | 50 | 0 | 513 | 0 | 111 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | Yes | | No | Yes | | | | | | | |
| Maximum Recall | | No | | No | No | | | | | | | |
| Pedestrian Recall | | No | | No | No | | | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | R | |
|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 25 | 25 | 25 | 25 | 25 | |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 4.00 | 6.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 4.00 | 4.00 | 2.00 | 4.00 | 2.00 | |
| g_i, Effective Green Time [s] | 6 | 6 | 1 | 11 | 4 | |
| g / C, Green / Cycle | 0.23 | 0.23 | 0.04 | 0.43 | 0.17 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.05 | 0.01 | 0.01 | 0.07 | |
| s, saturation flow rate [veh/h] | 1870 | 1823 | 1781 | 3560 | 1589 | |
| c, Capacity [veh/h] | 431 | 420 | 71 | 1525 | 280 | |
| d1, Uniform Delay [s] | 7.86 | 7.87 | 11.74 | 4.19 | 9.23 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.33 | 0.35 | 0.46 | 0.01 | 1.30 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.21 | 0.21 | 0.18 | 0.03 | 0.40 | |
| d, Delay for Lane Group [s/veh] | 8.20 | 8.23 | 12.19 | 4.20 | 10.52 | |
| Lane Group LOS | A | A | B | A | B | |
| Critical Lane Group | No | Yes | Yes | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 0.27 | 0.28 | 0.06 | 0.03 | 0.44 | |
| 50th-Percentile Queue Length [ft/ln] | 6.84 | 6.88 | 1.48 | 0.77 | 11.11 | |
| 95th-Percentile Queue Length [veh/ln] | 0.49 | 0.50 | 0.11 | 0.06 | 0.80 | |
| 95th-Percentile Queue Length [ft/ln] | 12.31 | 12.38 | 2.66 | 1.39 | 20.00 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 8.21 | 8.23 | 12.19 | 4.20 | 0.00 | 0.00 | 0.00 | 10.52 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | A | B | A | | | | B | | | |
| d_A, Approach Delay [s/veh] | 8.21 | | | 5.85 | | | 10.52 | | | 0.00 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.52 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.196 | | | | | | | | | | | |

**Emissions**

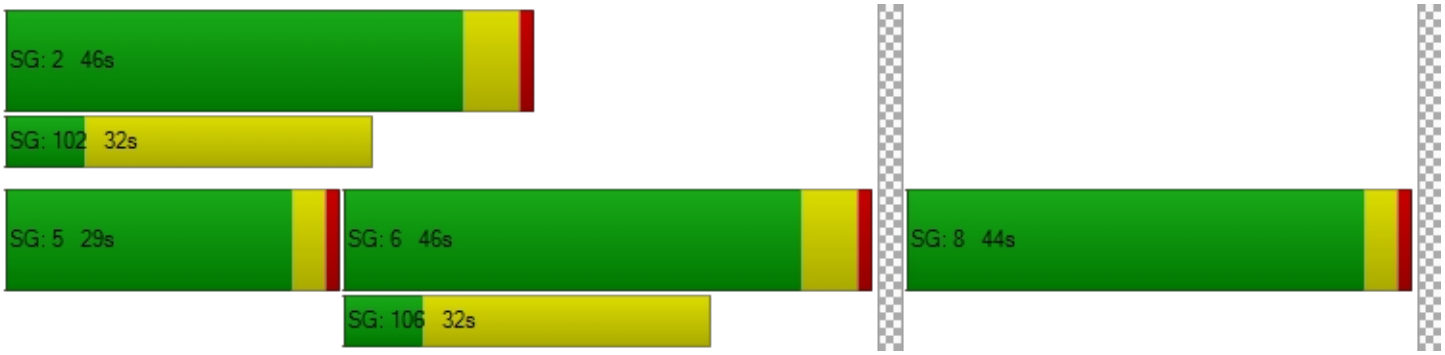
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 4.92 | 4.92 | 1.02 | 3.93 | 8.86 | |
| Stops [stops/h] | 39.16 | 39.39 | 8.46 | 8.83 | 63.63 | |
| Fuel consumption [US gal/h] | 0.57 | 0.57 | 0.12 | 0.25 | 0.95 | |
| CO [g/h] | 39.65 | 39.78 | 8.46 | 17.69 | 66.68 | |
| NOx [g/h] | 7.72 | 7.74 | 1.65 | 3.44 | 12.97 | |
| VOC [g/h] | 9.19 | 9.22 | 1.96 | 4.10 | 15.45 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 12.57 | 12.57 | 3.98 | 3.98 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.173 | 2.584 | 1.889 | 1.361 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 3182 | 3182 | 0 | 0 |
| d_b, Bicycle Delay [s] | 4.39 | 4.39 | 12.57 | 12.57 |
| l_b,int, Bicycle LOS Score for Intersection | 1.706 | 1.612 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4201: Shepherd Avenue & SR 168 WB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 5.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.228 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off-Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | | | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 50.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | | | | SR 168 WB Off-Ramp | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 17 | 375 | 0 | 0 | 122 | 52 | 0 | 0 | 0 | 0 | 0 | 62 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 375 | 0 | 0 | 122 | 52 | 0 | 0 | 0 | 0 | 0 | 62 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 0.9200 | 1.0000 | 1.0000 | 1.0000 | 0.9200 | 1.0000 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 102 | 0 | 0 | 33 | 14 | 0 | 0 | 0 | 0 | 0 | 17 |
| Total Analysis Volume [veh/h] | 18 | 408 | 0 | 0 | 133 | 57 | 0 | 0 | 0 | 0 | 0 | 67 |
| Presence of On-Street Parking | No | | No | No | | No | | | | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Split | Permiss | Split |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 1 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 25 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 0 | 0 |
| Amber [s] | 3.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | | | No | | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 20.0 | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 9 | 14 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lead / Lag | Lead | - | - | - | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| Vehicle Extension [s] | 2.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 |
| Minimum Recall | No | No | | | No | | | | | No | | |
| Maximum Recall | No | No | | | No | | | | | No | | |
| Pedestrian Recall | No | No | | | No | | | | | No | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | C | C | | L | R |
|---|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 27 | 27 | 27 | 27 | 27 | | 27 | 27 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 14 | 14 | 8 | 8 | | 5 | 5 |
| g / C, Green / Cycle | 0.05 | 0.51 | 0.51 | 0.30 | 0.30 | | 0.19 | 0.19 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.11 | 0.11 | 0.05 | 0.06 | | 0.00 | 0.04 |
| s, saturation flow rate [veh/h] | 1781 | 1870 | 1870 | 1870 | 1691 | | 1781 | 1589 |
| c, Capacity [veh/h] | 96 | 947 | 947 | 568 | 514 | | 348 | 311 |
| d1, Uniform Delay [s] | 12.15 | 3.67 | 3.67 | 6.85 | 6.89 | | 0.00 | 9.07 |
| k, delay calibration | 0.04 | 0.15 | 0.15 | 0.15 | 0.15 | | 0.15 | 0.15 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.35 | 0.16 | 0.16 | 0.20 | 0.24 | | 0.00 | 0.49 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.19 | 0.22 | 0.22 | 0.17 | 0.18 | | 0.00 | 0.22 |
| d, Delay for Lane Group [s/veh] | 12.50 | 3.83 | 3.83 | 7.05 | 7.13 | | 0.00 | 9.56 |
| Lane Group LOS | B | A | A | A | A | | A | A |
| Critical Lane Group | No | Yes | No | No | No | | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.08 | 0.22 | 0.22 | 0.17 | 0.17 | | 0.00 | 0.26 |
| 50th-Percentile Queue Length [ft/ln] | 2.12 | 5.53 | 5.53 | 4.21 | 4.33 | | 0.00 | 6.47 |
| 95th-Percentile Queue Length [veh/ln] | 0.15 | 0.40 | 0.40 | 0.30 | 0.31 | | 0.00 | 0.47 |
| 95th-Percentile Queue Length [ft/ln] | 3.81 | 9.95 | 9.95 | 7.59 | 7.80 | | 0.00 | 11.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.50 | 3.83 | 3.83 | 0.00 | 7.07 | 7.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.56 |
| Movement LOS | B | A | A | | A | A | | | | A | | A |
| d_A, Approach Delay [s/veh] | 4.19 | | | 7.09 | | | 0.00 | | | 9.56 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 5.53 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.228 | | | | | | | | | | | |

**Emissions**

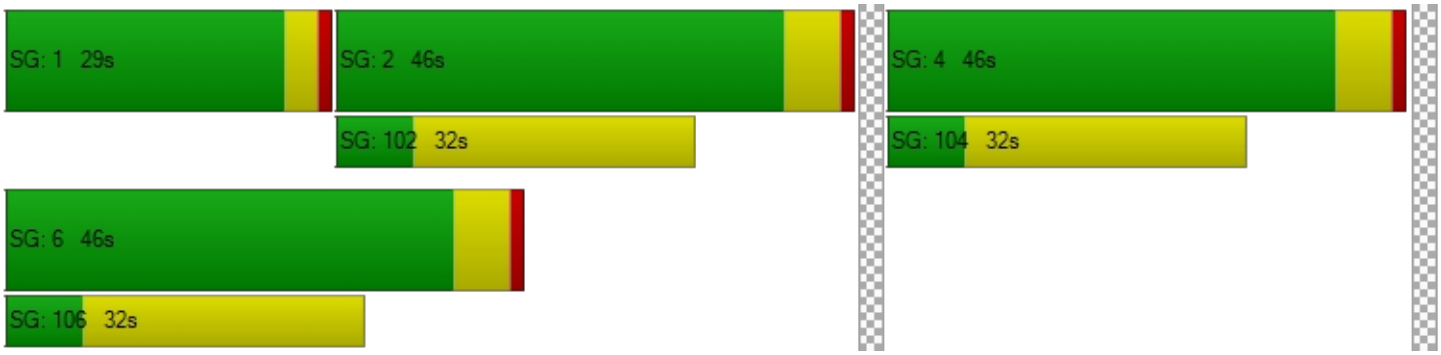
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 1.12 | 12.71 | 12.71 | 117.36 | 117.36 | | 0.00 | 4.72 |
| Stops [stops/h] | 11.41 | 29.80 | 29.80 | 22.72 | 23.36 | | 0.00 | 34.86 |
| Fuel consumption [US gal/h] | 0.15 | 0.85 | 0.85 | 4.42 | 4.43 | | 0.00 | 0.52 |
| CO [g/h] | 10.83 | 59.19 | 59.19 | 308.62 | 309.43 | | 0.00 | 36.16 |
| NOx [g/h] | 2.11 | 11.52 | 11.52 | 60.05 | 60.20 | | 0.00 | 7.04 |
| VOC [g/h] | 2.51 | 13.72 | 13.72 | 71.52 | 71.71 | | 0.00 | 8.38 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.62 | 4.62 | 4.62 | 4.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.590 | 2.320 | 1.415 | 1.881 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2994 | 2994 | 0 | 2994 |
| d_b, Bicycle Delay [s] | 3.30 | 3.30 | 13.36 | 3.30 |
| l_b,int, Bicycle LOS Score for Intersection | 1.911 | 1.716 | 4.132 | 1.560 |
| Bicycle LOS | A | A | D | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 4202: Shepherd Avenue & SR 168 EB Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 10.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.260 |

**Intersection Setup**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Shepherd | | | Shepherd | | | SR 168 EB Off-Ramp | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 248 | 2 | 53 | 69 | 0 | 144 | 0 | 31 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 248 | 2 | 53 | 69 | 0 | 144 | 0 | 31 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 0.9200 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 67 | 1 | 14 | 19 | 0 | 39 | 0 | 8 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 270 | 2 | 58 | 75 | 0 | 157 | 0 | 34 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 9.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Split | Permiss | Split | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 6 | 0 | 5 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 25 | 40 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 5.0 | 0.0 | 3.0 | 5.0 | 0.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 25 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | No | | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 14 | 0 | 9 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | Lead | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 11 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 4.0 | 0.0 | 2.0 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | No | | | | | |
| Maximum Recall | | No | | No | No | | No | | | | | |
| Pedestrian Recall | | No | | No | No | | No | | | | | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | R | |
|---|---|---|---|---|---|---|---|
| C, Cycle Length [s] | 35 | 35 | 35 | 35 | 35 | 35 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 9 | 9 | 5 | 18 | 9 | 9 | |
| g / C, Green / Cycle | 0.27 | 0.27 | 0.14 | 0.52 | 0.25 | 0.25 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.07 | 0.03 | 0.02 | 0.09 | 0.02 | |
| s, saturation flow rate [veh/h] | 1870 | 1865 | 1781 | 3560 | 1781 | 1589 | |
| c, Capacity [veh/h] | 504 | 503 | 248 | 1859 | 448 | 400 | |
| d1, Uniform Delay [s] | 10.16 | 10.16 | 13.52 | 4.12 | 10.85 | 10.11 | |
| k, delay calibration | 0.15 | 0.15 | 0.04 | 0.15 | 0.15 | 0.15 | |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.41 | 0.41 | 0.18 | 0.01 | 0.67 | 0.13 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

**Lane Group Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.27 | 0.27 | 0.23 | 0.04 | 0.35 | 0.09 | |
| d, Delay for Lane Group [s/veh] | 10.56 | 10.57 | 13.70 | 4.13 | 11.52 | 10.24 | |
| Lane Group LOS | B | B | B | A | B | B | |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | |
| 50th-Percentile Queue Length [veh/ln] | 0.68 | 0.68 | 0.34 | 0.07 | 0.85 | 0.17 | |
| 50th-Percentile Queue Length [ft/ln] | 16.99 | 16.99 | 8.60 | 1.79 | 21.14 | 4.20 | |
| 95th-Percentile Queue Length [veh/ln] | 1.22 | 1.22 | 0.62 | 0.13 | 1.52 | 0.30 | |
| 95th-Percentile Queue Length [ft/ln] | 30.58 | 30.59 | 15.48 | 3.23 | 38.05 | 7.57 | |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 10.56 | 10.57 | 13.70 | 4.13 | 0.00 | 11.52 | 0.00 | 10.24 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | B | A | | B | | B | | | |
| d_A, Approach Delay [s/veh] | 10.56 | | | 8.30 | | | 11.29 | | | 0.00 | | |
| Approach LOS | B | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 10.29 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.260 | | | | | | | | | | | |

**Emissions**

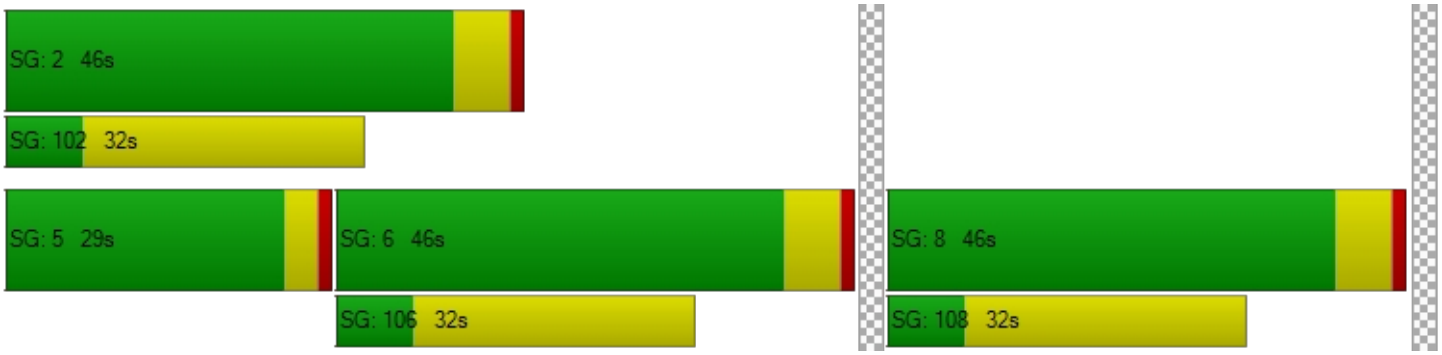
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 2.45 | 2.45 | 3.25 | 4.21 | 16.25 | 3.52 | |
| Stops [stops/h] | 69.59 | 69.62 | 35.24 | 14.70 | 86.59 | 17.22 | |
| Fuel consumption [US gal/h] | 0.78 | 0.78 | 0.49 | 0.32 | 1.52 | 0.31 | |
| CO [g/h] | 54.35 | 54.38 | 34.27 | 22.19 | 105.94 | 21.73 | |
| NOx [g/h] | 10.58 | 10.58 | 6.67 | 4.32 | 20.61 | 4.23 | |
| VOC [g/h] | 12.60 | 12.60 | 7.94 | 5.14 | 24.55 | 5.04 | |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 8.30 | 8.30 | 8.30 | 8.30 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.166 | 2.351 | 1.944 | 1.424 |
| Crosswalk LOS | B | B | A | A |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2276 | 2276 | 2276 | 0 |
| d_b, Bicycle Delay [s] | 0.33 | 0.33 | 0.33 | 17.57 |
| l_b,int, Bicycle LOS Score for Intersection | 1.784 | 1.669 | 1.560 | 4.132 |
| Bicycle LOS | A | A | A | D |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



# Appendix H

## Queue Calculation Sheets

| # | Intersection | Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 1 | Willow Ave & International Ave | Existing Storage | 255.00 | - | - | 255.00 | - | 205.00 | 255.00 | - | - | 50.00 | - | 25.00 |
| | | Existing | 156.22 | 113.56 | 10.30 | 51.02 | 111.74 | 98.63 | 18.91 | 46.91 | 220.09 | 11.03 | 208.43 | 42.41 |
| | | NTNP | 232.42 | 176.60 | 12.03 | 62.27 | 155.36 | 77.12 | 22.98 | 54.34 | 339.42 | 3.33 | 205.44 | 47.89 |
| | | NTPP (MP Area 1) | 229.01 | 179.15 | 12.59 | 63.92 | 158.92 | 89.22 | 23.54 | 67.16 | 350.78 | 9.88 | 241.31 | 133.87 |
| | | NTPP | 224.70 | 161.03 | 13.81 | 62.84 | 148.02 | 94.05 | 14.62 | 61.52 | 369.08 | 6.11 | 235.48 | 152.27 |
| 2 | Willow Ave & Behymer Ave | Existing Storage | 250.00 | - | 105.00 | 250.00 | - | 205.00 | 230.00 | - | - | 75.00 | - | |
| | | Existing | 109.78 | 191.38 | 16.71 | 67.53 | 140.29 | 44.88 | 74.24 | 93.91 | 192.84 | 27.50 | 281.75 | |
| | | NTNP | 124.36 | 153.84 | 16.20 | 65.50 | 164.45 | 43.42 | 71.18 | 91.37 | 204.89 | 24.03 | 262.82 | |
| | | NTPP (MP Area 1) | 142.62 | 186.12 | 20.94 | 81.63 | 204.84 | 51.68 | 85.10 | 123.84 | 246.92 | 239.65 | 409.70 | |
| | | NTPP | 146.05 | 165.58 | 22.59 | 76.85 | 197.05 | 51.17 | 81.24 | 118.35 | 256.14 | 203.23 | 391.40 | |
| 3 | Willow Ave & Shepherd Ave | Existing Storage | 250.00 | - | 160.00 | 250.00 | - | 150.00 | 250.00 | - | 100.00 | 250.00 | - | 100.00 |
| | | Existing | 56.21 | 116.09 | 50.26 | 68.19 | 166.88 | 27.85 | 23.40 | 85.22 | 83.61 | 14.82 | 91.17 | 141.42 |
| | | NTNP | 53.01 | 147.86 | 78.88 | 76.13 | 317.44 | 119.82 | 60.10 | 138.46 | 68.36 | 70.44 | 141.46 | 112.73 |
| | | NTPP (MP Area 1) | 59.31 | 188.65 | 150.48 | 47.35 | 339.89 | 185.66 | 50.16 | 120.37 | 186.17 | 159.85 | 107.12 | 75.58 |
| | | NTPP | 60.67 | 150.41 | 106.75 | 45.65 | 299.81 | 212.55 | 54.15 | 88.26 | 107.29 | 88.48 | 104.88 | 33.15 |
| 4 | Minnewawa Ave & International Ave | Existing Storage | - | | | - | | | - | | | - | | |
| | | Existing | 18.98 | | | 0.00 | | | 18.38 | | | 0.66 | | |
| | | NTNP | 16.53 | | | 0.00 | | | 12.53 | | | 0.39 | | |
| | | NTPP (MP Area 1) | 33.98 | | | 0.00 | | | 19.99 | | | 0.83 | | |
| | | NTPP | 42.43 | | | 0.00 | | | 27.90 | | | 1.17 | | |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | - | | | - | | | - | | | - | | |
| | | Existing | 160.41 | | | 231.59 | | | 69.56 | | | 451.53 | | |
| | | NTNP | 88.09 | | | 71.58 | | | 51.24 | | | 293.85 | | |
| | | NTPP (MP Area 1) | 447.47 | | | 223.57 | | | 84.61 | | | 1142.00 | | |
| | | NTPP | 345.40 | | | 306.16 | | | 90.54 | | | 1412.73 | | |
| 6 | Minnewawa Ave & Shepherd Ave | Existing Storage | 225.00 | - | - | - | - | | 230.00 | - | 75.00 | 215.00 | - | 55.00 |
| | | Existing | 73.37 | 83.03 | 20.98 | 59.25 | 111.75 | | 20.57 | 85.06 | 78.42 | 26.38 | 159.39 | 42.43 |
| | | NTNP | 83.98 | 140.92 | 23.74 | 139.76 | 278.28 | | 25.92 | 172.38 | 229.67 | 18.76 | 212.06 | 69.11 |
| | | NTPP (MP Area 1) | 167.07 | 267.57 | 101.86 | 228.57 | 397.68 | | 43.91 | 206.60 | 1034.51 | 40.46 | 220.84 | 53.38 |
| | | NTPP | 198.63 | 290.82 | 86.16 | 243.08 | 460.17 | | 70.72 | 210.33 | 1471.09 | 76.28 | 122.73 | 22.78 |
| 7 | Clovis Ave & International Ave | Existing Storage | - | | | - | | | - | | | - | | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | |
| 8 | Clovis Ave & Behymer Ave | Existing Storage | - | | | - | | | - | | | - | | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | |
| 9 | Clovis Ave & Shepherd Ave | Existing Storage | 235.00 | - | - | 250.00 | - | 100.00 | 240.00 | - | 50.00 | 245.00 | - | 175.00 |
| | | Existing | 49.76 | 31.28 | 48.24 | 6.70 | 23.17 | 50.46 | 10.19 | 102.17 | 72.13 | 34.35 | 84.66 | 26.31 |
| | | NTNP | 140.78 | 50.08 | 90.91 | 10.10 | 36.91 | 80.24 | 17.08 | 195.13 | 340.39 | 114.63 | 72.05 | 28.71 |
| | | NTPP (MP Area 1) | 219.56 | 65.13 | 102.13 | 12.44 | 46.50 | 101.58 | 19.90 | 191.12 | 651.41 | 215.46 | 43.15 | 32.33 |
| | | NTPP | 199.84 | 62.60 | 109.69 | 11.88 | 44.18 | 96.36 | 18.93 | 125.29 | 1049.73 | 173.99 | 5.94 | 31.20 |
| 10 | Clovis Ave & Nees Ave | Existing Storage | 330.00 | - | 95.00 | 265.00 | - | 145.00 | 230.00 | - | - | 55.00 | - | 60.00 |
| | | Existing | 45.31 | 84.97 | 10.81 | 45.43 | 148.20 | 144.70 | 20.26 | 176.36 | 104.50 | 23.56 | 209.37 | 93.47 |
| | | NTNP | 57.75 | 155.89 | 17.44 | 99.16 | 320.17 | 315.14 | 35.81 | 540.46 | 98.64 | 8.19 | 372.76 | 74.62 |
| | | NTPP (MP Area 1) | 48.73 | 188.72 | 18.04 | 203.20 | 319.01 | 313.80 | 39.37 | 494.13 | 156.41 | 38.45 | 482.11 | 134.47 |
| | | NTPP | 62.92 | 193.18 | 19.18 | 193.90 | 497.03 | 491.69 | 45.61 | 1168.62 | 119.80 | 27.36 | 831.28 | 134.51 |
| 11 | Clovis Ave & Alluvial Ave | Existing Storage | 230.00 | - | - | 240.00 | - | - | 150.00 | - | 100.00 | 165.00 | - | 105.00 |
| | | Existing | 90.56 | 109.68 | 104.89 | 89.92 | 209.09 | 206.20 | 11.26 | 179.78 | 95.29 | 33.00 | 255.89 | 46.97 |
| | | NTNP | 66.25 | 226.25 | 221.38 | 205.27 | 282.40 | 280.73 | 14.12 | 255.32 | 158.98 | 22.56 | 657.78 | 20.89 |
| | | NTPP (MP Area 1) | 138.28 | 174.69 | 169.22 | 242.67 | 315.42 | 310.49 | 12.93 | 280.34 | 252.77 | 23.54 | 549.14 | 32.67 |
| | | NTPP | 59.11 | 138.12 | 136.67 | 420.10 | 297.64 | 294.99 | 12.45 | 223.76 | 354.62 | 18.43 | 818.30 | 36.71 |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | 200.00 | - | - | 230.00 | - | 185.00 | 240.00 | - | 240.00 | 250.00 | - | 150.00 |
| | | Existing | 148.24 | 169.39 | 164.59 | 194.19 | 132.89 | 287.96 | 169.83 | 236.38 | 189.82 | 106.56 | 348.65 | 213.47 |
| | | NTNP | 140.00 | 155.49 | 152.99 | 55.53 | 179.93 | 396.34 | 173.78 | 336.25 | 254.81 | 97.23 | 440.10 | 269.01 |
| | | NTPP (MP Area 1) | 211.87 | 157.40 | 150.50 | 123.47 | 139.18 | 474.78 | 200.35 | 404.31 | 211.72 | 105.80 | 578.83 | 272.79 |
| | | NTPP | 165.72 | 155.79 | 160.03 | 156.87 | 192.95 | 406.53 | 154.31 | 389.72 | 252.75 | 113.81 | 654.01 | 139.04 |
| 13 | SR 168 EB Ramps & Herndon Ave | Existing Storage | 410.00 | | 410.00 | | | | | 700.00 | - | | 450.00 | 450.00 |
| | | Existing | 192.48 | | 306.88 | | | | | 125.17 | 0.00 | | 179.04 | 30.70 |
| | | NTNP | 191.58 | | 314.28 | | | | | 174.25 | 0.00 | | 216.75 | 29.78 |
| | | NTPP (MP Area 1) | 188.91 | | 338.25 | | | | | 195.92 | 0.00 | | 279.25 | 32.03 |
| | | NTPP | 191.20 | | 317.48 | | | | | 196.23 | 0.00 | | 271.81 | 31.82 |
| 14 | SR 168 WB Ramps & Herndon Ave | Existing Storage | | | | 230.00 | | 240.00 | | 500.00 | 360.00 | | 700.00 | 100.00 |
| | | Existing | | | | 39.75 | | 517.30 | | 141.64 | 359.68 | | 253.85 | 0.00 |
| | | NTNP | | | | 50.05 | | 501.29 | | 181.11 | 405.63 | | 262.79 | 0.00 |
| | | NTPP (MP Area 1) | | | | 24.94 | | 565.46 | | 203.58 | 1383.99 | | 362.90 | 0.00 |
| | | NTPP | | | | 41.63 | | 571.51 | | 207.13 | 1426.74 | | 385.99 | 0.00 |
| 15 | Behymer Ave & Sunnyside Ave | Existing Storage | - | | | - | | | - | | | - | | |
| | | Existing | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| | | NTNP | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| | | NTPP (MP Area 1) | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| | | NTPP | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| 16 | Sunnyside Ave & Shepherd Ave | Existing Storage | - | | | - | | | - | | | - | | |
| | | Existing | 13.62 | | | 3.24 | | | 95.42 | | | 87.29 | | |
| | | NTNP | 23.11 | | | 50.29 | | | 486.12 | | | 120.76 | | |
| | | NTPP (MP Area 1) | 27.41 | | | 100.86 | | | 384.03 | | | 181.95 | | |
| | | NTPP | 33.28 | | | 76.10 | | | 169.01 | | | 65.11 | | |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | - | | - | - | | | 50.00 | - | - | 65.00 | - | |
| | | Existing | 66.47 | | 2.86 | 48.31 | | | 2.33 | 47.81 | 45.05 | 4.66 | 206.48 | |
| | | NTNP | 128.83 | | 4.37 | 507.38 | | | 4.89 | 255.16 | 223.29 | 7.98 | 315.76 | |

| Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Northbound | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | Y |
| NTNP | | | | | | | | | | | | Y |
| NTPP (MP Area 1) | | | | | | | | | | | | Y |
| NTPP | | | | | | | | | | | | Y |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | Y | | |
| NTPP | | | | | | | | | | Y | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | Y |
| NTNP | | | | | | | | | | | | Y |
| NTPP (MP Area 1) | | | | | | Y | | | Y | | | |
| NTPP | | | | | | Y | | | Y | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | Y |
| NTNP | | | | | | | | | | | | Y |
| NTPP (MP Area 1) | | | | | | | | | | | | Y |
| NTPP | | | | | | | | | | | | Y |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NTPP (MP Area 1) | | 48.95 | 0.00 | | 57.19 | 180.25 | | | | 31.91 | | 81.02 |
| | | NTPP | | 59.32 | 0.00 | | 49.45 | 224.37 | | | | 25.36 | | 84.35 |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | - | - | 260.00 | 550.00 | | 1550.00 | | 1550.00 | | | |
| | | Existing | | 668.10 | 675.28 | 35.95 | 150.17 | | 155.88 | | 1283.23 | | | |
| | | NTNP | | 510.78 | 514.91 | 34.18 | 259.19 | | 141.75 | | 2184.55 | | | |
| | | NTPP (MP Area 1) | | 432.55 | 435.22 | 31.38 | 273.29 | | 191.53 | | 2085.03 | | | |
| | | NTPP | | 420.54 | 423.08 | 31.08 | 237.70 | | 239.78 | | 1972.01 | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | | - | | | - | | 245.00 | - | - | 100.00 | - | |
| | | Existing | | 17.63 | | | 0.10 | | 0.74 | 0.00 | 0.00 | 0.68 | 0.00 | |
| | | NTNP | | 22.62 | | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.77 | 0.00 | |
| | | NTPP (MP Area 1) | | 38.32 | | 70.91 | 16.61 | | 0.86 | 0.00 | 0.00 | 1.31 | 0.00 | |
| | | NTPP | | 1152.75 | | 971.10 | 418.86 | | 31.50 | 0.00 | 0.00 | 2.39 | 0.00 | |
| 37 | Locan Ave & Nees Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | 1.43 | | | 53.69 | | | 19.11 | | | 0.62 | |
| | | NTNP | | 1.36 | | | 73.26 | | | 22.61 | | | 0.64 | |
| | | NTPP (MP Area 1) | | 1.63 | | | 138.55 | | | 23.76 | | | 0.69 | |
| | | NTPP | | 2.09 | | | 178.57 | | | 23.29 | | | 0.71 | |
| 38 | Locan Ave & Owens Mountain Pkwy | Existing Storage | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | 250.00 | | - | | | | 240.00 | - | 115.00 | 255.00 | - | |
| | | Existing | 29.19 | | 2.13 | | | | 0.00 | 7.71 | 6.76 | 2.14 | 44.68 | |
| | | NTNP | 29.27 | | 1.82 | | | | 0.00 | 14.06 | 8.36 | 1.71 | 48.76 | |
| | | NTPP (MP Area 1) | 29.14 | | 3.43 | | | | 0.00 | 18.93 | 21.76 | 1.73 | 45.32 | |
| | | NTPP | 56.42 | | 5.09 | | | | 0.00 | 22.63 | 49.00 | 2.03 | 53.57 | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | - | | 60.00 | 190.00 | - | | | - | |
| | | Existing | | | | 550.23 | | 0.96 | 2.36 | 9.94 | | | 28.87 | |
| | | NTNP | | | | 514.16 | | 0.96 | 2.35 | 9.92 | | | 27.33 | |
| | | NTPP (MP Area 1) | | | | 1078.71 | | 0.97 | 2.37 | 9.98 | | | 31.85 | |
| | | NTPP | | | | 1305.24 | | 0.98 | 2.37 | 10.00 | | | 33.28 | |
| 41 | Owens Mountain Pkwy & SR 168 | Existing Storage | - | - | - | 415.00 | - | 415.00 | 850.00 | - | 525.00 | 575.00 | - | 450.00 |
| | | Existing | 213.59 | 11.88 | 4.96 | 7.63 | 54.77 | 460.79 | 110.50 | 118.05 | 58.22 | 20.47 | 387.26 | 2.83 |
| | | NTNP | 167.44 | 9.77 | 11.05 | 7.81 | 92.55 | 346.70 | 87.42 | 119.81 | 55.13 | 49.60 | 276.17 | 15.69 |
| | | NTPP (MP Area 1) | 199.62 | 16.29 | 13.34 | 4.90 | 110.45 | 586.90 | 106.32 | 136.96 | 63.99 | 75.81 | 342.89 | 16.47 |
| | | NTPP | 199.64 | 19.69 | 12.15 | 4.97 | 147.77 | 677.87 | 110.13 | 134.00 | 67.67 | 72.19 | 370.70 | 14.45 |
| 42 | Shepherd Ave & SR 168 | Existing Storage | 100.00 | - | - | 635.00 | - | - | 935.00 | - | 470.00 | 450.00 | - | 550.00 |
| | | Existing | 26.69 | 0.00 | 45.73 | 19.19 | 32.43 | 180.73 | 18.07 | 56.73 | 8.54 | 1.80 | 130.49 | 31.03 |
| | | NTNP | 25.81 | 0.00 | 45.86 | 30.47 | 74.93 | 141.81 | 20.35 | 63.07 | 8.51 | 1.04 | 100.38 | 32.31 |
| | | NTPP (MP Area 1) | 26.52 | 0.00 | 48.33 | 42.54 | 107.24 | 176.44 | 19.62 | 61.83 | 8.51 | 1.06 | 121.92 | 30.75 |
| | | NTPP | 26.62 | 0.00 | 48.71 | 46.94 | 103.98 | 226.15 | 19.03 | 59.97 | 8.55 | 1.80 | 124.42 | 33.77 |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | - | | - | - | - | | | - | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | 15.64 | | 15.64 | 0.00 | 0.00 | | | 0.00 | |
| | | NTPP | | | | 13.04 | | 13.04 | 0.00 | 0.00 | | | 0.00 | |
| 44 | Behymer Ave & Project Access North | Existing Storage | - | | - | | | | | - | | - | | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | 12.57 | | 12.57 | | | | | 0.00 | | 0.00 | | |
| | | NTPP | 21.90 | | 21.90 | | | | | 0.00 | | 0.00 | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NTPP (MP Area 1) | | | | | | Y | | | | | | | |
| | | NTPP | | | | | | Y | | | | | | | |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | Y | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | Y | | | | |
| | | NTPP | | | | | | | | | Y | | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 37 | Locan Ave & Nees Ave | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 38 | Locan Ave & Owens Mountain Pkwy | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 41 | Owens Mountain Pkwy & SR 168 | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | Y | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | Y | | | | | | | |
| | | NTPP | | | | | | Y | | | | | | | |
| 42 | Shepherd Ave & SR 168 | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 44 | Behymer Ave & Project Access North | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |

Notes:

movements do not exist

- movements or no storage length

| # | Intersection | Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 1 | Willow Ave & International Ave | Existing Storage | 255.00 | - | - | 255.00 | - | 205.00 | 255.00 | - | - | 50.00 | - | 25.00 |
| | | Existing | 52.75 | 103.01 | 5.66 | 33.71 | 41.98 | 48.33 | 8.95 | 25.63 | 129.47 | 4.30 | 47.70 | 34.63 |
| | | NTNP | 106.69 | 155.14 | 10.20 | 12.12 | 83.39 | 54.75 | 1.18 | 21.65 | 218.50 | 5.86 | 35.78 | 35.26 |
| | | NTPP (MP Area 1) | 109.43 | 172.49 | 12.82 | 138.41 | 51.10 | 53.32 | 7.39 | 72.90 | 200.19 | 7.70 | 0.00 | 110.24 |
| | | NTPP | 111.82 | 202.37 | 16.65 | 151.16 | 54.19 | 51.88 | 7.96 | 81.68 | 207.88 | 10.53 | 80.48 | 46.27 |
| 2 | Willow Ave & Behymer Ave | Existing Storage | 250.00 | - | 105.00 | 250.00 | - | 205.00 | 230.00 | - | - | 75.00 | - | |
| | | Existing | 66.45 | 118.93 | 22.17 | 60.02 | 81.99 | 22.80 | 16.68 | 50.10 | 76.04 | 30.62 | 178.93 | |
| | | NTNP | 97.82 | 173.19 | 24.14 | 77.95 | 119.47 | 24.40 | 16.67 | 61.52 | 126.69 | 36.91 | 211.25 | |
| | | NTPP (MP Area 1) | 90.57 | 162.23 | 52.95 | 84.63 | 86.52 | 25.79 | 15.85 | 69.14 | 121.72 | 49.66 | 228.32 | |
| | | NTPP | 77.88 | 184.82 | 91.87 | 95.92 | 86.72 | 25.46 | 17.87 | 78.28 | 126.96 | 61.18 | 249.08 | |
| 3 | Willow Ave & Shepherd Ave | Existing Storage | 250.00 | - | 160.00 | 250.00 | - | 150.00 | 250.00 | - | 100.00 | 250.00 | - | 100.00 |
| | | Existing | 74.40 | 122.38 | 116.69 | 55.61 | 136.12 | 39.84 | 20.48 | 109.43 | 105.80 | 16.62 | 82.03 | 181.73 |
| | | NTNP | 90.59 | 222.15 | 245.87 | 114.17 | 202.26 | 107.50 | 104.15 | 132.36 | 135.17 | 64.14 | 133.81 | 87.62 |
| | | NTPP (MP Area 1) | 107.97 | 222.87 | 388.76 | 48.40 | 229.24 | 99.07 | 113.81 | 155.45 | 179.33 | 101.19 | 113.59 | 32.78 |
| | | NTPP | 117.43 | 216.23 | 622.58 | 37.29 | 223.76 | 79.10 | 112.18 | 129.36 | 132.98 | 119.62 | 117.67 | 24.13 |
| 4 | Minnewawa Ave & International Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | 8.80 | | | 0.04 | | | 13.65 | | | 1.05 | |
| | | NTNP | | 7.73 | | | 0.04 | | | 10.74 | | | 0.72 | |
| | | NTPP (MP Area 1) | | 9.11 | | | 0.04 | | | 67.01 | | | 1.74 | |
| | | NTPP | | 10.17 | | | 0.04 | | | 79.20 | | | 1.77 | |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | 229.08 | | | 269.34 | | | 75.24 | | | 355.84 | |
| | | NTNP | | 70.08 | | | 189.21 | | | 64.33 | | | 585.97 | |
| | | NTPP (MP Area 1) | | 241.19 | | | 792.72 | | | 186.82 | | | 751.67 | |
| | | NTPP | | 306.39 | | | 887.97 | | | 322.31 | | | 868.98 | |
| 6 | Minnewawa Ave & Shepherd Ave | Existing Storage | 225.00 | - | - | - | - | | 230.00 | - | 75.00 | 215.00 | - | 55.00 |
| | | Existing | 47.10 | 66.20 | 10.45 | 35.31 | 71.86 | | 10.93 | 70.47 | 27.84 | 10.08 | 144.82 | 29.51 |
| | | NTNP | 116.68 | 203.98 | 18.04 | 69.63 | 173.56 | | 18.48 | 116.42 | 54.16 | 10.62 | 192.47 | 23.06 |
| | | NTPP (MP Area 1) | 339.88 | 201.55 | 39.39 | 88.16 | 227.23 | | 76.73 | 131.49 | 91.50 | 26.03 | 177.84 | 25.76 |
| | | NTPP | 363.54 | 170.79 | 21.64 | 69.93 | 232.98 | | 74.39 | 121.30 | 102.05 | 19.81 | 175.94 | 36.98 |
| 7 | Clovis Ave & International Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | |
| 8 | Clovis Ave & Behymer Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | |
| 9 | Clovis Ave & Shepherd Ave | Existing Storage | 235.00 | - | - | 250.00 | - | 100.00 | 240.00 | - | 50.00 | 245.00 | - | 175.00 |
| | | Existing | 63.65 | 17.08 | 28.58 | 2.88 | 6.50 | 16.24 | 7.65 | 75.43 | 44.98 | 18.57 | 65.62 | 2.68 |
| | | NTNP | 245.98 | 17.81 | 37.05 | 3.99 | 9.04 | 22.21 | 13.11 | 147.18 | 134.79 | 61.10 | 75.31 | 3.64 |
| | | NTPP (MP Area 1) | 545.19 | 25.50 | 94.53 | 5.45 | 12.42 | 30.11 | 15.87 | 124.78 | 262.29 | 142.32 | 47.72 | 4.84 |
| | | NTPP | 641.29 | 21.20 | 109.71 | 5.19 | 11.82 | 28.68 | 16.70 | 105.22 | 225.67 | 126.67 | 45.69 | 4.86 |
| 10 | Clovis Ave & Nees Ave | Existing Storage | 330.00 | - | 95.00 | 265.00 | - | 145.00 | 230.00 | - | - | 55.00 | - | 60.00 |
| | | Existing | 66.65 | 96.39 | 20.39 | 24.02 | 75.64 | 74.51 | 12.93 | 196.95 | 108.14 | 12.41 | 180.16 | 28.20 |
| | | NTNP | 108.49 | 218.81 | 27.75 | 42.74 | 138.81 | 136.67 | 26.99 | 335.28 | 107.79 | 24.73 | 358.70 | 95.18 |
| | | NTPP (MP Area 1) | 116.87 | 419.58 | 39.47 | 88.63 | 209.29 | 206.71 | 37.55 | 894.73 | 104.15 | 45.52 | 781.15 | 120.97 |
| | | NTPP | 104.87 | 383.73 | 51.21 | 84.87 | 201.50 | 198.99 | 40.93 | 629.23 | 205.97 | 62.05 | 596.45 | 156.34 |
| 11 | Clovis Ave & Alluvial Ave | Existing Storage | 230.00 | - | - | 240.00 | - | - | 150.00 | - | 100.00 | 165.00 | - | 105.00 |
| | | Existing | 111.01 | 212.97 | 207.58 | 57.48 | 158.25 | 157.07 | 12.78 | 223.90 | 107.54 | 28.86 | 184.15 | 40.75 |
| | | NTNP | 168.70 | 274.52 | 273.53 | 36.34 | 206.22 | 205.07 | 14.90 | 324.28 | 166.33 | 24.36 | 163.08 | 50.33 |
| | | NTPP (MP Area 1) | 128.68 | 467.94 | 466.10 | 97.89 | 171.74 | 170.36 | 17.59 | 361.22 | 274.51 | 25.21 | 329.68 | 23.12 |
| | | NTPP | 186.43 | 375.29 | 363.40 | 47.30 | 276.73 | 275.35 | 30.11 | 431.38 | 143.49 | 16.81 | 215.82 | 94.31 |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | 200.00 | - | - | 230.00 | - | 185.00 | 240.00 | - | 240.00 | 250.00 | - | 150.00 |
| | | Existing | 318.19 | 294.16 | 389.01 | 229.27 | 135.51 | 202.95 | 276.15 | 451.03 | 343.40 | 223.32 | 356.48 | 180.08 |
| | | NTNP | 478.39 | 314.19 | 390.50 | 237.89 | 154.64 | 238.35 | 395.45 | 499.40 | 387.81 | 243.55 | 502.99 | 142.87 |
| | | NTPP (MP Area 1) | 623.00 | 333.14 | 358.47 | 227.64 | 148.82 | 240.10 | 405.12 | 598.53 | 454.84 | 251.69 | 598.46 | 273.74 |
| | | NTPP | 781.64 | 301.98 | 393.70 | 263.41 | 159.01 | 21.31 | 427.27 | 595.50 | 143.97 | 242.67 | 709.81 | 257.20 |
| 13 | SR 168 EB Ramps & Herndon Ave | Existing Storage | 410.00 | | 410.00 | | | | | 700.00 | - | | 450.00 | 450.00 |
| | | Existing | 205.52 | | 442.97 | | | | | 361.25 | 0.00 | | 220.87 | 154.21 |
| | | NTNP | 214.70 | | 868.67 | | | | | 375.57 | 0.00 | | 288.90 | 160.50 |
| | | NTPP (MP Area 1) | 201.91 | | 1285.98 | | | | | 408.26 | 0.00 | | 314.91 | 205.73 |
| | | NTPP | 223.62 | | 1318.71 | | | | | 416.87 | 0.00 | | 341.62 | 219.97 |
| 14 | SR 168 WB Ramps & Herndon Ave | Existing Storage | | | | 230.00 | | 240.00 | | 500.00 | 360.00 | | 700.00 | 100.00 |
| | | Existing | | | | 46.19 | | 270.69 | | 200.70 | 273.56 | | 160.84 | 0.00 |
| | | NTNP | | | | 46.29 | | 268.65 | | 203.28 | 286.00 | | 204.35 | 0.00 |
| | | NTPP (MP Area 1) | | | | 44.95 | | 295.24 | | 231.95 | 356.88 | | 230.27 | 0.00 |
| | | NTPP | | | | 45.81 | | 314.49 | | 248.29 | 328.23 | | 275.95 | 0.00 |
| 15 | Behymer Ave & Sunnyside Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | |
| | | NTNP | | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | |
| | | NTPP (MP Area 1) | | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | |
| | | NTPP | | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | |
| 16 | Sunnyside Ave & Shepherd Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | 20.00 | | | 3.66 | | | 100.33 | | | 67.75 | |
| | | NTNP | | 71.73 | | | 26.54 | | | 315.14 | | | 111.85 | |
| | | NTPP (MP Area 1) | | 79.30 | | | 24.09 | | | 158.79 | | | 50.47 | |
| | | NTPP | | 93.80 | | | 30.53 | | | 157.60 | | | 54.19 | |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | - | | - | - | | | 50.00 | - | - | 65.00 | - | |
| | | Existing | 94.02 | | 7.05 | 39.33 | | | 5.31 | 84.32 | 79.82 | 7.24 | 243.84 | |
| | | NTNP | 750.88 | | 10.27 | 104.82 | | | 21.94 | 156.88 | 145.37 | 9.44 | 915.62 | |

| Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Northbound | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | Y | | | Y |
| NTNP | | | Y | | | | | | Y | | | |
| NTPP (MP Area 1) | | | Y | | | | | | Y | | | |
| NTPP | | | Y | | | | | | Y | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | Y | | | | | | | | Y | | | |
| NTPP (MP Area 1) | Y | | | | | | | | Y | | | |
| NTPP | Y | | | | | | | | Y | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | Y |
| NTPP (MP Area 1) | | | | | | | Y | | | | | Y |
| NTPP | | | | | | | Y | | | Y | | Y |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | Y | | | |
| NTNP | | | | | | | | | Y | | | |
| NTPP (MP Area 1) | | | | | | | | | Y | | | |
| NTPP | | | | | | | | | Y | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | Y | | | | | | Y | Y | | Y | | Y |
| NTNP | Y | | | Y | | | Y | Y | | Y | | |
| NTPP (MP Area 1) | Y | | | | | | Y | Y | | Y | Y | Y |
| NTPP | Y | | | Y | | | | Y | | | | Y |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | Y | | | | | | | | | |
| NTNP | | | Y | | | | | | | | | |
| NTPP (MP Area 1) | | | Y | | | | | | | | | |
| NTPP | | | Y | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | Y | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |
| NTPP (MP Area 1) | | | | | | | | | | | | |
| NTPP | | | | | | | | | | | | |
| Existing Storage | | | | | | | | | | | | |
| Existing | | | | | | | | | | | | |
| NTNP | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NTPP (MP Area 1) | | 71.02 | 0.00 | | 23.37 | 43.11 | | | | 22.29 | | 10.31 |
| | | NTPP | | 59.20 | 0.00 | | 22.86 | 56.64 | | | | 17.02 | | 10.58 |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | - | - | 260.00 | 550.00 | | 1550.00 | | 1550.00 | | | |
| | | Existing | | 471.44 | 482.13 | 32.36 | 154.00 | | 247.66 | | 2097.36 | | | |
| | | NTNP | | 1045.81 | 1087.01 | 32.53 | 198.60 | | 251.82 | | 2847.77 | | | |
| | | NTPP (MP Area 1) | | 1012.78 | 1058.55 | 36.16 | 187.60 | | 565.81 | | 1760.71 | | | |
| | | NTPP | | 908.50 | 948.94 | 37.37 | 190.80 | | 508.41 | | 1282.68 | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | | - | | | - | | 245.00 | - | - | 100.00 | | - |
| | | Existing | | 5.46 | | | 0.00 | | 0.39 | 0.00 | 0.00 | 0.76 | | 0.00 |
| | | NTNP | | 6.26 | | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.91 | | 0.00 |
| | | NTPP (MP Area 1) | | 156.11 | | 20.56 | 8.12 | | 2.53 | 0.00 | 0.00 | 1.11 | | 0.00 |
| | | NTPP | | 1084.90 | | 361.15 | 30.86 | | 8.41 | 0.00 | 0.00 | 1.75 | | 0.00 |
| 37 | Locan Ave & Nees Ave | Existing Storage | | - | | | - | | | - | | | - | |
| | | Existing | | 0.21 | | | 13.96 | | | 42.32 | | | 0.29 | |
| | | NTNP | | 0.42 | | | 19.24 | | | 45.80 | | | 0.30 | |
| | | NTPP (MP Area 1) | | 0.78 | | | 21.82 | | | 95.32 | | | 0.31 | |
| | | NTPP | | 0.99 | | | 39.25 | | | 187.15 | | | 0.34 | |
| 38 | Locan Ave & Owens Mountain Pkwy | Existing Storage | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | 250.00 | | - | | | | 240.00 | - | 115.00 | 255.00 | - | |
| | | Existing | 14.54 | | 0.86 | | | | 0.76 | 5.16 | 7.20 | 2.16 | 23.41 | |
| | | NTNP | 14.88 | | 1.18 | | | | 0.00 | 5.82 | 8.49 | 2.20 | 31.05 | |
| | | NTPP (MP Area 1) | 46.00 | | 0.74 | | | | 0.00 | 9.52 | 15.66 | 1.75 | 57.18 | |
| | | NTPP | 95.34 | | 0.80 | | | | 0.00 | 16.97 | 28.18 | 4.60 | 63.81 | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | - | | 60.00 | 190.00 | - | | | - | |
| | | Existing | | | | 61.51 | | 0.99 | 1.67 | 4.32 | | | 138.77 | |
| | | NTNP | | | | 62.55 | | 1.00 | 1.68 | 4.34 | | | 149.56 | |
| | | NTPP (MP Area 1) | | | | 79.94 | | 1.10 | 1.77 | 4.62 | | | 444.43 | |
| | | NTPP | | | | 84.87 | | 1.10 | 1.78 | 4.63 | | | 737.02 | |
| 41 | Owens Mountain Pkwy & SR 168 | Existing Storage | - | - | - | 415.00 | - | 415.00 | 850.00 | - | 525.00 | 575.00 | - | 450.00 |
| | | Existing | 45.08 | 9.83 | 2.42 | 2.86 | 14.77 | 220.39 | 202.66 | 203.10 | 68.38 | 4.69 | 143.86 | 3.36 |
| | | NTNP | 39.51 | 16.12 | 16.55 | 2.80 | 20.98 | 199.42 | 190.45 | 167.03 | 66.60 | 14.62 | 127.61 | 4.18 |
| | | NTPP (MP Area 1) | 24.64 | 28.19 | 21.80 | 4.05 | 11.96 | 275.66 | 1915.83 | 500.17 | 58.35 | 14.84 | 148.53 | 3.22 |
| | | NTPP | 46.98 | 37.25 | 19.58 | 2.86 | 30.02 | 231.81 | 487.82 | 199.15 | 62.55 | 15.66 | 156.10 | 1.72 |
| 42 | Shepherd Ave & SR 168 | Existing Storage | 100.00 | - | - | 635.00 | - | - | 935.00 | - | 470.00 | 450.00 | - | 550.00 |
| | | Existing | 12.80 | 0.00 | 28.26 | 16.64 | 15.03 | 42.39 | 52.65 | 107.46 | 17.27 | 0.95 | 66.13 | 14.08 |
| | | NTNP | 12.69 | 0.00 | 28.32 | 17.03 | 14.99 | 39.13 | 46.11 | 86.90 | 17.13 | 0.95 | 64.97 | 19.55 |
| | | NTPP (MP Area 1) | 12.98 | 0.00 | 28.39 | 17.78 | 20.75 | 44.21 | 56.82 | 111.94 | 17.58 | 0.96 | 75.41 | 24.30 |
| | | NTPP | 12.89 | 0.00 | 29.15 | 21.61 | 21.40 | 38.02 | 58.99 | 104.39 | 17.38 | 0.96 | 75.70 | 24.07 |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | - | | - | | | | | | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | 14.36 | | 14.36 | 0.00 | 0.00 | | | 0.00 | |
| | | NTPP | | | | 17.28 | | 17.28 | 0.00 | 0.00 | | | 0.00 | |
| 44 | Behymer Ave & Project Access North | Existing Storage | - | | - | | | | | - | | - | | |
| | | Existing | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | 9.93 | | 9.93 | | | | | 0.00 | | 0.00 | | |
| | | NTPP | 9.40 | | 9.40 | | | | | 0.00 | | 0.00 | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | Y | | |
| | | NTNP | | | | | | | | | | | Y | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | Y | | |
| | | NTPP | | | | | | | | | | | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 37 | Locan Ave & Nees Ave | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 38 | Locan Ave & Owens Mountain Pkwy | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 41 | Owens Mountain Pkwy & SR 168 | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | Y | | | |
| | | NTPP | | | | | | | | | | | | | |
| 42 | Shepherd Ave & SR 168 | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |
| 44 | Behymer Ave & Project Access North | Existing Storage | | | | | | | | | | | | | |
| | | Existing | | | | | | | | | | | | | |
| | | NTNP | | | | | | | | | | | | | |
| | | NTPP (MP Area 1) | | | | | | | | | | | | | |
| | | NTPP | | | | | | | | | | | | | |

| # | Intersection | Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 1 | Willow Ave & International Ave | Existing Storage | 255.00 | - | - | 255.00 | - | 205.00 | 255.00 | - | 250.00 | 250.00 | - | 250.00 |
| | | CNP | 190.09 | 77.64 | 13.65 | 24.19 | 176.28 | 61.05 | 8.55 | 28.75 | 216.96 | 29.79 | 51.85 | 55.36 |
| | | CPP | 181.16 | 78.74 | 13.63 | 24.15 | 178.74 | 59.45 | 8.15 | 29.17 | 207.38 | 37.91 | 83.47 | 2.02 |
| 2 | Willow Ave & Behymer Ave | Existing Storage | 250.00 | - | 105.00 | 250.00 | - | 205.00 | 230.00 | - | - | 100.00 | - | 100 |
| | | CNP | 53.02 | 142.88 | 37.29 | 39.04 | 205.73 | 53.04 | 34.60 | 55.85 | 232.15 | 79.24 | 94.38 | 226.51 |
| | | CPP | 55.65 | 143.32 | 39.01 | 40.31 | 213.63 | 59.78 | 36.11 | 54.34 | 224.07 | 111.20 | 131.81 | 234.32 |
| 3 | Willow Ave & Shepherd Ave | Existing Storage | 250.00 | - | 160.00 | 250.00 | - | 150.00 | 250.00 | - | 100.00 | 250.00 | - | 100.00 |
| | | CNP | 111.64 | 141.94 | 23.08 | 95.41 | 278.04 | 105.94 | 40.42 | 145.73 | 156.82 | 36.74 | 263.19 | 168.18 |
| | | CPP | 100.82 | 122.19 | 2.72 | 83.73 | 277.55 | 125.52 | 45.92 | 157.34 | 72.67 | 79.70 | 207.16 | 174.55 |
| 4 | Minnewawa Ave & International Ave | Existing Storage | - | - | - | - | - | - | - | - | - | - | - | - |
| | | CNP | 11.35 | | 0.54 | 7.24 | | 7.84 | 4.14 | | 8.81 | 1.01 | | 1.06 |
| | | CPP | 11.85 | | 0.00 | 13.69 | | 0.00 | 13.95 | | 0.00 | 2.79 | | 0.00 |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | 100 | - | | 100.00 | - | | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 48.87 | 32.19 | | 85.58 | 141.34 | | 15.37 | 88.03 | 34.31 | 12.06 | 187.06 | 131.11 |
| | | CPP | 60.97 | 36.06 | | 102.57 | 167.41 | | 15.93 | 87.27 | 40.97 | 13.33 | 265.11 | 135.83 |
| 6 | Minnewawa Ave & Shepherd Ave | Existing Storage | 225.00 | - | - | - | - | | 230.00 | - | 75.00 | 215.00 | - | 55.00 |
| | | CNP | 113.71 | 4.59 | 30.88 | 24.47 | 301.74 | | 41.21 | 185.58 | 84.91 | 173.22 | 197.36 | 2.27 |
| | | CPP | 246.13 | 13.90 | 62.33 | 37.88 | 529.68 | | 47.19 | 240.44 | 213.02 | 252.31 | 242.84 | 6.27 |
| 7 | Clovis Ave & International Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 3.91 | 29.31 | 0.00 | 5.28 | 99.62 | 0.00 | 0.00 | 0.70 | 14.90 | 0.00 | 0.00 | 0.00 |
| | | CPP | 7.82 | 34.82 | 0.00 | 16.93 | 89.29 | 0.00 | 0.00 | 1.64 | 13.17 | 0.00 | 3.32 | 6.85 |
| 8 | Clovis Ave & Behymer Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 69.02 | 41.14 | 0.00 | 6.96 | 251.45 | 0.72 | 0.00 | 2.28 | 37.26 | 0.00 | 33.92 | 0.61 |
| | | CPP | 61.68 | 54.08 | 0.00 | 11.29 | 244.79 | 1.13 | 0.00 | 6.16 | 21.20 | 1.72 | 143.22 | 1.62 |
| 9 | Clovis Ave & Shepherd Ave | Existing Storage | 235.00 | - | 100.00 | 250.00 | - | 100.00 | 240.00 | - | 50.00 | 245.00 | - | 175.00 |
| | | CNP | 46.69 | 81.34 | 94.06 | 224.94 | 368.31 | 181.72 | 25.21 | 219.67 | 169.78 | 39.22 | 287.66 | 402.22 |
| | | CPP | 31.04 | 73.63 | 65.86 | 110.39 | 239.40 | 196.10 | 18.24 | 192.52 | 174.31 | 28.67 | 217.86 | 282.41 |
| 10 | Clovis Ave & Nees Ave | Existing Storage | 330.00 | - | 95.00 | 265.00 | - | 145.00 | 230.00 | - | - | 55.00 | - | 60.00 |
| | | CNP | 43.07 | 118.73 | 11.88 | 72.55 | 262.96 | 96.74 | 25.14 | 139.03 | 60.32 | 17.89 | 211.03 | 93.81 |
| | | CPP | 33.85 | 155.62 | 13.83 | 189.98 | 317.43 | 47.44 | 32.20 | 161.38 | 84.73 | 19.99 | 257.04 | 107.09 |
| 11 | Clovis Ave & Alluvial Ave | Existing Storage | 230.00 | - | 100.00 | 240.00 | - | 100.00 | 150.00 | - | 100.00 | 165.00 | - | 105.00 |
| | | CNP | 30.16 | 175.45 | 48.83 | 117.52 | 194.84 | 19.85 | 12.37 | 248.39 | 83.14 | 53.64 | 221.05 | 19.39 |
| | | CPP | 53.42 | 193.81 | 189.22 | 127.05 | 274.69 | 271.28 | 12.85 | 259.46 | 145.46 | 45.58 | 340.33 | 35.91 |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | 200.00 | - | - | 230.00 | - | 185.00 | 240.00 | - | 240.00 | 250.00 | - | 150.00 |
| | | CNP | 206.04 | 179.55 | 167.77 | 88.51 | 133.62 | 356.87 | 229.38 | 360.41 | 323.52 | 156.31 | 454.98 | 205.40 |
| | | CPP | 211.17 | 171.67 | 172.66 | 128.62 | 173.55 | 398.54 | 224.05 | 394.22 | 297.47 | 164.01 | 535.05 | 163.12 |
| 13 | SR 168 EB Ramps & Herndon Ave | Existing Storage | 410.00 | | 410.00 | | | | | 700.00 | - | | 450.00 | 450.00 |
| | | CNP | 182.92 | | 400.73 | | | | | 222.78 | 0.00 | | 245.86 | 33.40 |
| | | CPP | 184.90 | | 375.06 | | | | | 223.83 | 0.00 | | 267.56 | 35.15 |
| 14 | SR 168 WB Ramps & Herndon Ave | Existing Storage | | | | 230.00 | | 240.00 | | 500.00 | 360.00 | | 700.00 | 100.00 |
| | | CNP | | | | 47.19 | | 515.34 | | 206.88 | 1056.38 | | 305.82 | 0.00 |
| | | CPP | | | | 34.73 | | 493.55 | | 213.84 | 1137.00 | | 348.63 | 0.00 |
| 15 | Behymer Ave & Sunnyside Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 16 | Sunnyside Ave & Shepherd Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 34.45 | 20.34 | 12.35 | 12.18 | 69.96 | 47.77 | 27.47 | 163.22 | 86.01 | 19.14 | 172.05 | 7.87 |
| | | CPP | 53.20 | 25.73 | 15.28 | 57.30 | 88.87 | 111.49 | 30.80 | 170.01 | 90.28 | 61.82 | 122.42 | 9.93 |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | 100.00 | - | - | 100.00 | - | - | 50.00 | - | - | 65.00 | - | - |
| | | CNP | 117.50 | 54.53 | 7.22 | 19.18 | 0.00 | 291.88 | 10.74 | 183.70 | 173.40 | 29.32 | 184.83 | 184.13 |
| | | CPP | 223.58 | 92.76 | 10.81 | 60.58 | 0.00 | 449.92 | 14.13 | 313.06 | 282.23 | 62.42 | 242.69 | 240.60 |
| 18 | Sunnyside Ave & Alluvial Ave | Existing Storage | 115.00 | - | - | 140.00 | - | - | 100.00 | - | 100.00 | 140.00 | - | 50.00 |
| | | CNP | 23.76 | 72.97 | 71.83 | 47.60 | 227.73 | 207.98 | 118.15 | 145.09 | 116.25 | 41.06 | 321.97 | 46.19 |
| | | CPP | 22.23 | 93.05 | 91.20 | 75.01 | 351.35 | 326.64 | 139.65 | 215.84 | 128.39 | 79.63 | 871.51 | 107.78 |
| 19 | Sunnyside Ave & Herndon Ave | Existing Storage | 150.00 | - | 60.00 | 180.00 | - | 75.00 | 200.00 | - | 100.00 | 300.00 | - | 100.00 |
| | | CNP | 139.20 | 82.08 | 100.69 | 127.00 | 226.93 | 225.33 | 37.07 | 216.94 | 300.48 | 91.08 | 315.74 | 23.40 |
| | | CPP | 116.66 | 81.91 | 94.93 | 138.97 | 242.15 | 307.31 | 47.66 | 238.47 | 426.46 | 106.80 | 355.30 | 19.57 |
| 20 | Fowler Ave & Behymer Ave | Existing Storage | 100.00 | - | | 100.00 | - | | 100.00 | - | | 100.00 | - | |
| | | CNP | 360.53 | 58.26 | | 8.13 | 91.27 | | 10.45 | 200.83 | | 1.77 | 4.18 | |
| | | CPP | 1091.32 | 55.27 | | 11.20 | 53.11 | | 10.33 | 219.94 | | 2.56 | 28.74 | |
| 21 | Fowler Ave & Perrin Ave | Existing Storage | | - | | - | | | | | | - | | - |
| | | CNP | | 0.00 | | 0.46 | | | | | | 13.32 | | 13.32 |
| | | CPP | | 0.00 | | 3.67 | | | | | | 365.48 | | 365.48 |
| 22 | Fowler Ave & Shepherd Ave | Existing Storage | 155.00 | - | - | 205.00 | - | - | 115.00 | - | 300.00 | 260.00 | - | 55.00 |
| | | CNP | 215.89 | 77.76 | 17.60 | 285.86 | 632.61 | 126.52 | 29.11 | 363.10 | 346.39 | 6.32 | 334.80 | 359.53 |
| | | CPP | 142.47 | 139.96 | 19.08 | 191.94 | 451.79 | 79.01 | 71.02 | 329.18 | 317.84 | 152.98 | 293.16 | 300.13 |
| 23 | Fowler Ave & Teague Ave | Existing Storage | 100.00 | | 100.00 | 255.00 | - | - | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 1.53 | 21.07 | 1.84 | 7.54 | 86.69 | 1.44 | 1.46 | 1.79 | 2.56 | 3.22 | 2.79 | 5.42 |
| | | CPP | 1.60 | 29.04 | 1.98 | 14.20 | 97.34 | 1.91 | 2.29 | 4.23 | 2.29 | 0.00 | 2.69 | 15.29 |
| 24 | Fowler Ave & Nees Ave | Existing Storage | 200.00 | - | - | 85.00 | - | 100.00 | 235.00 | - | 100.00 | 145.00 | - | 100.00 |
| | | CNP | 104.84 | 19.89 | 8.22 | 21.04 | 110.62 | 21.71 | 15.47 | 66.18 | 38.48 | 43.03 | 60.81 | 12.63 |
| | | CPP | 87.80 | 23.02 | 9.40 | 13.84 | 97.02 | 26.25 | 15.23 | 67.80 | 39.59 | 63.89 | 69.77 | 10.31 |
| 25 | Fowler Ave & Alluvial Ave | Existing Storage | 230.00 | - | 100.00 | 135.00 | - | 100.00 | 130.00 | - | 135.00 | 145.00 | - | 70.00 |
| | | CNP | 152.78 | 120.40 | 98.70 | 72.74 | 295.62 | 37.04 | 18.76 | 206.24 | 173.32 | 105.76 | 250.58 | 42.14 |
| | | CPP | 633.72 | 151.60 | 91.96 | 77.95 | 391.88 | 70.23 | 29.26 | 347.67 | 196.22 | 187.25 | 392.04 | 34.14 |
| 26 | Fowler Ave & SR 168 WB Ramps | Existing Storage | 260.00 | - | | - | | - | | | | 1400.00 | | 1400.00 |
| | | CNP | 150.54 | 70.10 | | 117.24 | | 774.22 | | | | 154.46 | | 3.36 |
| | | CPP | 163.63 | 133.19 | | 286.45 | | 795.76 | | | | 232.53 | | 16.82 |
| 27 | Fowler Ave & SR 168 EB Ramps | Existing Storage | | - | - | 90.00 | - | | 1300.00 | | 1300.00 | | | |
| | | CNP | | 429.65 | 438.16 | 11.83 | 159.31 | | 133.47 | | 380.93 | | | |
| | | CPP | | 456.31 | 465.21 | 12.93 | 184.15 | | 131.01 | | 436.70 | | | |
| | | Existing Storage | - | | - | | | | | - | | - | | |

| | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | Perrin Rd & Burgan Ave | CNP | 0.91 | | 0.91 | | | | | 0.00 | | 0.19 | | |
| | | CPP | 2.40 | | 2.40 | | | | | 0.00 | | 0.21 | | |
| 29 | Burgan Ave & Shepherd Ave | Existing Storage | | | | - | | - | 100.00 | - | | | - | - |
| | | CNP | | | | 4.53 | | 4.53 | 1.97 | 0.00 | | | 0.00 | 0.00 |
| | | CPP | | | | 8.85 | | 8.85 | 1.76 | 0.00 | | | 0.00 | 0.00 |
| 30 | Armstrong Ave & Shepherd Ave | Existing Storage | - | | - | | | | | - | 70.00 | 110.00 | - | |
| | | CNP | 18.33 | | 18.33 | | | | | 0.00 | 0.00 | 0.00 | 0.00 | |
| | | CPP | 19.32 | | 19.32 | | | | | 0.00 | 0.64 | 0.00 | 0.00 | |
| 31 | Temperance Ave & Shepherd Ave | Existing Storage | 100.00 | - | - | 100.00 | | - | 280.00 | - | 130.00 | 100.00 | - | 100.00 |
| | | CNP | 108.55 | 41.81 | 19.55 | 4.96 | | 15.03 | 16.68 | 63.66 | 168.58 | 11.87 | 97.39 | 0.00 |
| | | CPP | 117.99 | 340.53 | 52.62 | 22.77 | | 596.76 | 99.79 | 226.51 | 173.05 | 218.67 | 251.43 | 22.24 |
| 32 | Nees Ave & Temperance Ave | Existing Storage | 240.00 | - | 120.00 | 250.00 | - | 95.00 | 240.00 | - | 80.00 | 100.00 | - | 25.00 |
| | | CNP | 29.59 | 43.90 | 7.05 | 5.27 | 151.61 | 78.12 | 48.01 | 18.97 | 98.89 | 2.13 | 57.57 | 5.09 |
| | | CPP | 35.32 | 79.61 | 8.66 | 3.67 | 195.55 | 96.24 | 69.77 | 47.04 | 51.79 | 8.12 | 176.90 | 8.06 |
| 33 | Temperance Ave & Alluvial Ave | Existing Storage | - | - | - | - | - | - | - | - | - | - | - | - |
| | | CNP | 51.39 | 0.00 | 62.63 | 220.18 | 0.00 | 226.40 | 35.06 | 0.00 | 33.88 | 77.64 | 0.00 | 52.90 |
| | | CPP | 69.55 | 0.00 | 86.88 | 228.53 | 0.00 | 231.04 | 45.21 | 0.00 | 69.17 | 127.71 | 0.00 | 79.63 |
| 34 | Temperance Ave & SR 168 WB Ramps | Existing Storage | | | | | - | 160.00 | | | | 1400.00 | | 1400.00 |
| | | CNP | | 50.33 | | | 56.56 | 98.51 | | | | 16.71 | | 52.85 |
| | | CPP | | 65.76 | | | 49.15 | 158.86 | | | | 21.09 | | 60.13 |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | - | - | 260.00 | 550.00 | | 1550.00 | | 1550.00 | | | |
| | | CNP | | 887.08 | 903.77 | 33.84 | 259.21 | | 155.25 | | 1707.76 | | | |
| | | CPP | | 554.51 | 561.04 | 30.25 | 248.55 | | 246.21 | | 1462.11 | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | - | 245.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 14.66 | 0.00 | 3.60 | 0.00 | 0.00 | 0.00 | 0.00 | 24.15 | 5.81 | 1.12 | 31.63 | 0.00 |
| | | CPP | 88.82 | 0.00 | 8.15 | 247.33 | 0.00 | 210.49 | 33.79 | 71.25 | 15.25 | 4.25 | 107.21 | 12.63 |
| 37 | Locan Ave & Nees Ave | Existing Storage | 100.00 | | - | 100.00 | - | - | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 0.00 | | 5.12 | 3.17 | 27.43 | 54.19 | 29.67 | 1.82 | 0.00 | 0.68 | 3.75 | 2.40 |
| | | CPP | 0.00 | | 14.17 | 3.53 | 56.50 | 68.11 | 34.13 | 2.26 | 0.00 | 0.73 | 5.80 | 2.91 |
| 38 | Locan Ave & Owens Mountain Pkwy | Existing Storage | | | | - | | - | - | - | | | - | - |
| | | CNP | | | | 0.00 | | 49.61 | 7.29 | 0.55 | | | 12.56 | 0.00 |
| | | CPP | | | | 0.00 | | 132.75 | 29.43 | 0.80 | | | 3.55 | 0.00 |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | 250.00 | | - | | | | 240.00 | - | 115.00 | 255.00 | - | |
| | | CNP | 22.40 | | 0.59 | | | | 0.00 | 10.43 | 7.23 | 1.40 | 17.59 | |
| | | CPP | 28.77 | | 0.61 | | | | 0.00 | 16.77 | 17.09 | 1.19 | 20.74 | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | - | | - | 190.00 | - | | | - | - |
| | | CNP | | | | 44.17 | | 5.31 | 4.42 | 4.90 | | | 1.38 | 10.27 |
| | | CPP | | | | 79.85 | | 4.29 | 5.56 | 6.19 | | | 1.58 | 10.94 |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | | | - | 100.00 | - | | | - | 100.00 |
| | | CNP | | | | | | 0.00 | 0.00 | 0.00 | | | 0.00 | 0.00 |
| | | CPP | | | | | | 25.32 | 7.99 | 0.00 | | | 0.00 | 0.00 |
| 44 | Behymer Ave & Project Access North | Existing Storage | - | | - | | | | | - | | - | | |
| | | CNP | 49.97 | | 1.81 | | | | | 0.00 | | 0.00 | | |
| | | CPP | 3.11 | | 0.12 | | | | | 0.00 | | 0.00 | | |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Existing Storage | 100.00 | - | | | - | - | | | | 100.00 | | 100.00 |
| | | CNP | 49.97 | 0.00 | | | 15.28 | 138.50 | | | | 6.03 | | 6.45 |
| | | CPP | 3.11 | 0.00 | | | 0.93 | 8.98 | | | | 0.33 | | 0.35 |
| 4102 | Owens Mountain Parkway & SR 168 EB Ramps | Existing Storage | | - | - | 100.00 | - | | - | | 100.00 | | | |
| | | CNP | | 11.45 | 11.45 | 1.28 | 2.50 | | 23.91 | | 8.22 | | | |
| | | CPP | | 0.52 | 0.53 | 0.05 | 0.14 | | 0.97 | | 0.36 | | | |
| 4201 | Shepherd Ave & SR 168 WB Ramps | Existing Storage | 100.00 | - | | | - | - | | | | 100.00 | | 100.00 |
| | | CNP | 8.18 | 6.23 | | | 27.58 | 29.19 | | | | 0.20 | | 23.01 |
| | | CPP | 0.34 | 0.27 | | | 1.32 | 1.39 | | | | 0.01 | | 1.14 |
| 4202 | Sheperd Ave & SR 168 EB Ramps | Existing Storage | | - | - | 100.00 | - | - | - | | 100.00 | | | |
| | | CNP | | 14.13 | 14.13 | 11.19 | 3.87 | | 11.54 | | 2.77 | | | |
| | | CPP | | 0.62 | 0.62 | 0.64 | 0.17 | | 0.47 | | 0.12 | | | |

| # | Intersection | Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 1 | Willow Ave & International Ave | Existing Storage | 255.00 | - | - | 255.00 | - | 205.00 | 255.00 | - | 250.00 | 250.00 | - | 250.00 |
| | | CNP | 67.78 | 127.57 | 19.62 | 8.67 | 65.15 | 46.51 | 4.43 | 17.18 | 168.55 | 19.15 | 20.05 | 39.74 |
| | | CPP | 74.00 | 115.25 | 29.58 | 8.67 | 57.31 | 48.07 | 5.17 | 14.61 | 172.98 | 22.80 | 16.71 | 37.54 |
| 2 | Willow Ave & Behymer Ave | Existing Storage | 250.00 | - | 105.00 | 250.00 | - | 205.00 | 230.00 | - | - | 100.00 | - | 100 |
| | | CNP | 35.73 | 191.67 | 88.28 | 51.69 | 86.64 | 21.86 | 9.55 | 41.08 | 116.53 | 50.68 | 66.65 | 120.74 |
| | | CPP | 36.69 | 183.52 | 140.14 | 58.34 | 79.41 | 21.80 | 9.51 | 42.27 | 112.73 | 53.28 | 64.18 | 134.26 |
| 3 | Willow Ave & Shepherd Ave | Existing Storage | 250.00 | - | 160.00 | 250.00 | - | 150.00 | 250.00 | - | 100.00 | 250.00 | - | 100.00 |
| | | CNP | 137.40 | 215.00 | 270.92 | 61.87 | 220.24 | 35.78 | 37.60 | 214.00 | 160.51 | 75.39 | 212.14 | 340.59 |
| | | CPP | 111.81 | 207.22 | 178.47 | 26.40 | 208.86 | 42.29 | 36.51 | 208.72 | 116.48 | 49.73 | 201.19 | 226.62 |
| 4 | Minnewawa Ave & International Ave | Existing Storage | - | - | - | - | - | - | - | - | - | - | - | - |
| | | CNP | 18.25 | | 0.00 | 12.31 | | 0.00 | 8.12 | | 0.00 | 6.84 | | 0.00 |
| | | CPP | 19.78 | | 0.00 | 10.43 | | 0.00 | 8.97 | | 0.00 | 4.81 | | 0.00 |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | 100 | - | | 100.00 | - | | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 35.07 | 32.52 | | 94.22 | 31.83 | | 31.71 | 89.69 | 14.47 | 9.26 | 167.76 | 89.30 |
| | | CPP | 39.00 | 25.74 | | 95.85 | 62.57 | | 39.97 | 120.82 | 14.07 | 9.39 | 174.05 | 89.93 |
| 6 | Minnewawa Ave & Shepherd Ave | Existing Storage | 225.00 | - | - | - | - | | 230.00 | - | 75.00 | 215.00 | - | 55.00 |
| | | CNP | 200.42 | 45.35 | 47.81 | 11.54 | 91.60 | | 57.60 | 160.30 | 21.50 | 59.28 | 131.96 | 3.55 |
| | | CPP | 189.81 | 46.36 | 43.41 | 6.96 | 85.13 | | 40.05 | 126.05 | 54.51 | 55.90 | 102.43 | 1.68 |
| 7 | Clovis Ave & International Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 15.14 | 52.50 | 0.00 | 0.00 | 37.33 | 0.00 | 0.00 | 0.00 | 4.05 | 0.00 | 0.00 | 0.00 |
| | | CPP | 7.99 | 59.11 | 0.00 | 6.36 | 38.62 | 0.00 | 0.00 | 0.00 | 4.17 | 0.00 | 1.44 | 2.39 |
| 8 | Clovis Ave & Behymer Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 35.82 | 135.72 | 0.00 | 1.23 | 78.26 | 0.00 | 0.00 | 7.89 | 16.81 | 0.00 | 2.50 | 0.36 |
| | | CPP | 35.24 | 150.44 | 1.94 | 2.69 | 102.62 | 0.00 | 0.00 | 39.90 | 18.59 | 0.84 | 10.52 | 1.44 |
| 9 | Clovis Ave & Shepherd Ave | Existing Storage | 235.00 | - | 100.00 | 250.00 | - | 100.00 | 240.00 | - | 50.00 | 245.00 | - | 175.00 |
| | | CNP | 74.94 | 124.90 | 65.07 | 64.70 | 73.01 | 20.09 | 14.48 | 142.09 | 44.87 | 12.99 | 115.67 | 192.54 |
| | | CPP | 88.09 | 143.85 | 180.67 | 75.08 | 72.73 | 20.78 | 63.79 | 105.20 | 49.35 | 14.54 | 117.49 | 172.11 |
| 10 | Clovis Ave & Nees Ave | Existing Storage | 330.00 | - | 95.00 | 265.00 | - | 145.00 | 230.00 | - | - | 55.00 | - | 60.00 |
| | | CNP | 72.85 | 271.09 | 22.15 | 42.06 | 128.30 | 14.27 | 26.58 | 197.27 | 51.87 | 25.10 | 229.83 | 68.73 |
| | | CPP | 86.01 | 320.96 | 27.88 | 62.70 | 171.86 | 16.33 | 39.25 | 285.96 | 90.28 | 34.09 | 270.53 | 176.45 |
| 11 | Clovis Ave & Alluvial Ave | Existing Storage | 230.00 | - | 100.00 | 240.00 | - | 100.00 | 150.00 | - | 100.00 | 165.00 | - | 105.00 |
| | | CNP | 94.18 | 462.25 | 451.81 | 43.42 | 202.86 | 201.45 | 20.51 | 291.68 | 142.11 | 56.50 | 151.02 | 75.37 |
| | | CPP | 101.46 | 430.31 | 418.07 | 53.57 | 179.82 | 178.50 | 22.80 | 297.57 | 162.41 | 35.14 | 132.88 | 109.69 |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | 200.00 | - | - | 230.00 | - | 185.00 | 240.00 | - | 240.00 | 250.00 | - | 150.00 |
| | | CNP | 800.87 | 302.36 | 426.34 | 205.27 | 157.65 | 300.11 | 465.12 | 552.31 | 576.78 | 264.96 | 547.20 | 149.77 |
| | | CPP | 1064.26 | 323.15 | 391.49 | 168.43 | 151.43 | 296.81 | 453.73 | 640.79 | 538.48 | 261.61 | 656.71 | 204.54 |
| 13 | SR 168 EB Ramps & Herndon Ave | Existing Storage | 410.00 | | 410.00 | | | | | 700.00 | - | | 450.00 | 450.00 |
| | | CNP | 254.23 | | 786.18 | | | | | 457.27 | 0.00 | | 311.00 | 198.33 |
| | | CPP | 233.90 | | 1095.29 | | | | | 463.50 | 0.00 | | 353.39 | 198.34 |
| 14 | SR 168 WB Ramps & Herndon Ave | Existing Storage | | | | 230.00 | | 240.00 | | 500.00 | 360.00 | | 700.00 | 100.00 |
| | | CNP | | | | 41.05 | | 272.52 | | 227.05 | 290.62 | | 224.67 | 0.00 |
| | | CPP | | | | 49.83 | | 273.52 | | 222.94 | 302.27 | | 240.24 | 0.00 |
| 15 | Behymer Ave & Sunnyside Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 16 | Sunnyside Ave & Shepherd Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 88.39 | 68.32 | 15.18 | 19.47 | 56.60 | 61.50 | 77.22 | 131.81 | 39.87 | 19.56 | 165.69 | 14.92 |
| | | CPP | 64.91 | 84.90 | 31.50 | 19.17 | 77.05 | 47.77 | 96.15 | 103.32 | 50.81 | 19.34 | 126.33 | 16.41 |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | 100.00 | - | - | 100.00 | - | - | 50.00 | - | - | 65.00 | - | - |
| | | CNP | 206.81 | 154.34 | 25.76 | 9.01 | 0.00 | 203.81 | 18.53 | 211.79 | 196.75 | 23.84 | 163.17 | 161.91 |
| | | CPP | 543.84 | 228.97 | 44.49 | 20.96 | 0.00 | 387.79 | 74.02 | 406.44 | 371.27 | 40.84 | 289.99 | 286.38 |
| 18 | Sunnyside Ave & Alluvial Ave | Existing Storage | 115.00 | - | - | 140.00 | - | - | 100.00 | - | 100.00 | 140.00 | - | 50.00 |
| | | CNP | 52.27 | 167.86 | 161.84 | 45.66 | 102.86 | 97.18 | 103.72 | 153.74 | 55.56 | 25.38 | 149.60 | 42.80 |
| | | CPP | 38.20 | 275.07 | 264.43 | 80.54 | 154.55 | 148.72 | 150.80 | 195.81 | 107.76 | 38.38 | 256.33 | 35.27 |
| 19 | Sunnyside Ave & Herndon Ave | Existing Storage | 150.00 | - | 60.00 | 180.00 | - | 75.00 | 200.00 | - | 100.00 | 300.00 | - | 100.00 |
| | | CNP | 222.67 | 294.98 | 221.09 | 140.66 | 177.92 | 205.50 | 77.71 | 392.36 | 543.87 | 85.97 | 313.29 | 63.86 |
| | | CPP | 386.06 | 310.18 | 211.55 | 221.58 | 204.53 | 274.73 | 134.45 | 413.80 | 711.47 | 108.47 | 356.23 | 102.40 |
| 20 | Fowler Ave & Behymer Ave | Existing Storage | 100.00 | - | | 100.00 | - | | 100.00 | - | | 100.00 | - | |
| | | CNP | 303.91 | 41.46 | | 0.00 | 82.47 | | 16.76 | 220.65 | | 0.00 | 4.16 | |
| | | CPP | 515.06 | 38.11 | | 7.53 | 98.54 | | 33.87 | 445.10 | | 0.00 | 16.35 | |
| 21 | Fowler Ave & Perrin Ave | Existing Storage | | - | | - | | | | | | - | | - |
| | | CNP | | 0.00 | | 0.46 | | | | | | 8.79 | | 8.79 |
| | | CPP | | 0.00 | | 1.53 | | | | | | 201.91 | | 201.91 |
| 22 | Fowler Ave & Shepherd Ave | Existing Storage | 155.00 | - | - | 205.00 | - | - | 115.00 | - | 300.00 | 260.00 | - | 55.00 |
| | | CNP | 191.10 | 320.54 | 13.07 | 114.73 | 112.45 | 13.72 | 112.72 | 197.78 | 179.93 | 22.38 | 235.33 | 219.54 |
| | | CPP | 140.38 | 338.08 | 33.81 | 92.42 | 188.60 | 42.23 | 57.21 | 189.94 | 180.67 | 122.66 | 165.38 | 153.45 |
| 23 | Fowler Ave & Teague Ave | Existing Storage | 100.00 | | 100.00 | 255.00 | - | - | 100.00 | - | 100.00 | 100.00 | - | 100.00 |
| | | CNP | 2.87 | 62.60 | 1.33 | 2.88 | 31.21 | 0.81 | 0.93 | 0.87 | 1.50 | 1.77 | 2.01 | 2.37 |
| | | CPP | 3.44 | 88.29 | 0.00 | 6.94 | 56.85 | 1.20 | 1.41 | 0.90 | 1.53 | 1.41 | 5.82 | 9.82 |
| 24 | Fowler Ave & Nees Ave | Existing Storage | 200.00 | - | - | 85.00 | - | 100.00 | 235.00 | - | 100.00 | 145.00 | - | 100.00 |
| | | CNP | 74.98 | 69.15 | 11.98 | 21.86 | 56.70 | 10.88 | 20.18 | 47.68 | 37.39 | 19.11 | 52.41 | 20.27 |
| | | CPP | 88.53 | 63.74 | 31.30 | 19.93 | 85.55 | 27.84 | 26.20 | 79.14 | 43.09 | 33.76 | 69.96 | 27.63 |
| 25 | Fowler Ave & Alluvial Ave | Existing Storage | 230.00 | - | 100.00 | 135.00 | - | 100.00 | 130.00 | - | 135.00 | 145.00 | - | 70.00 |
| | | CNP | 31.85 | 256.70 | 50.61 | 37.36 | 140.22 | 16.23 | 31.83 | 229.40 | 48.13 | 56.48 | 172.44 | 13.76 |
| | | CPP | 54.94 | 256.73 | 47.65 | 17.92 | 192.88 | 28.27 | 35.32 | 300.38 | 39.84 | 70.11 | 158.29 | 11.30 |
| 26 | Fowler Ave & SR 168 WB Ramps | Existing Storage | 260.00 | - | | - | | - | | | | 1400.00 | | 1400.00 |
| | | CNP | 73.12 | 86.72 | | 129.72 | | 139.32 | | | | 68.95 | | 4.42 |
| | | CPP | 75.53 | 77.27 | | 134.62 | | 147.87 | | | | 62.43 | | 0.84 |
| 27 | Fowler Ave & SR 168 EB Ramps | Existing Storage | | - | - | 90.00 | - | | 1300.00 | | 1300.00 | | | |
| | | CNP | | 546.21 | 592.93 | 21.65 | 134.84 | | 241.59 | | 1269.42 | | | |
| | | CPP | | 527.49 | 570.28 | 20.55 | 113.97 | | 229.36 | | 634.60 | | | |
| | | Existing Storage | - | | - | | | | | - | | - | | |

| # | Intersection | Scenario | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 1 | Willow Ave & International Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 2 | Willow Ave & Behymer Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | Y |
| | | CPP | | | Y | | | | | | | | | Y |
| 3 | Willow Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | Y | | | | | | | | Y | Y |
| | | CPP | | | Y | | | | | | | | Y | Y |
| 4 | Minnewawa Ave & International Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 6 | Minnewawa Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 7 | Clovis Ave & International Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 8 | Clovis Ave & Behymer Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 9 | Clovis Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | Y |
| | | CPP | | | Y | | | | | | | | | |
| 10 | Clovis Ave & Nees Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | Y |
| | | CPP | | | | | | | | | | | | Y |
| 11 | Clovis Ave & Alluvial Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | Y | | | | | Y | | | Y | |
| | | CPP | | | Y | | | | | Y | | | Y | Y |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | Y | | | | | | | Y | Y | | Y | Y |
| | | CPP | Y | | | | | | | Y | Y | | Y | Y |
| 13 | SR 168 EB Ramps & Herndon Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | Y | | | | | | | | | |
| | | CPP | | | Y | | | | | | | | | |
| 14 | SR 168 WB Ramps & Herndon Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | Y | | | | |
| | | CPP | | | | | | | | Y | | | | |
| 15 | Behymer Ave & Sunnyside Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 16 | Sunnyside Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | Y | | | | | | | | | | | |
| | | CPP | Y | | | | | | | Y | | | | |
| 18 | Sunnyside Ave & Alluvial Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | Y | | | | |
| | | CPP | | | | | | | | Y | | | Y | |
| 19 | Sunnyside Ave & Herndon Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | Y | | Y | | | Y | | | | | Y | |
| | | CPP | Y | | Y | Y | | Y | | | | | Y | | Y |
| 20 | Fowler Ave & Behymer Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | Y | | | | | | | | | | | |
| | | CPP | Y | | | | | | | | | | | |
| 21 | Fowler Ave & Perrin Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 22 | Fowler Ave & Shepherd Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | Y | | | | | | | | | | | Y |
| | | CPP | | | | | | | | | | | | Y |
| 23 | Fowler Ave & Teague Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | Y | | | | | | | | | | |
| | | CPP | | Y | | | | | | | | | | |
| 24 | Fowler Ave & Nees Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 25 | Fowler Ave & Alluvial Ave | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 26 | Fowler Ave & SR 168 WB Ramps | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| 27 | Fowler Ave & SR 168 EB Ramps | Existing Storage | | | | | | | | | | | | |
| | | CNP | | | | | | | | | | | | |
| | | CPP | | | | | | | | | | | | |
| | | Existing Storage | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | Perrin Rd & Burgan Ave | CNP | 0.66 | | 0.66 | | | | | 0.00 | | 0.09 | | | |
| | | CPP | 1.88 | | 1.88 | | | | | 0.00 | | 0.08 | | | |
| 29 | Burgan Ave & Shepherd Ave | Existing Storage | | | | - | | - | 100.00 | - | | | - | - | |
| | | CNP | | | | 1.52 | | 1.52 | 1.31 | 0.00 | | | 0.00 | 0.00 | |
| | | CPP | | | | 2.38 | | 2.38 | 1.79 | 0.00 | | | 0.00 | 0.00 | |
| 30 | Armstrong Ave & Shepherd Ave | Existing Storage | - | | - | | | | | - | 70.00 | 110.00 | - | | |
| | | CNP | 5.82 | | 5.82 | | | | | 0.00 | 0.20 | 0.00 | 0.00 | | |
| | | CPP | 5.73 | | 5.73 | | | | | 0.00 | 0.35 | 0.00 | 0.00 | | |
| 31 | Temperance Ave & Shepherd Ave | Existing Storage | 100.00 | - | - | 100.00 | | - | 280.00 | - | 130.00 | 100.00 | - | 100.00 | |
| | | CNP | 131.68 | 27.34 | 16.54 | 0.00 | | 0.00 | 13.17 | 33.99 | 55.44 | 6.79 | 57.89 | 0.32 | |
| | | CPP | 199.21 | 220.81 | 105.28 | 20.96 | | 297.65 | 90.43 | 97.50 | 40.20 | 138.92 | 171.00 | 24.25 | |
| 32 | Nees Ave & Temperance Ave | Existing Storage | 240.00 | - | 120.00 | 250.00 | - | 95.00 | 240.00 | - | 80.00 | 100.00 | - | 25.00 | |
| | | CNP | 0.00 | 114.34 | 0.00 | 5.83 | 47.03 | 20.30 | 69.27 | 46.54 | 46.92 | 0.93 | 106.12 | 2.91 | |
| | | CPP | 4.12 | 116.11 | 4.02 | 7.18 | 82.15 | 24.73 | 90.57 | 33.31 | 41.66 | 0.91 | 52.03 | 1.88 | |
| 33 | Temperance Ave & Alluvial Ave | Existing Storage | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | CNP | 62.79 | 0.00 | 79.89 | 26.14 | 0.00 | 26.89 | 28.69 | 0.00 | 36.86 | 64.77 | 0.00 | 44.77 | |
| | | CPP | 111.86 | 0.00 | 154.57 | 45.17 | 0.00 | 46.47 | 68.81 | 0.00 | 55.50 | 78.50 | 0.00 | 52.74 | |
| 34 | Temperance Ave & SR 168 WB Ramps | Existing Storage | | | | | - | 160.00 | | | | 1400.00 | | 1400.00 | |
| | | CNP | | 33.28 | | | 19.52 | 14.87 | | | | 9.38 | | 6.60 | |
| | | CPP | | 57.26 | | | 25.48 | 34.22 | | | | 15.21 | | 9.08 | |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | - | - | 260.00 | 550.00 | | 1550.00 | | 1550.00 | | | | |
| | | CNP | | 748.06 | 795.78 | 32.53 | 211.51 | | 238.19 | | 2545.62 | | | | |
| | | CPP | | 628.61 | 650.26 | 29.75 | 225.64 | | 542.60 | | 1374.02 | | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | 100.00 | - | 100.00 | 100.00 | - | - | 245.00 | - | 100.00 | 100.00 | - | 100.00 | |
| | | CNP | 6.28 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | 0.00 | 19.67 | 4.26 | 3.10 | 19.24 | 0.00 | |
| | | CPP | 139.50 | 0.00 | 7.46 | 315.47 | 0.00 | 32.31 | 126.15 | 43.61 | 8.61 | 4.99 | 103.78 | 77.37 | |
| 37 | Locan Ave & Nees Ave | Existing Storage | 100.00 | - | | 100.00 | - | - | 100.00 | - | 100.00 | 100.00 | - | 100.00 | |
| | | CNP | 0.00 | 38.23 | | 2.88 | 16.14 | 18.20 | 40.55 | 4.22 | 0.00 | 1.00 | 1.64 | 2.64 | |
| | | CPP | 0.00 | 203.44 | | 6.13 | 30.38 | 28.97 | 82.63 | 13.25 | 0.00 | 1.37 | 3.90 | 4.91 | |
| 38 | Locan Ave & Owens Mountain Pkwy | Existing Storage | | | | - | | - | - | - | | | - | - | |
| | | CNP | | | | 0.00 | | 16.70 | 28.62 | 0.65 | | | 5.92 | 0.00 | |
| | | CPP | | | | 0.00 | | 46.63 | 169.33 | 0.74 | | | 4.80 | 0.00 | |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | 250.00 | | - | | | | 240.00 | - | 115.00 | 255.00 | - | | |
| | | CNP | 15.49 | | 0.55 | | | | 0.00 | 5.50 | 5.60 | 1.07 | 13.33 | | |
| | | CPP | 41.55 | | 0.44 | | | | 0.00 | 10.73 | 13.86 | 0.84 | 26.31 | | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | - | | - | 190.00 | - | | | - | - | |
| | | CNP | | | | 15.20 | | 3.80 | 4.56 | 3.30 | | | 2.62 | 35.05 | |
| | | CPP | | | | 17.05 | | 2.80 | 4.68 | 4.92 | | | 2.87 | 55.09 | |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | | | - | 100.00 | - | | | - | 100.00 | |
| | | CNP | | | | | | 0.00 | 0.00 | 0.00 | | | 0.00 | 0.00 | |
| | | CPP | | | | | | 15.23 | 12.89 | 0.00 | | | 0.00 | 0.00 | |
| 44 | Behymer Ave & Project Access North | Existing Storage | - | | - | | | | | - | | - | | | |
| | | CNP | 0.50 | | 0.01 | | | | | 0.00 | | 0.00 | | | |
| | | CPP | 0.57 | | 0.01 | | | | | 0.00 | | 0.00 | | | |
| 4101 | Owens Mountain Parkway & SR 168 WB Ramps | Existing Storage | 100.00 | - | | | - | - | | | | 100.00 | | 100.00 | |
| | | CNP | 0.50 | 0.00 | | | 0.17 | 0.79 | | | | 0.06 | | 0.05 | |
| | | CPP | 0.57 | 0.00 | | | 0.23 | 0.94 | | | | 0.06 | | 0.04 | |
| 4102 | Owens Mountain Parkway & SR 168 EB Ramps | Existing Storage | | - | - | 100.00 | - | | - | | 100.00 | | | | |
| | | CNP | | 0.32 | 0.33 | 0.05 | 0.05 | | 0.68 | | 0.00 | | | | |
| | | CPP | | 0.49 | 0.50 | 0.11 | 0.06 | | 0.80 | | 0.00 | | | | |
| 4201 | Shepherd Ave & SR 168 WB Ramps | Existing Storage | 100.00 | - | | | - | - | | | | 100.00 | | 100.00 | |
| | | CNP | 0.14 | 0.24 | | | 0.22 | 0.23 | | | | 0.00 | | 0.32 | |
| | | CPP | 0.15 | 0.40 | | | 0.30 | 0.31 | | | | 0.00 | | 0.47 | |
| 4202 | Sheperd Ave & SR 168 EB Ramps | Existing Storage | | - | - | 100.00 | - | - | - | | 100.00 | | | | |
| | | CNP | | 0.85 | 0.85 | 0.49 | 0.09 | | 1.36 | | 0.28 | | | | |
| | | CPP | | 1.22 | 1.22 | 0.62 | 0.13 | | 1.52 | | 0.30 | | | | |

# K.2 - Transportation Evaluation

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KITTELSON & ASSOCIATES
155 Grand Avenue, Suite 505
Oakland, CA 94612
P 510.839.1742

# TECHNICAL MEMORANDUM

June 27, 2024 Project# 28949

To: Mr. Sean Smith, Supervising Civil Engineer
City of Clovis
1033 Fifth Street
Clovis, CA 93612

From: Aaron Elias, T.E., Lee Miller, Qiming Sun, Mike Aronson, P.E.

CC: Steve McMurtry, De Novo Planning Group

RE: Clovis Vista Ranch CEQA Transportation Evaluation

# Introduction

The California Environmental Quality Act (CEQA) transportation analysis for the Vista Ranch Project (Project) in Clovis, CA, evaluates the transportation impact areas that may be considered in environmental documentation for the project. A separate Local Transportation Analysis (LTA) evaluates other transportation issues such as roadway and intersection capacity which are not part of the environmental evaluation under CEQA.

The CEQA checklist for transportation includes four questions that this memo will evaluate. These four questions include:

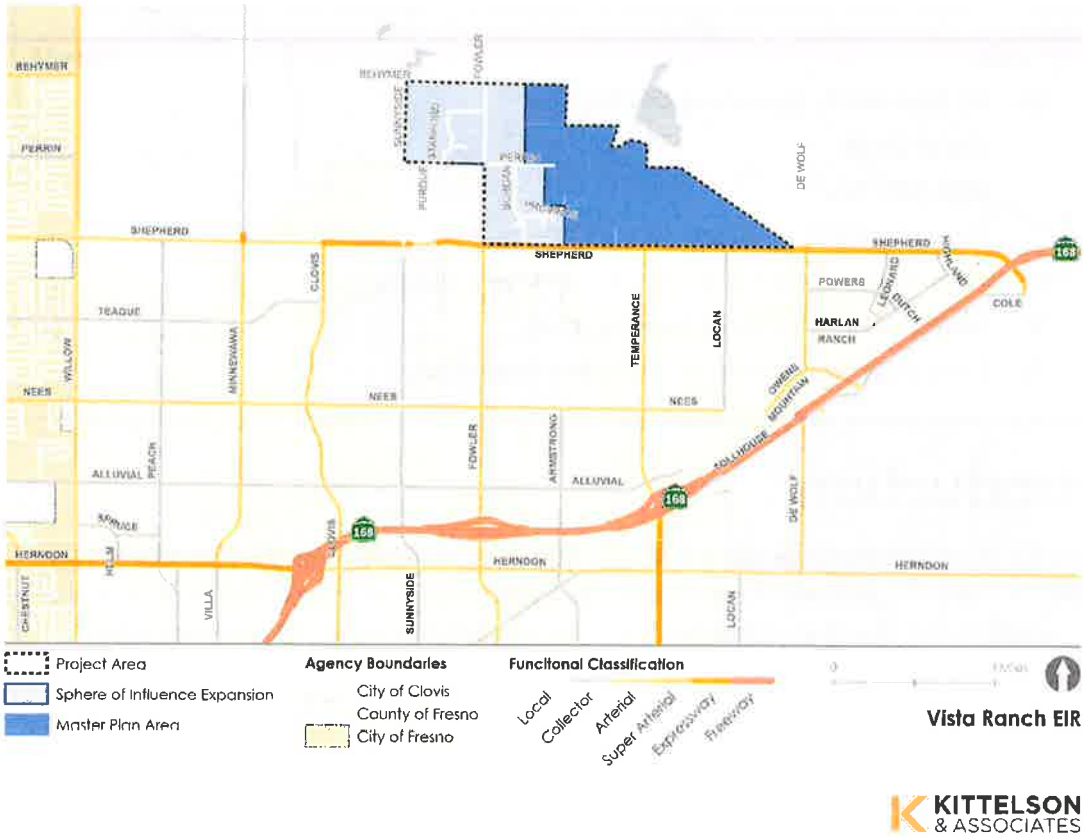
a. Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? (vehicle miles of travel (VMT) assessment)
c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
d. Would the project result in inadequate emergency access?

The following sections include a brief description of the Project, existing transportation conditions in the Project area, regulations and policies which apply to the CEQA evaluation, and an assessment of each of the four CEQA transportation questions.

## PROJECT DESCRIPTION

The Project includes approximately 952 acres located within the city's planning area and is bounded on the north by Behymer Avenue, on the east by the Big Dry Creek Reservoir, on the south by Shepherd and Perrin Avenues, and on the west by North Fowler and North Sunnyside Avenues. The project contains both a master plan area and a non-development sphere of influence expansion. Figure 1 shows the Project and study area.

## Figure 1: Vista Ranch Project and Study Area




KITTELSON & ASSOCIATES

The Master Plan area is approximately 507 acres and proposes the construction of up to 3,286 residential units, approximately 48 acres of commercial/mixed uses, approximately 19 acres for an elementary school, and approximately 57 acres of parks, trails, and open space. The non-development area is approximately 445 acres and will not receive any entitlements other than to be included in the Sphere of Influence (SOI) expansion.

The Project's planning area is separated into three distinct areas which include:

- MPArea1, approximately 368 acres including:
  - Up to 1,268 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 1,039 medium high density residential dwelling units (Zoned R-2)
  - Up to 500 very high density residential dwelling units (Zoned R-4)
  - Up to 85,000 square feet of gateway commercial (Zoned C-1)
  - An accessible public park of 2.74 acres
- MPArea2, approximately 139 acres including:
  - Up to 137 low density residential dwelling units (Zoned R-1)
  - Up to 224 medium density residential dwelling units (Zoned R-1-MD)
  - Up to 115,000 square feet of gateway commercial (Zoned C-1)
  - Mini self-storage facility with up to 421,356 square feet of building (Zoned M-1)
  - Elementary school with up to 750 students or an additional 118 medium density residential units (Zoned R-1-MD)
- Non-Development Area, approximately 445 acres that have not requested any entitlements at this time other than to be included in the proposed SOI expansion.

# Existing Conditions

This section provides a description of the existing roadway, transit, bicycle, and pedestrian components of the transportation system within the Project study area shown in Figure 1.

## ROADWAY NETWORK

The existing roadway network in the Project study area is composed of freeways, super arterials, arterials, and collector roads. Roadway classifications listed are from Fresno County to account for roadways currently outside the city of Clovis.

### Freeways

**State Route 168 (SR 168)** is a divided four-lane highway running northeast to southwest through the study area. It provides connection from the intercity Fresno area to the Sierra Nevada Mountain range. Access points to SR 168 are located at Herndon Avenue, Fowler Avenue, Temperance Avenue, Owens Mountain Parkway and Shepherd Avenue. Most sections in the study area have limited access but sections near Owens Mountain Parkway and Shepherd Avenue have at-grade intersections. The speed limit is generally set at 65 miles per hour (mph) within the study area.

## Expressway

**Shepherd Avenue** is an east to west running roadway that ranges from a two lane road to a four lane divided by a median roadway near the Project where it provides the southern boundary for the Project. Newer sections of the road are the four lane divided sections while the older unimproved sections are the two lane areas. Sidewalks are along the developed south side of the roadway, and conventional bike lanes on each side. Shepherd Avenue connects SR 168 to Willow Avenue at the western edge of the study area. A half mile segment of Shepherd Avenue between Fowler Avenue and Sunnyside Avenue is not improved and classified as an arterial. The speed limit ranges from 50 mph on the divided sections to 40 mph in the two-lane highway section.

## Super Arterials

**Willow Avenue** runs north to south along the western edge of the study area from Behymer Avenue to Herdon Avenue. Willow Avenue has six lanes divided by a center median. From Shepherd Avenue south, the majority of Willow Avenue has bike lanes and sidewalks on both sides. The Clovis Old Town Trail runs along the Willow Avenue right-of-way (ROW) from Behymer Avenue to just south of Teague Avenue where it crosses under Willow Avenue heading southeast. Willow Avenue provides access to central Clovis to the south and the Clovis Community College campus to the north. The speed limit in the vicinity of the Project (near Shepherd) is 50 mph.

## Arterials

### NORTH-SOUTH

**Clovis Avenue** is located west of the Master Plan Area, beginning north of Shepherd Avenue, and connecting south to Herndon Avenue. Clovis Avenue is four lanes with a center median with sidewalk and bike lanes on each side. Between Teague Avenue and Alluvial Avenue, the Dry Creek Trail shared use path shares the ROW along the east side of the corridor. The speed limit is approximately 45 mph.

**Fowler Avenue** runs through the study area classified as a local street, changing to an arterial from Shepherd Avenue south to SR 168. The roadway configuration on Fowler Avenue is mixed due to fronting land uses and undeveloped parcels.

- From Shepherd Avenue to Teague Avenue there are two lanes in the southbound direction and one lane northbound. A bike lane and sidewalk are located along the majority of this section. The Enterprise shared use path crosses Fowler Avenue south of Shepherd Avenue and connects with a shared use path on the west side of Fowler Avenue from the Enterprise trail crossing to Teague Avenue. The speed limit in this section is 45 mph.
- From Teague Avenue to Nees Avenue the ROW narrows and includes one lane in each direction with no sidewalk and bike facilities. The speed limit remains 45 mph.
- From Nees Avenue to SR 168, the cross-section includes four lanes with a center median, and includes bike lanes and sidewalks on each side. The speed limit in this section is 45 mph.

**Temperance Avenue** begins in the center of the Master Plan Area and runs south to SR 168 and a collection of commercial land uses. The roadway is a four lane divided road with bike lanes and sidewalks on each side. The speed limit is 50 mph.

**De Wolf Avenue** runs from Shepherd Avenue south to Owens Mountain Parkway on the eastern edge of the Master Plan Area. The roadway cross section generally has a single lane in each direction with a center median allowing for turn lanes. Bicycle lanes and sidewalks are provided on each side. De Wolf Avenue provides access from the Master Plan Area to the SR 168 freeway via Owens Mountain Parkway. The posted speed limit is 40 mph.

### EAST-WEST

**Shepherd Avenue** has a small section from Fowler Avenue to Sunnyside Avenue that is classified as an arterial rather than an expressway. The roadway narrows to two lanes without a median and no bike or walking facilities. Future development in this area will improve this segment of Shepherd Avenue to be consistent with the rest of the roadway. The speed limit in this section is 40 mph.

**Owens Mountain Parkway** connects to SR 168 and terminates prior to Nees Avenue without providing a connection under existing conditions. Future plans would extend this roadway to connect to Temperance Avenue at Alluvial Avenue. Owens Mountain Parkway is one lane in each direction with a center median and bike lanes on each side. Sidewalks are intermittent where existing development is located on the western section. The roadway pairs with De Wolf Avenue to provide access from the Master Plan Area to SR 168. There are currently no observed posted speed limit signs.

**Nees Avenue** runs through the center of the study area, cutting through suburban neighborhoods where the land use shifts east of Clovis Avenue to a more rural and undeveloped landscape. From Willow Avenue to Minnewawa Avenue the corridor has four lanes with a center turn lane and sidewalk on the majority of both sides. East of Minnewawa Avenue, the corridor is varied with some two lane undivided sections, divided two lane sections, and divided three lane sections. Posted speed limits range from 40 mph to 45 mph.

**Herndon Avenue** is at the southern edge of the study area and connects SR 168 and the northern parts of Fresno to the west. Herndon Avenue is six lanes with a center turn lane. The corridor has sporadic sidewalks adjacent to areas of newer development. The posted speed limit is 45 mph.

## Collectors

The collector streets vary greatly in their configuration and character, as many traverse through developed neighborhoods and undeveloped land. Collector roadways within the study area are listed in Table 1. Each street condition is listed as one of the following:

- **Improved –** The majority of the street cross section has been brought up to current stands and includes sidewalk and bicycle facilities based on context.
- **Unimproved –** The majority of the street cross section has not been brought to current standards and may not include curbs, sidewalk, or bicycle facilities.

- **Mixed –** The street cross section is mixed between improved and unimproved condition, based primarily on frontage of a developed neighborhood or commercial tract.

- **Table 1: Collector Streets**

| | Street Name | Condition |
|---|---|---|
| North/South | Sunnyside Avenue | Mixed |
| | Locan Avenue | Mixed |
| | Peach Avenue | Improved |
| | Armstrong Avenue | Mixed |
| | Leonard Avenue | Improved |
| | Minnewawa Avenue | Improved |
| | Teaque Avenue | Mixed |
| East/West | Powers Avenue / Dutch Avenue | Improved |
| | Harlan Ranch Avenue | Improved |
| | Highland Avenue | Improved |
| | Tollhouse Rd. | Unimproved |
| | Alluvial Avenue | Mixed |

## Local Streets

Within the study area, there are many local streets providing access to residential single family housing. Many of the local streets within neighborhood developments do have sidewalks on both sides of the street, however streets in less dense residential or undeveloped areas do not.

### MASTER PLAN AREA

Within the Master Plan Area, which is currently outside of the city of Clovis, there are several local streets serving residents. The major local streets within the Master Plan Area are described below.

**Behymer Avenue** connects the north edge of the Master Plan Area west to Willow Avenue. It has two lanes and no sidewalk or bike facilities. Behymer Avenue is in a rural residential context and is posted at 45 mph.

**Fowler Avenue** changes character significantly north of Shepherd Avenue. It runs through the center of the Master Plan Area and provides rural residential access. Fowler Avenue is two lanes without sidewalk or bike facilities and is posted at 45 mph. It connects the city of Clovis to the south with Behymer Avenue to the north.

**Perrin Avenue** is a short east to west connecting street providing rural residential access. It is two lanes, without a center stripe, and does not have sidewalk or bike facilities. It is also split into two sections, divided by parcels in the center. It connects to Sunnyside Avenue and Fowler Avenue. There are no posted speed limit signs.

**Sunnyside Avenue** north of Shepherd Avenue maintains a rural residential context, but does not have a center stripe, nor does it have sidewalk or bike facilities. It connects north to Perrin Avenue. There are no posted speed limit signs but there is an "end 45 speed limit" sign indicating the speed limit is 55 mph per its roadway classification.

**Burgan Avenue** connects Perrin Avenue south to Shepherd Avenue. It provides rural residential access, with two lanes, no center stripe and does not have sidewalk or bike facilities. No speed limit is posted.

# TRANSIT

The following section describes existing transit services near the study area. These routes are shown graphically in Figure 2. Detailed information on served areas and hours of operation are found in Table 2.

## Fresno Area Express (FAX)

FAX provides fixed route transit services serving the city of Fresno and a portion of the City of Clovis and is the largest transit service provider in the region with almost seven million annual boardings. Handy Ride is the paratransit service provider for the FAX system.

**Route 3** serves the western edge of the study area along Willow Avenue terminating at Clovis Community College. Service runs every 30 minutes each day of the week.

## Clovis Transit

Clovis Transit is the principal transit service in the city of Clovis and provides fixed route and paratransit services. Clovis Transit connects with Fresno Area Express (FAX). Round Up is the paratransit service for the Clovis Transit system.

**Route 10** is a circulator route that provides service to the western portion of Clovis and connects to the Clovis Civic Center.

**Route 50** is a circulator route serving the northeast and southeast section of Clovis.

**Route 80** provides local services from central Clovis to the Buchanan education complex.

## Fresno County Rural Transit Agency (FCRTA)

FCRTA provides general public transit service to rural communities throughout Fresno County. FCRTA provides both scheduled, fixed route services with designated bus stops along specific routes, as well as reservation-based, demand responsive service that offers curb-to-curb transportation.

## Auberry Route

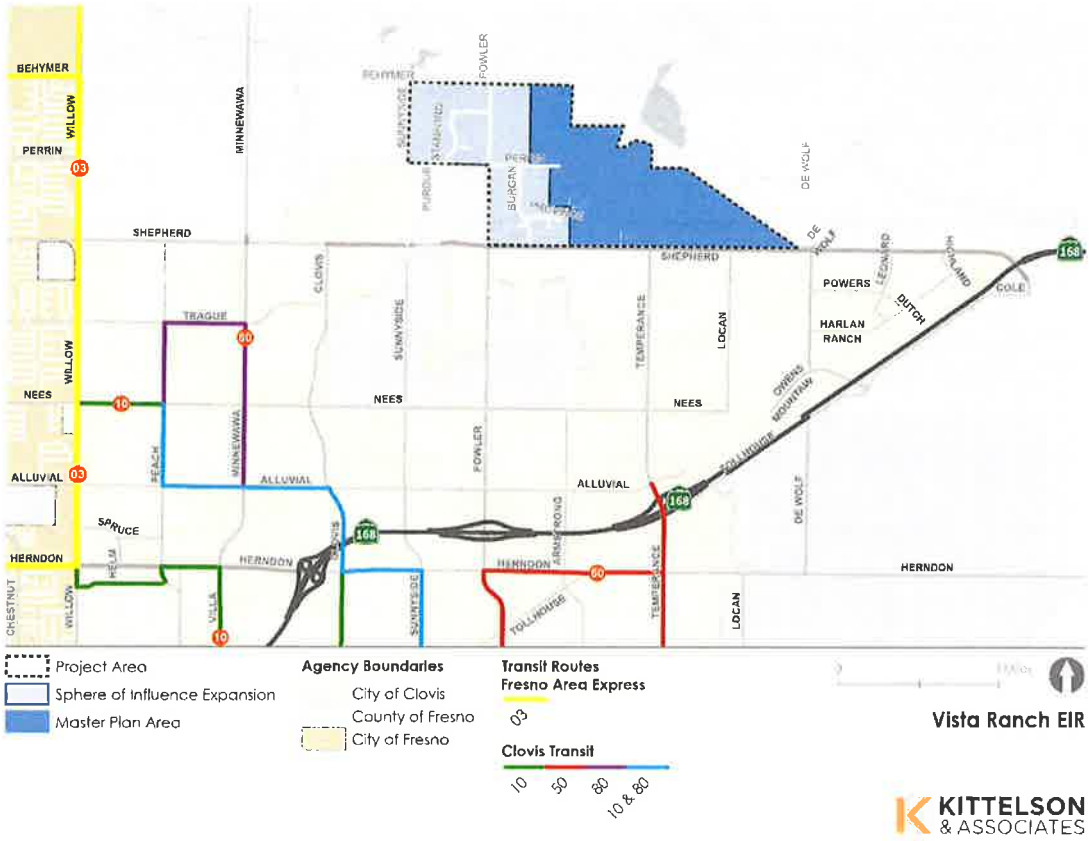
The Auberry transit route provides connection from Clovis to the Auberry area foothill communities northeast of Clovis. The service is demand responsive and operates one day per week with 24-hr advanced notice.

**Table 2: Bus Routes Serving the Study Area**

| | Route | Serving | Day | Times | | Frequency |
|---|---|---|---|---|---|---|
| | | **Fresno Area Express** | | | | |
| Existing | 3 | Route 3 connects Clovis Community College to Herdon. The route provides access to several shopping centers and medical facilities along the route. | Mon – Fri | 5:45am | 8:45am | 30min |
| | | | Sat – Sun | 6:45am | 6:15pm | 30min |
| | | **Clovis Transit** | | | | |
| | 10 | Route 10 connects north Clovis to Fresno State University, serving Clovis Civic Center, and Peachwood Medical Center. | Mon – Fri | 6:15am | 6:30pm | 30min |
| | | | Sat | 7:30am | 3:30pm | 30min |
| | 50 | Route 50 connects medial facilities near Herdon Avenue to Clovis Civic Center, and south to several schools and shopping centers. | Mon – Fri | 6:05am | 5:35pm | 30min |
| | | | Sat | 7:35am | 2:05pm | 60min |
| | 80 | Route 80 serves the Buchanan Education complex and connects to Clovis Civic Center, passing several parks and shopping centers including Bicentennial Park and Walmart, respectively. | Mon – Fri | 6:15am | 6:30pm | 30min |
| | | | Sat | 7:30am | 3:30pm | 30min |
| | | **Fresno County Rural Transit Agency** | | | | |
| | Auberry | The Auberry transit route provides connection between the foothill communities in Northeast Fresno County and the intercity area of Clovis and Fresno. | Tues | 8am | 5pm | On demand |

*Source: www.fresno.gov/fax, www.ruraltransit.org/route-services, https://clovistransit.com, accessed Jan 26, 2024*

**Figure 2: Existing Transit Service in the Study Area**



# BICYCLE AND PEDESTRIAN FACILITIES

Bicycle and pedestrian facilities are important components of the transportation network in the study area. They not only offer non-vehicular opportunities for both commute and recreational trips but also provide connections to the Clovis transit network and opportunities to shop, dine, and accomplish other daily needs without using a car.

## Existing Bicycle Facilities

Bicycle facilities are defined by the following four classes[1]:

- Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted.
- Class III – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.
- Class IV – Provides a restricted right-of-way designated lane for the exclusive use of bicyclists that is separated by a vertical element to provide further separation from motor vehicle traffic.

In Fall 2023, the City of Clovis adopted their Active Transportation Plan (ATP), which provides a clear vision for the active transportation network and provides strategies to implement the planned network. The following bikeways are currently present within the study area, but many are at intermittent locations on the listed roads. They are shown graphically in Figure 3.

- Class I Bike Paths
  - Dry Creek Trail (Clovis Avenue)
  - Enterprise Trail
  - Multiple Neighborhood trails on east end of Study Area
- Class II Bike Lanes
  - Shepherd Avenue
  - Teague Avenue
  - Alluvial Avenue
  - Herndon Avenue
  - Willow Avenue
  - Peach Avenue
  - Clovis Avenue
  - Sunnyside Avenue
  - Fowler Avenue
  - Temperance Avenue
  - Locan Avenue
  - DeWolf Avenue

[1] As detailed in Chapter 1000 of the Highway Design Manual (Caltrans, 2020).

## Planned and Proposed Bicycle Facilities

The Clovis ATP includes proposed bike facilities in the study area. They are listed below and shown in Figure 3. The planned alignments aim to fill gaps in the existing network and enhance safety and comfort for people biking.

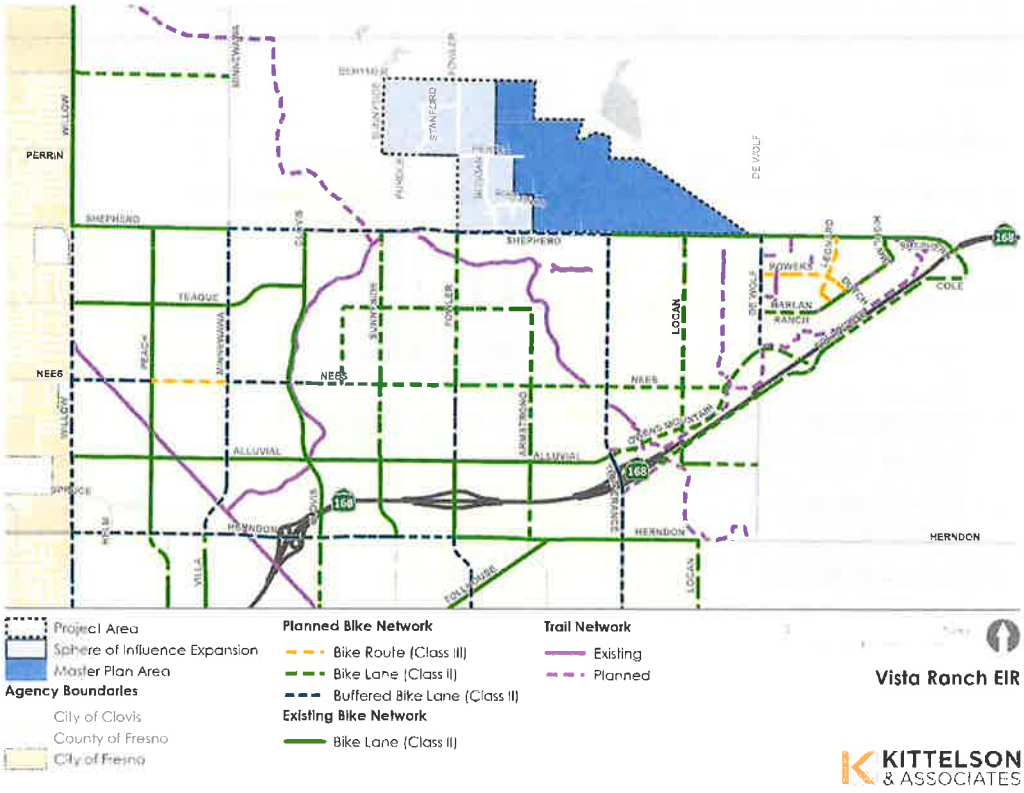
- Class I Bike Paths
  - Various connections that fill gaps in the existing Class I network are proposed.
- Class II Bike Lanes

  Conventional Bike Lane (No Buffer)
  - Behymer Avenue
  - Teague Avenue
  - Nees Avenue
  - Alluvial Avenue
  - Clovis Avenue
  - Marion Avenue
  - Sunnyside Avenue
  - Fowler Avenue
  - Armstrong Avenue
  - Locan Avenue
  - Owens Mountain Pkwy.
  - Harlan Ranch Blvd.

  Buffered Bike Lane
  - Shepherd Avenue
  - Nees Avenue
  - Herndon Avenue
  - Willow Avenue
  - Minnewawa Avenue
  - Fowler Avenue
  - Temperance Avenue
  - DeWolf Avenue

- Class III Bike Routes
  - Nees Avenue
  - Powers/Dutch Avenue
  - Leonard Avenue

## Figure 3: Existing and Proposed Bike Facilities in the Study Area



## Pedestrian Facilities

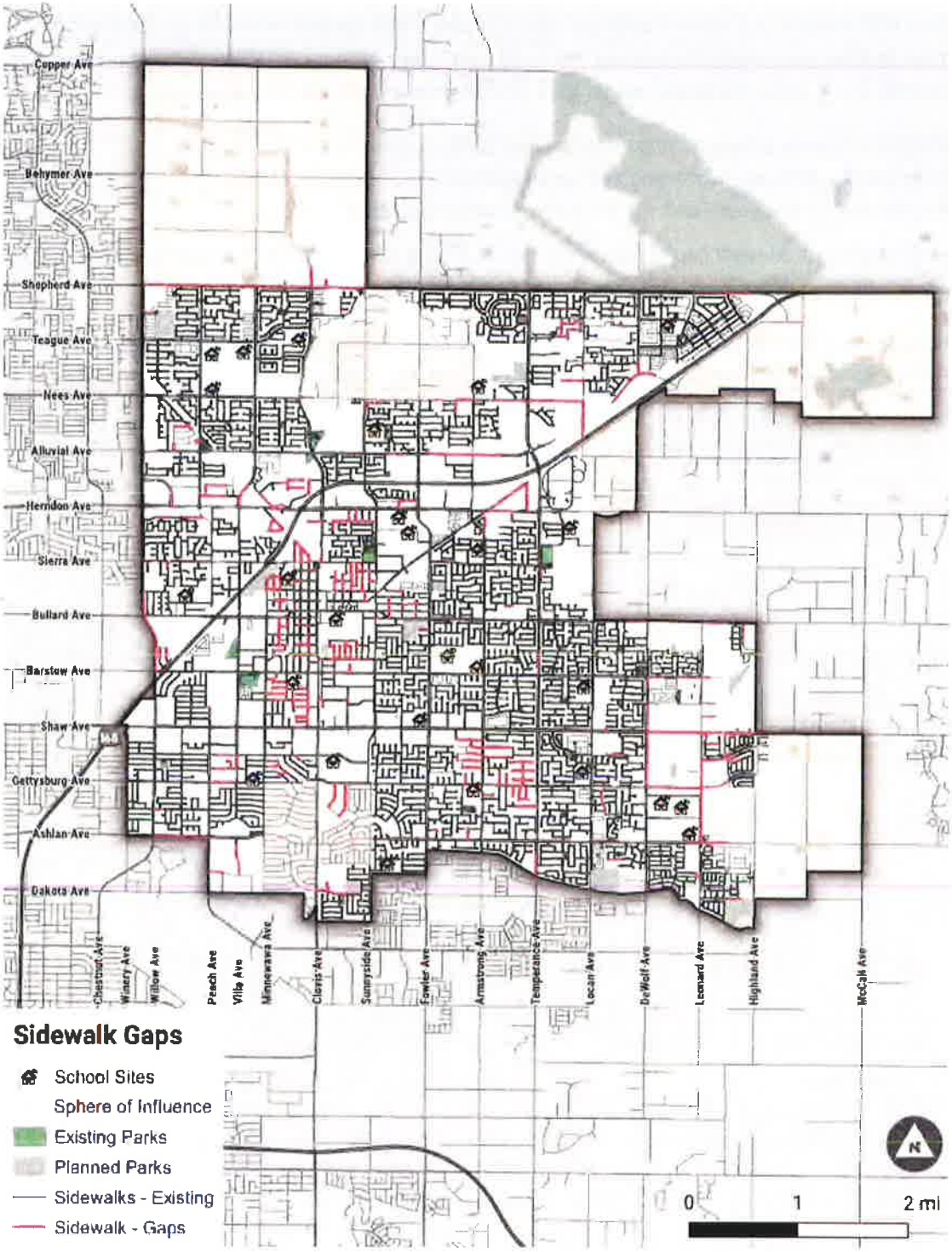
The Clovis ATP assesses and recommends pedestrian facility enhancements as well as bicycle facilities. Pedestrian facilities are present throughout the study area, however there are sidewalk gaps present intermittently along some roadways. Longer gaps on collector and arterial roadways include:

- Shepherd Avenue between Willow Avenue and Sunnyside Avenue
- Nees Avenue between Armstrong and Locan Avenue
- Alluvial Avenue between Fowler Avenue and Armstrong Avenue

Existing sidewalk and sidewalk gaps are shown below in Figure 4. The Clovis ATP provides a prioritized list of sidewalk infill segments. Those within the Study Area are listed below:

- Nees Avenue from Whittier Avenue to Armstrong Avenue (0.25 miles)
- Alluvial Avenue from Fordham Avenue to West of Renn Avenue (0.14 miles)

**Figure 4: Existing and Missing Sidewalks in the Study Area**



# Regulatory Setting

This section summarizes applicable federal, state, regional, and local plans, laws, and regulations that are relevant to this analysis. This information provides a context for the discussion related to the Project's consistency with applicable policies, plans, laws, and regulations.

## FEDERAL

No federal plans, policies, regulations, or laws pertaining to transportation have been determined to be applicable to this Project.

## STATE

Senate Bill 743 (SB 743) was signed into law in September 2013. SB 743 (Steinberg, 2013) required changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, CEQA transportation analyses of individual projects determined impacts in the circulation system in terms of roadway delay and/or capacity at specific locations. SB 743 changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. Those proposed changes identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. Since the bill has gone into effect, automobile delay, as measured by "level of service" and other similar metrics, no longer constitutes a significant environmental effect under CEQA. Auto-mobility (often expressed as "LOS") may continue to be a measure for planning purposes.[2]

In December 2018, the California Governor's Office of Planning and Research (OPR) and the State Natural Resources Agency submitted updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law approved the updated CEQA Guidelines, thus implementing SB 743 and making VMT the primary metric used to analyze transportation impacts. The final text, final statement of reasons, and related materials are posted at http://resources.ca.gov/ceqa. The changes have been approved by the Office of Administrative Law and are now in effect. For land use and transportation projects, SB 743-compliant CEQA analysis became mandatory on July 1, 2020.

## REGIONAL

### Fresno Council of Governments Regional Transportation Plan

The Fresno COG is a voluntary association of local governments and a regional planning agency comprised of 16 member jurisdictions, including the city of Clovis. The members are represented by a Policy Board consisting of mayors of each incorporated city, and the Chairperson of the County Board of

[2] Governor's Office of Planning and Research, "Technical Advisory on Evaluating Transportation Impacts in CEQA," December, 2018.

Supervisors, or their designated elected official. The Fresno COG's purpose is to establish a consensus on the needs of the Fresno County area and further action plans for issues related to the Fresno County region. The current regional transportation plan, known as the Regional Transportation Plan & Sustainable Communities Strategy (RTP), was adopted in 2022. The RTP addresses GHG emissions reductions and other air emissions related to transportation, with the goal of preparing for future growth in a sustainable way. The plan specifies how funding will be sourced and financed for the region's planned transportation investments, ongoing operations, and maintenance. The goals, objectives, and policies of the RTP are established to direct the courses of action that will provide efficient, integrated multimodal transportation systems to serve the mobility needs of people, including accessible pedestrian and bicycle facilities, and freight, while fostering economic prosperity and development, and minimizing mobile sources of air pollution. The five main goals of the RTP include:

- GOAL 1: Improved mobility and accessibility for all
- GOAL 2: Vibrant communities that are accessible by sustainable transportation options.
- GOAL 3: A safe, well-maintained, efficient, and climate-resilient multimodal transportation network
- GOAL 4: A transportation network that supports a sustainable and vibrant economy.
- GOAL 5: A region embracing clean transportation, technology, and innovation.

## Fresno Council of Governments Multijurisdictional Local Road Safety Plan (MLRSP)

The MLRSP was completed in 2022 and provides an in depth look at areas of safety concern within the city of Clovis and other cities within the planning area. The report identifies priority segments and intersections in the city of Clovis and potential crash reduction treatments to apply. The plan also provides strategies for education, enforcement, engineering, and emergency services to improve safety outcomes. Intersections near the Master Plan Area which were identified in the 95$^{th}$ percentile of Crash Severity Scores include:

- Shepherd Avenue at Minnewawa Avenue
- Shepherd Avenue at De Wolf Avenue (western intersection)

## Fresno County Congestion Management Process

In June 1990, California voters approved legislation that required Congestion Management Plans be developed in urbanized counties to address congestion on California's highways and roads.
The Fresno County Congestion Management Process (CMP) implements this requirement, and its responsibilities include providing information on transportation system performance and assessing alternative strategies for alleviating congestion and improving mobility for people and goods to levels that meet State and local needs. The Fresno County CMP identifies four general objectives:

1. Optimize the transportation facilities through efficient system management;
2. Invest in strategies that reduce travel demand, improve system performance, increase safety, and provide effective incident management;
3. Reduce VMT by encouraging alternative modes of transportation and promotion of sustainable land use development; and

4. improve public transit, extend bicycle and pedestrian systems, and promote car-sharing and bike-sharing programs to facilitate the development of an integrated multimodal transportation system in the Fresno region.

# LOCAL

## City of Clovis General Plan – Circulation Element

The City of Clovis adopted the General Plan[3] in August 2014 as an update to the previous General Plan approved in 1993. It serves as the City's guide for the continued development, enhancement, and revitalization of the City of Clovis. The following policies related to transportation and circulation are applicable to the Project:

- **Policy 1.1: Multimodal network.** The city shall plan, design, operate, and maintain the transportation network to promote safe and convenient travel for all users: pedestrians, bicyclists, transit riders, freight, and motorists.
- **Policy 1.2: Transportation decisions.** Decisions should balance the comfort, convenience, and safety of pedestrians, bicyclists, and motorists.
- **Policy 1.3: Age and mobility.** The design of roadways shall consider all potential users, including children, seniors, and persons with disabilities.
- **Policy 1.4: Jobs and housing.** Encourage infill development that would provide jobs and services closer to housing, and vice versa, to reduce citywide vehicle miles travelled and effectively utilize the existing transportation infrastructure.
- **Policy 1.5: Neighborhood connectivity.** The transportation network shall provide multimodal access between neighborhoods and neighborhood-serving uses (educational, recreational, or neighborhood commercial uses).
- **Policy 1.6: Internal circulation.** New development shall utilize a grid or modified-grid street pattern. Areas designated for residential and mixed-use village developments should feature short block lengths of 200 to 600 feet.
- **Policy 1.7: Narrow streets.** The city may permit curb-to-curb dimensions that are narrower than current standards on local streets to promote pedestrian and bicycle connectivity and enhance safety.
- **Policy 2.2: Multimodal LOS.** Monitor the evolution of multimodal level of service (MMLOS) standards. The city may adopt MMLOS standards when appropriate.
- **Policy 2.3: Fair share costs.** New development shall pay its fair share of the cost for circulation improvements in accordance with the city's traffic fee mitigation program.
- **Policy 2.4: Right-of-way dedication.** The city may require right-of-way dedication essential to the circulation system in conjunction with any development or annexation. The City shall request the County of Fresno to apply the same requirements in the Clovis planning area.
- **Policy 3.1**: **Traffic calming**. Employ traffic-calming measures in new developments and existing neighborhoods to control traffic speeds and maintain safety.

[3] City of Clovis General Plan, August 25, 2014.

- **Policy 3.4: Road diets.** Minimize roadway width as feasible to serve adjacent neighborhoods while maintaining sufficient space for public safety services.
- **Policy 3.5: Roadway widening.** Only consider street widening or intersection expansions after considering multimodal alternative improvements to non-automotive facilities.
- **Policy 3.6: Soundwalls.** Design roadway networks to disperse traffic to minimize traffic levels. Discourage soundwalls along new collector and local streets when feasible.
- **Policy 3.7: Conflict points.** Minimize the number of and enhance safety at vehicular, pedestrian, and bicycle conflict points.
- **Policy 3.8: Access management.** Minimize access points and curb cuts along arterials and prohibit them within 200 feet of an intersection where possible. Eliminate and/or consolidate driveways when new development occurs or when traffic operation or safety warrants.
- **Policy 3.9: Park-once.** Encourage "park-once" designs where convenient, centralized public parking areas are accompanied by safe, visible, and well-marked access to sidewalks and businesses.
- **Policy 3.10: Pedestrian access and circulation.** Entrances at signalized intersections should provide sidewalks on both sides of the entrance that connect to an internal pedestrian pathway to businesses and throughout nonresidential parking lots larger than 50 spaces.
- **Policy 3.11: Right-of-way design.** Design landscaped parkways, medians, and rights-of-way as aesthetic buffers to improve the community's appearance and encourage non-motorized transportation.
- **Policy 3.12: Residential orientation.** Where feasible, residential development should face local and collector streets to increase visibility and safety of travelers along the streets and encourage pedestrian and bicycle access.
- **Policy 5.2: Development-funded facilities.** Require development to fund and construct facilities as shown in the Bicycle Transportation Plan when facilities are in or adjacent to the development.
- **Policy 5.3: Pathways.** Encourage pathways and other pedestrian amenities in Urban Centers and new developments of 10 acres or larger.
- **Policy 5.4: Homeowner associations.** The city may require homeowner associations to maintain pathways and other bicycle and pedestrian facilities within the homeowner association area.
- **Policy 5.5: Pedestrian access.** Require sidewalks, paths, and crosswalks to provide access to schools, parks, and other activity centers and to provide general pedestrian connectivity throughout the city.

The General Plan has policies related to maintaining acceptable Levels of Service (LOS) outside of some permitted exceptions. However, LOS can no longer be used for CEQA evaluations and is therefore not relevant to this memorandum focusing on CEQA impacts. Additional analyses of the Master Plan Area will be documented in another report that will detail LOS.

## City of Clovis Active Transportation Plan (ATP)

The Clovis ATP was adopted in fall of 2023 and provides a vision for Clovis to complete a network of walking, biking and shared use trail facilities that are convenient, safe, and easy to use. The network should support and encourage travel between and within neighborhoods. The plan developed recommended bicycle, pedestrian and trail networks, and prioritized projects to meet the most need, more quickly. These prioritized projects were guided by the goals of the plan, which are listed below:

- Safety and Comfort – Improve the safety of people walking and biking.

- Connectivity – Develop a well-connected network of trails, walkways, and bikeways.
- Mode Shift – Increase the share of people who walk or ride a bike to get to work, school, shopping, and other activities.
- Equity – Create a network that allows people of all physical abilities and socioeconomic circumstances the ability to travel safely throughout the city without a car.
- Recreation – Increase access to recreation by providing access to trails, walkways, and bikeways.

# CEQA Transportation Analysis

The transportation analysis assesses how the study area's transportation system would operate with the implementation of the proposed Master Plan. This analysis includes effects that would result in significant impacts under the California Environmental Quality Act (CEQA) guidelines.

## CEQA Significance Criteria

The Project's impact is not considered to be significant unless it would:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
b. Conflict or be inconsistent with CEQA Guideline section 15064.3, subdivision (b).
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
d. Result in inadequate emergency access.

Significance criteria "b" is related to the implementation of vehicle miles traveled (VMT) as the primary performance metric. The following criteria are used to assess a significant impact related to VMT consistent with the city of Clovis "Transportation Impact Analysis Guidelines" dated September 15, 2022:

- **Residential** – A proposed project exceeding a level of 13 percent below existing average VMT per capita in Fresno County.
    - Regional Average: 16.1 VMT/capita
    - Impact Threshold: 14.1 VMT/capita
- **Office** – A proposed project exceeding a level of 13 percent below existing average VMT per employee in Fresno County.
    - Regional Average: 25.6 VMT/employee
    - Impact Threshold: 22.3 VMT/employee
- **Retail** – A net increase in total VMT. The total VMT for the region without and with the project is calculated. The difference between the two scenarios is the net change in total VMT that is attributable to the project.

# CEQA PROJECT IMPACTS AND PROPOSED MITIGATIONS

**TRAF-1** **The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This would be considered a less than significant impact.**

The Proposed Project and its effects were compared against local, regional, and state programs, plans, ordinances, and policies addressing the circulation system, as described previously. The documents governing the plans and policies addressing the circulation system in the area and a discussion of whether the Proposed Project would conflict with them include:

- Fresno Council of Governments Regional Transportation Plan (RTP)
    - The goals, objectives, and policies of the RTP are established to direct the courses of action that will provide efficient, integrated multimodal transportation systems to serve the mobility needs of people, including accessible pedestrian and bicycle facilities, and freight, while fostering economic prosperity and development, and minimizing mobile sources of air pollution.

      The Project objectives include providing infrastructure that meets City standards and is integrated with existing and planned facilities while also providing a strong pedestrian network to link local commercial and neighborhood together. This is consistent with the RTP since it would be accessible, provide a safe multimodal transportation network, and support a sustainable and vibrant economy by providing housing types, sizes, and densities that provide for local and regional housing needs.

- Fresno Council of Governments Multijurisdictional Local Road Safety Plan (MLRSP)
    - This plan identifies priority intersections and segments and potential reduction treatments to improve the safety of transportation infrastructure with the highest crash severity scores. Two of the intersections identified are within the study area for the transportation analysis. Since the Project is not proposing modification at the two identified intersections, the Project would not interfere with the implementation of the MLRSP.

- Fresno County Congestion Management Plan (CMP)
    - The CMP is responsible for monitoring the transportation infrastructure and developing deficiency plans to improve the transportation infrastructure that is not meeting standards. The Project is proposing development in a master plan area and is not anticipated to affect intersections and roadway segments that are not internal or abutting the Project. There are no anticipated design features that would prevent the normal analysis and deficiency reporting for the CMP.

- City of Clovis General Plan

- The overarching goal of the General Plan circulation element is to create a comprehensive and well-maintained multimodal circulation system that provides for the safe and efficient movement of people and goods. This includes goals for "complete streets," making bicycle and transit networks a functional alternative, and a complete system of trails and pathways assessable to all. This aligns with the Project objectives which call for a Project that integrates and supports active and public transportation, encourage walkability and safe pedestrian/bicycle routes to all land uses, and a system of trails, parks, and open spaces that connect logically with greater Clovis.

- City of Clovis Active Transportation Plan (ATP)
  - The ATP identifies roadways where planned bicycle and pedestrian infrastructure will be implemented. In addition to providing internal roadways that provide multimodal streets per the General Plan, the Project would be required to improve its frontage which would help the ATP in filling in gaps in the bicycle and pedestrian network such as along Shepherd Avenue. The Project is not anticipated to affect transportation infrastructure away from the boundaries in a way that would prevent the proposed network in the ATP from being completed.

Based on this assessment, the Project is not anticipated to conflict with policies, plans, and programs addressing the circulation system for alternative modes. Therefore, the impact would be **less than significant,** and no mitigation measures would be required.

**TRAF-2** **The proposed project would conflict with or be inconsistent with CEQA Guideline section 15064.3, subdivision (b). This would be considered a significant and unavoidable impact.**

The Fresno COG activity-based travel demand model was used to estimate base year (2019) VMT for the transportation analysis zones (TAZs) that comprise the Project. Table 3 presents VMT per capita and VMT per employee findings for base year conditions in Fresno County and for the Project at buildout. The Project is considered to have a significant impact if the VMT per capita or VMT per employee of the Project exceeds a threshold based on 13 percent below the regional averages for Fresno County.

**Table 3: VMT Per Capita and Per Employee**

| | VMT per Capita | VMT per Employee |
|---|---|---|
| Fresno County | 16.1 | 25.6 |
| Impact Threshold (13% below regional average) | 14.1 | 22.3 |
| Project Area | 30.4 | 44.3 |
| Percent Compared to Impact Threshold | +116% | +99% |
| Significant Impact | **Yes** | **Yes** |

Source: Kittelson & Associates, 2024, based on Fresno COG travel model and VMT calculation tool

Table 4 lists the total regional daily VMT for the base year with the Project, without the retail commercial component and with the retail commercial component. The total regional VMT is projected to decrease with the addition of retail commercial uses within the Project. This indicates that the proposed retail uses would provide services close to residents and reduce the need to make longer trips to access services.

The Project would exceed the impact thresholds for both residential and employment land uses. This would have a **significant impact** for residential and employment uses. The Project retail uses would decrease total regional VMT. This would have a **less than significant impact** for retail uses.

**Table 4: Regional VMT Without and With Retail**

| | Total Regional Daily VMT |
|---|---|
| With Project Without Retail | 22,029,977 |
| With Project With Retail | 22,026,474 |
| Difference | -3,503 |
| Significant Impact | **No** |

Source: Kittelson & Associates, 2024, based on Fresno COG travel model

## Mitigation

Mitigation for VMT impacts for residential and employment uses would include mitigation measures TRAF-2-1 through TRAF-2-5. The potential effectiveness of mitigation measures for VMT has been estimated using the CAPCOA *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*[4].

**Mitigation Measure TRAF-2-1:** Future employers within the Project shall implement a commute trip reduction program, consistent with other trip reduction programs in the City of Clovis. The program would include the following components:

- trip reduction targets
- measures to discourage single occupancy vehicles while encouraging alternative modes of transportation such as carpooling, ridesharing, vanpooling, subsidized transit passes and other benefits,
- include a guaranteed ride home for eligible employers,
- establish applicable fees and funding mechanisms,
- define monitoring measures and frequency, and strategies for non-compliance.

The CAPCOA Handbook Measure T-5 estimates that a voluntary commute trip reduction program can reduce commute VMT by up to 4.0 percent with full participation of all eligible employees. Commute VMT to and from employers within Vista Ranch is projected to account for a maximum of 7.5 percent of total VMT. Therefore, the maximum VMT reduction from a commute trip reduction program would be 4.0 percent times 7.5 percent or 0.3 percent VMT reduction.

**Mitigation Measure TRAF-2-2:** Provide bicycle facilities that include bike parking and bike lockers. The CAPCOA Handbook Measure T-10 estimates that provision of end-of-trip bicycle facilities can reduce commute VMT by up to 4.4 percent depending on the existing propensity for commuters to use bicycles. The potential VMT reduction for employers in Clovis is estimated at 0.61 percent. Commute VMT to and from employers within Vista Ranch is projected to account for a maximum of 7.5 percent of total VMT. Therefore, the maximum VMT reduction from bicycle end-of-trip facilities would be 0.61 percent times 7.5 percent or 0.05 percent VMT reduction.

**Mitigation Measure TRAF-2-3:** Provide a well-connected street network, particularly for non-motorized connections. Characteristics of street network connectivity include short block lengths, numerous three and four-way intersections, and minimal dead-ends (cul-de-sacs). Street connectivity helps to facilitate shorter vehicle trips and greater numbers of walk and bike trips and thus a reduction in VMT. CAPCOA Handbook Measure T-17 uses increased vehicle intersection density as a proxy for street connectivity improvements. The CAPCOA Handbook estimates that VMT can be reduced up to 30 percent if a development provides a street grid that has much greater density (up to about three times) of streets and

[4] California Air Pollution Control Officers Association (CAPCOA), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December, 2021, https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf

street intersections than the average American street grid density of 36 street intersections per square mile.

Based on the Vista Ranch Illustrative Plan in the September 15, 2023 Draft of the Vista Ranch Master Development Plan, there would be approximately 53 intersections within the Master Plan area that would provide direct network connectivity connecting clusters of housing with other clusters and the main street network. The total Master Plan area is approximately 507 acres (0.79 square miles), resulting in an average intersection density of about 67 street intersections per square mile providing street network connectivity for all modes of travel. The proposed intersection density would be 86 percent higher than the American average. Therefore, the proposed street grid would be expected to provide up to a 12 percent reduction in VMT compared to typical development areas.

The proposed site plan shows that many of the local streets and residences would be separated from the collectors and arterials within the site by walls or fencing except at a relatively small number of vehicle access intersections. Adding additional bicycle and pedestrian access points through these walls or fences to facilitate more direct pedestrian and bicycle connections has the potential to reduce VMT by providing more direct paths of travel between the various neighborhoods for non-auto modes.

**Mitigation Measure TRAF-2-4:** Increase the length of the area bicycle network, including separated trails available to bicycles as well as on-street bike lanes. The Project proposes to add 4.5 miles of Class I separated trails. This would increase the mileage of bicycle facilities in Clovis from the existing 21.2 miles to 25.7 miles, an increase of 21 percent. The CAPCOA Handbook Measure T-20 estimates that a 21 percent increase in bike network mileage could reduce citywide VMT by 0.01 percent. The total daily VMT generated in Clovis is approximately 4,285,900, so the Project bike network would reduce daily VMT by approximately 350. This would represent a 0.2 percent reduction from the unmitigated Project total daily VMT of 188,900. Note that these VMT reductions would occur citywide and would not exclusively affect Project trips.

**Mitigation Measure TRAF-2-5:** Contribute to implementation of expanded transit service in Clovis, including potentially service to the Project area. Implementation of expanded transit service would require both capital expenditures for support facilities, including construction of transit stops and facilitating extensions of future transit routes. The CAPCOA Handbook Measure T-25 estimates that a 25 percent increase in transit service hours could reduce citywide VMT by 0.3 percent. The total daily VMT generated in Clovis is approximately 4,285,900, so the expanded transit network would reduce daily VMT by approximately 12,600. This would represent a 6.7 percent reduction from the unmitigated Project total daily VMT of 188,900. Note that these VMT reductions would occur citywide and would not exclusively affect Project trips.

## SIGNIFICANCE AFTER MITIGATION

VMT reduction depends on factors such as actual implementation of planned land use development, demographic change, household preferences for housing types and locations, the cost of fuel, and the competitiveness of transit relative to driving, which relates to congestion along vehicular commute routes that are not under the Project's jurisdiction, as well as transit provided by parties other than the Project or the city of Clovis. The feasibility and effectiveness of the mitigation measures is either insufficient or unknown at this time. The Project cannot demonstrate definitively that implementation of these policies

would achieve VMT reductions to meet the VMT per capita or VMT per employee thresholds. With implementation of the Project and the recommended mitigation measures, this impact would remain **significant and unavoidable.**

**TRAF-3 The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). This would be considered a less than significant impact.**

The Master Plan Area implements a desire for a mixed use planned community as depicted in the city of Clovis General Plan and proposed an amended Focus Area 13a. The proposed Master Plan will be a designated land use of Mixed Use Village, with multiple zoned districts, within focus area 13a. The Master Plan Area includes the following guiding principles related to transportation and hazards:

- Provide infrastructure that meets City standards and is integrated with existing and planned facilities and connections.
- Develop a strong pedestrian network that links activities, recreational amenities, local commercial and neighborhoods together.
- Establish a logical phasing plan designed to ensure that each phase of development would include necessary public improvements required to meet City standards.

Buildout of the proposed Master Plan would result in some changes to the City's circulation network in the vicinity of the project but would not increase hazards or incompatible uses due to design features. All future roadway system improvements associated with development activities under the Master Plan would be designed in accordance with the established roadway design standards, and as depicted in the Circulation Element of the General Plan.

These improvements will be subject to review and future consideration by the city of Clovis. An evaluation of the roadway alignments, intersection geometrics, and traffic control features will be needed during development application. Roadway improvements would have to be made in accordance with the City's Circulation Plan, roadway functional design guidelines, and would have to meet design guidelines such as the accessibility requirements of Title 24 (California Building Code), ADA and PROWAG standards, California Manual of Uniform Traffic Control Devices (MUTCD), and the Caltrans Roadway Design Manual.

Implementation of the Master Plan would not result in hazardous conditions or create conflicting uses. With implementation of policies and ordinance listed in this report, and application of the conditions of approval at the time of review of land development projects, the Master Plan would be designed to ensure that no hazardous circulation conditions are created as a result of implementation of the proposed project. The Master Plan would implement components of the roadway system consistent with the City's standards and guidelines. Therefore, potential impacts related to hazards due to a geometric design feature or incompatible uses would be **less than significant**, and no mitigation measures would be required.

**TRAF-4 The proposed project would result in adequate emergency access. This would be considered a less than significant impact.**

Emergency response requires a balance of emergency response time and evacuation needs with other community concerns, such as urban design, walking and biking needs, and traffic calming. Future roadway improvements associated with buildout of the Master Plan Area would be made in accordance with the city of Clovis General Plan Circulation Element and roadway functional design guidelines.

With the application of the conditions of approval at the time of review of land development projects, the Master Plan Area would be designed to ensure that adequate emergency access is provided. The Master Plan would implement components of the roadway system consistent with the City's General Plan. Therefore, impacts related to inadequate emergency access would be **less than significant**, and no mitigation measures would be required.

# K.3 - Supplemental Traffic Analysis

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# SUPPLEMENTAL TRAFFIC ANALYSES

## *Proposed Vista Ranch Project*

***Clovis, California***

***Prepared For:***

FirstCarbon Solutions
250 Commerce, Suite 210
Irvine, California 92602

***Date:***

September 12, 2025

***Job No.:***

25-010.01

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Ms. Laura Campion
FirstCarbon Solutions
250 Commerce, Suite 210
Irvine, California 92602

September 12, 2025

Subject: Supplemental Traffic Analyses
Proposed Vista Ranch Project
Clovis, California

Dear Ms. Campion:

## 1.0 INTRODUCTION

This report presents the results of traffic analyses intended to supplement the Vista Ranch Transportation Impact Analysis report dated September 4, 2024 by Kittelson & Associates and updated December 9, 2024 (hereinafter referred to as "the TIA" or "TIA") and the Technical Memorandum dated June 27, 2024 by Kittelson & Associates regarding the Clovis Vista Ranch CEQA Transportation Evaluation.

One of the purposes of the supplemental analyses is to address minor changes in the project description and to confirm whether the TIA (and conclusions regarding vehicle miles traveled) remain applicable and valid in light of those changes. This supplemental analysis also addresses comments made on the Notice of Preparation (NOP) for the project related to transportation. Specifically, additional near-term analyses have been performed to consider conditions that would occur with buildout of the proposed residential portions of the Vista Ranch project in the absence of development of commercial portions of the project. In addition, collision records have been reviewed to identify intersections with potential existing safety concerns. Finally, this report presents a summary of potential mitigation measures to reduce the number of vehicle miles traveled (VMT) to supplement the transportation impact analysis presented in the TIA.

## 2.0 PROJECT DESCRIPTION

The proposed Vista Ranch Project includes phasing for approvals that would facilitate a 368-acre mixed-use development, as well as plan-level approvals and a planning boundary modification that would include a larger area, as follows:

1. Expansion of the City of Clovis Sphere of Influence (SOI) to include approximately 952 acres, to be referred to as the Vista Ranch SOI Expansion (SOI Expansion), to be analyzed at a program level in a Recirculated Draft Environmental Impact Report (RDEIR).
2. Adoption of the Vista Ranch Master Plan (Master Plan) to guide development within approximately 507 acres of the SOI Expansion, including pre-zoning and annexation of the Master Plan area. Adoption of the Master Plan and annexation of the Master Plan area are to be analyzed at a program level in the RDEIR.

3. Approval and implementation of the Vista Ranch Development (Development), consisting of approximately 368 acres of the Master Plan area, with residential and commercial uses over approximately 10 years as the first step in the longer-term implementation of the Master Plan. The Development is to be analyzed at a project level in the RDEIR. The Development is expected to include up to 2,718 residential units, up to approximately 85,000 square feet of "Gateway" neighborhood commercial, community recreation facilities, and approximately 51 acres of parks, trails, and open space.

## 3.0 STUDY AREA AND TIME PERIOD

This report includes analysis of the intersections listed on Page 13 of the TIA and the road segments listed on Page 11 of the TIA.

The study time periods include the weekday a.m. and p.m. peak hours determined between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The peak hours were analyzed for the following scenarios:

- Near-Term Plus Development (Residential Only);
- Near-Term Plus Master Plan (Residential Only).

## 4.0 LANE CONFIGURATIONS AND INTERSECTION CONTROL

The lane configurations and intersection control at the study intersections for the near-term conditions were obtained from the TIA.

## 5.0 PROJECT TRIP GENERATION

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*, were used to estimate the number of trips anticipated to be generated by the Development and the Master Plan. Table A-1 included in Appendix A of this report presents the trip generation estimates for the Project.

## 6.0 APPLICABILITY OF TIA AND TECHNICAL MEMORANDUM

The TIA has been reviewed in light of the new Project Description and it is our opinion that the findings and conclusions in the TIA remain valid. The trip generation values presented in Table A-1 were compared to the trip generation estimates utilized in the TIA to confirm that the analyses in the TIA remain applicable. The trip generation estimates for the Development and the Master Plan as described in the new Project Description do not exceed the values analyzed in the TIA. Tables A-2 and A-3 indicate that the Project trip generation estimates are very similar to, and slightly less than, the values analyzed in the TIA, indicating that the analyses and conclusions of the TIA remain applicable for each of the following scenarios:

- Existing Conditions
- Near-Term No Project
- Near-Term Plus MPArea 1 (Development)
- Near-Term Plus Project (MPArea 1 + MPArea 2) (Master Plan)
- Cumulative No Project
- Cumulative Plus Project (MPArea 1 + MPArea 2) (Master Plan)

Conversely, there are no scenarios in the TIA to which the analyses and conclusions are inapplicable to the new Project Description.

The Technical Memorandum, which presented the California Environmental Quality Act (CEQA) transportation impact analysis for the Vista Ranch Project, has been reviewed in light of the new Project Description and it is our opinion that the findings and conclusions in the Technical Memorandum remain valid.

## 7.0 RESIDENTIAL PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The residential Project trips were distributed to the adjacent road network based on the project trip distribution obtained from the TIA. The peak-hour residential project traffic volumes presented in Table A-1 are presented in Figure 1, Development Project Peak-Hour Residential Traffic Volumes, and Figure 2, Master Plan Project Peak-Hour Residential Traffic Volumes.

## 8.0 NEAR-TERM TRAFFIC VOLUMES AND VMT

The near-term no-Project peak-hour traffic volumes at the study intersections were obtained from the TIA and are presented in Figure 3, Near-Term No-Project Peak-Hour Traffic Volumes. It is noted that the values obtained from the TIA and presented in Figure 3 are the greater of either the existing turning movement volume or the near-term no-Project turning movement volume as presented in the TIA.

The near-term traffic volumes with the Development project (residential trips only) are presented in Figure 4, Near-Term Peak-Hour Traffic Volumes With Development Project Residential Only. The near-term traffic volumes with the Master Plan project (residential trips only) are presented in Figure 5, Near-Term Peak-Hour Traffic Volumes With Master Plan Project Residential Only.

Reducing VMT on a regional basis is intended to achieve the State of California's long-term climate goals. As such, near-term VMT conditions during partial completion of the Project were not considered in the Technical Memorandum. However, as this report is intended to address the conditions that would occur with buildout of the proposed residential portions of the Vista Ranch project in the absence of development of commercial portions of the project, the near-term VMT conditions will be addressed.

The Technical Memorandum found that the Project would exceed the impact thresholds for residential land uses by 116 percent and for employment land uses by 99 percent, resulting in a significant impact for residential and employment uses. The Project retail uses would decrease total regional VMT, and therefore, the Project would have a less than significant impact for retail uses.

For the case in which only residential uses have been constructed, the significant impact caused by employees (VMT per employee) would not occur because no employment opportunities would have been constructed. During this interim period, the VMT per capita (based on residential uses) may slightly exceed the calculated 30.4 VMT per capita because the lack of nearby, internal commercial uses will require longer trips for the same purpose.

Data presented in the ITE *Trip Generation Handbook, 3rd Edition* dated September 2017 (TGH) contains information related to internal trips (also referred to as "internally-captured trips"). Estimates of the number of internal trips account for the interaction between the various

individual land uses assumed for the trip generation calculations. Based on information presented in the TGH, it may be estimated 20-percent of the retail trips expected to be generated at the Project site would be captured with the Project residences. Based on the trip generation estimates, the total number of daily commercial trips is expected to be 13,505, and the 20-percent internal capture estimate is 2,701 trips per day. These 2,701 commercial trips will be longer during the interim period in which the retail portion of the Project has not been constructed. It is estimated that these trips will be an average of two miles each (for example, to drive near the intersection of Fowler and Herndon Avenues). The California Department of Finance indicates an average of 2.81 persons per household in Clovis. The total population of the Master Plan, using the worst-case trip generation estimates, may be estimated as 2.81 * 3,168 = 8,902. Based on the calculated VMT of 30.4 per capita, the total VMT would be 8,902 * 30.4 = 270,620. However, if 2,701 trips temporarily drive two miles farther, the total VMT would increase to 270,620 + 2 * 2,701 = 276,022. The temporarily-greater VMT per capita would be 276,022 / 8,902 = 31.0. Therefore, the VMT per capita of 31.0 would be 120 percent compared to the impact threshold in the interim period.

## 9.0 INTERSECTION ANALYSES

### 9.1 Operations and Level of Service

The levels of service at the study intersections for the near-term with-project (residential) scenarios were determined using the computer program Synchro 12. The intersection analysis sheets are presented in Appendix B. The results of the intersection operational analyses are presented in Table 1. Levels of service and delays worse than the target LOS are indicated in bold type and are underlined. Intersections 7, 8, 15, 38 are not included in Table 1 because they are not expected to exist in the near-term condition.

**Table 1**
**Near-Term With-Project Intersection Operations**

| ID | Intersection | Control Type | Peak Hour | Near Term With Development Residential | | Near Term with Master Plan Residential | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 1 | Willow Ave & International Ave | Signal | AM | 22.3 | C | 22.4 | C |
| | | | PM | 21.5 | C | 22.0 | C |
| 2 | Willow Ave & Behymer Ave | Signal | AM | 22.9 | C | 24.0 | C |
| | | | PM | 19.9 | B | 18.5 | B |
| 3 | Willow Ave & Shepherd Ave | Signal | AM | 21.9 | C | 22.4 | C |
| | | | PM | 24.7 | C | 25.2 | C |
| 4 | Minnewawa Ave & International Ave | 2W Stop | AM | **48.1** | **E** | **50.1** | **F** |
| | | | PM | **64.2** | **F** | **70.2** | **F** |
| 5 | Minnewawa Ave & Behymer Ave | AW Stop | AM | **191.8** | **F** | **222.9** | **F** |
| | | | PM | **>300** | **F** | **>300** | **F** |
| 6 | Minnewawa Ave & Shepherd Ave | Signal | AM | 26.3 | C | 27.8 | C |
| | | | PM | 29.7 | C | 31.9 | C |
| 9 | Clovis Ave & Shepherd Ave | Signal | AM | 21.8 | C | 22.3 | C |
| | | | PM | 31.6 | C | 33.3 | C |
| 10 | Clovis Ave & Nees Ave | Signal | AM | 33.6 | C | 34.6 | C |
| | | | PM | 29.3 | C | 30.5 | C |

## Table 1
## Near-Term With-Project Intersection Operations

| ID | Intersection | Control Type | Peak Hour | Near Term With Development Residential | | Near Term with Master Plan Residential | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 11 | Clovis Ave & Alluvial Ave | Signal | AM | 48.5 | D | 50.6 | D |
| | | | PM | 35.8 | D | 37.6 | D |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 31.7 | C | 32.2 | C |
| | | | PM | 54.5 | D | **58.5** | **E** |
| 13 | SR 168 EB Ramps & Herndon Ave | Signal | AM | 9.8 | A | 9.9 | A |
| | | | PM | 21.5 | C | 22.3 | C |
| 14 | SR 168 WB Ramps & Herndon Ave | Signal | AM | 11.3 | B | 11.5 | B |
| | | | PM | 6.0 | A | 6.2 | A |
| 16 | Sunnyside Ave & Shepherd Ave | Signal | AM | 20.3 | C | 19.8 | B |
| | | | PM | 19.6 | B | 21.5 | C |
| 17 | Sunnyside Ave & Nees Ave | AW Stop | AM | **167.8** | **F** | **177.3** | **F** |
| | | | PM | **236.0** | **F** | **247.9** | **F** |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | **98.1** | **F** | **100.8** | **F** |
| | | | PM | 21.5 | C | 22.0 | C |
| 19 | Sunnyside Ave & Herndon Ave | Signal | AM | 26.6 | C | 27.0 | C |
| | | | PM | 31.0 | C | 31.4 | C |
| 20 | Fowler Ave & Behymer Ave | AW Stop | AM | **113.2** | **F** | **128.3** | **F** |
| | | | PM | **203.4** | **F** | **231.7** | **F** |
| 21 | Fowler Ave & Perrin Ave | 1W Stop | AM | **>300** | **F** | **>300** | **F** |
| | | | PM | **>300** | **F** | **>300** | **F** |
| 22 | Fowler Ave & Shepherd Ave | Signal | AM | 34.9 | C | 43.4 | D |
| | | | PM | 31.4 | C | 38.4 | D |
| 23 | Fowler Ave & Teague Ave | 2W Stop | AM | 18.2 | C | 19.5 | C |
| | | | PM | 20.7 | C | 22.5 | C |
| 24 | Fowler Ave & Nees Ave | Signal | AM | 29.4 | C | 32.5 | C |
| | | | PM | 32.8 | C | 35.8 | D |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | **74.7** | **E** | **78.2** | **E** |
| | | | PM | 20.2 | C | 20.6 | C |
| 26 | Fowler Ave & SR 168 WB Ramps | Signal | AM | 25.7 | C | 28.0 | C |
| | | | PM | 10.6 | B | 10.9 | B |
| 27 | Fowler Ave & SR 168 EB Ramps | Signal | AM | 16.4 | B | 16.6 | B |
| | | | PM | 34.4 | C | 35.5 | D |
| 28 | Perrin Rd & Burgan Ave | 1W Stop | AM | 10.9 | B | 11.4 | B |
| | | | PM | 12.2 | B | 13.3 | B |
| 29 | Burgan Ave & Shepherd Ave | 1W Stop | AM | 21.2 | C | 22.9 | C |
| | | | PM | 15.6 | C | 16.3 | C |
| 30 | Armstrong Ave & Shepherd Ave | 1W Stop | AM | **>300** | **F** | **>300** | **F** |
| | | | PM | 34.7 | D | **39.2** | **E** |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | **114.8** | **F** | **151.5** | **F** |
| | | | PM | **298.7** | **F** | **>300** | **F** |
| 32 | Nees Ave & Temperance Ave | Signal | AM | 33.0 | C | 35.8 | D |
| | | | PM | 20.3 | C | 21.1 | C |

## Table 1
## Near-Term With-Project Intersection Operations

| ID | Intersection | Control Type | Peak Hour | Near Term With Development Residential | | Near Term with Master Plan Residential | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 33 | Temperance Ave & Alluvial Ave | Round. | AM | 14.6 | B | 16.1 | C |
| | | | PM | 10.1 | B | 10.8 | B |
| 34 | Temperance Ave & SR 168 WB Ramps | Signal | AM | 5.9 | A | 5.9 | A |
| | | | PM | 4.3 | A | 4.4 | A |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | AM | **72.7** | **E** | **73.8** | **E** |
| | | | PM | **108.1** | **F** | **110.7** | **F** |
| 36 | Locan Ave & Shepherd Ave | 2W Stop | AM | **105.6** | **F** | **178.0** | **F** |
| | | | PM | **36.7** | **E** | **71.9** | **F** |
| 37 | Locan Ave & Nees Ave | AW Stop | AM | 12.0 | B | 12.3 | B |
| | | | PM | 11.4 | B | 11.9 | B |
| 39 | De Wolf Ave & Shepherd Ave | Signal | AM | 7.8 | A | 7.9 | A |
| | | | PM | 7.5 | A | 7.7 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | AW Stop | AM | **131.6** | **F** | **142.5** | **F** |
| | | | PM | 28.6 | D | 32.3 | D |
| 41 | Owens Mountain Pkwy & SR 168 | Signal | AM | **57.1** | **E** | **60.2** | **E** |
| | | | PM | 17.7 | B | 18.8 | B |
| 42 | Shepherd Ave & SR 168 | Signal | AM | 14.5 | B | 14.5 | B |
| | | | PM | 14.4 | B | 14.4 | B |
| 43 | Shepherd Ave & Project Access South | 1W Stop | AM | 18.9 | C | 21.0 | C |
| | | | PM | 15.9 | C | 16.9 | C |
| 44 | Behymer Ave & Project Access North | 1W Stop | AM | 10.0 | B | 10.4 | B |
| | | | PM | 10.3 | B | 10.8 | B |

The analyses identified the following intersections that are expected to operate worse than the target LOS in the near-term condition with construction of the residential portions of the Vista Ranch Development.

4. Minnewawa Avenue and International Avenue
5. Minnewawa Avenue and Behymer Avenue
17. Sunnyside Avenue and Nees Avenue
18. Sunnyside Avenue and Alluvial Avenue
20. Fowler Avenue and Behymer Avenue
21. Fowler Avenue and Perrin Avenue
25. Fowler Avenue and Alluvial Avenue
30. Armstrong Avenue and Shepherd Avenue
31. Temperance Avenue and Shepherd Avenue
35. Temperance Avenue and SR 168 Eastbound Ramps
36. Locan Avenue and Shepherd Avenue
40. DeWolf Avenue and Owens Mountain Parkway
41. Owens Mountain Parkway and SR 168

The analyses indicate that, with the construction of all residences in the Vista Ranch Master Plan, the same intersections listed above would operate worse than the target LOS in the near-term condition, with the following additional intersection also operating worse than the target LOS:

12. Clovis Avenue and Herndon Avenue

## 9.2 Queuing

The results of the intersection operational analyses include an estimate of the 95$^{th}$-percentile queue lengths at the study intersection. The calculated 95$^{th}$-percentile queue lengths are presented in Table B-1 at the end of Appendix B. Calculated 95$^{th}$-percentile queue lengths that exceed the storage capacity by the length of at least one vehicle (25 feet) or that are judged to be excessive are indicated in bold type and are underlined.

In addition to excessive queues associated with levels of service below the target LOS that would be expected at the intersections listed above, the following intersections also exhibit queueing issues in the near-term conditions:

2. Willow Avenue and Behymer Avenue (westbound left-turn lane, which is only approximately 75 feet long; calculated 95$^{th}$-percentile queue exceeds storage capacity by approximately 100 feet).
6. Minnewawa Avenue and Shepherd Avenue (right-turn lane on the eastbound approach; calculated 95$^{th}$-percentile queues exceed storage capacity by approximately one car length, which is not considered a substantial issue considering the adjacent through lane operates on the same signal phase).
9. Clovis Avenue and Shepherd Avenue (left turn lane on the northbound approach; calculated 95$^{th}$-percentile queue exceeds storage capacity by approximately 100 feet, and right-turn lane on the eastbound approach; queues exceed storage capacity by

approximately 130 feet, which is not considered a substantial issue considering the adjacent through lane operates on the same signal phase). Project trips do not utilize these movements.

11. Clovis Avenue and Alluvial Avenue (left turn lane on the southbound approach; calculated 95th-percentile queue exceeds storage capacity by approximately 40 feet.) Project trips do not utilize this movement.

13. SR 168 Eastbound Ramps and Herndon Avenue (right-turn from the off ramp; calculated 95th-percentile queue exceeds storage capacity by approximately 140 feet.) Project trips do not utilize this movement.

16. Sunnyside Avenue and Shepherd Avenue (left turn lane on the northbound approach; calculated 95th-percentile queue exceeds storage capacity by approximately 40 feet.) Project trips do not utilize this movement.

19. Sunnyside Avenue and Herndon Avenue (left turn lane on the northbound approach; calculated 95th-percentile queue exceeds storage capacity by approximately 171 feet. Project trips do not utilize this movement. Right-turn lane on the eastbound approach; calculated 95th-percentile queue exceeds storage capacity by approximately 235 feet, which is not considered a substantial issue considering the adjacent through lane operates on the same signal phase).

22. Fowler Avenue and Shepherd Avenue (left-turn lanes on the southbound and eastbound approaches; calculated 95th-percentile queues exceed storage capacities by approximately two to three vehicle lengths, and the right-turn lane on the westbound approach; calculated 95th-percentile queues exceeds storage capacity by approximately 192 feet, which is not considered a substantial issue considering the adjacent through lane operates on the same signal phase).

24. Fowler Avenue and Nees Avenue (left turn lane on the northbound approach; calculated 95th-percentile queue exceeds storage capacity by approximately 90 feet.) Project trips do not utilize this movement.

32. Nees Avenue and Temperance Avenue (left turn lane on the westbound approach, which is only approximately 100 feet long; calculated 95th-percentile queue exceeds storage capacity by approximately 185 feet.) Project trips do not utilize this movement.

## 9.3 Recommended Intersection Improvements

The recommended improvements for each scenario are presented below.

### *9.3.1 Near-Term Plus Development (Residential Only) Recommended Improvements*

- 2. Willow and Behymer Avenues: Increase the length of the left-turn lane on the westbound approach to at least 175 feet.

- 4. Minnewawa and International Avenues: Installation of all-way stop control would cause the intersection to operate at acceptable LOS during the peak hours. It is noted that eight-hour all-way stop control warrants as presented in the *California Manual on Uniform Traffic Control Devices* (CMUTCD) are not expected to be satisfied at the intersection in the near-term conditions; however, based on collision history (as discussed below) it is suggested that all-way stop control may be considered. It should be noted that the LOS and delays at the

overall intersection with all-way stop control are expected to be acceptable; however, the LOS on the northbound approach during the p.m. peak hour is expected to be E with a calculated 95$^{th}$-percentile queue of 12 to 13 vehicles.

The agency with jurisdiction over the intersection may defer installation of all-way stop control until such time as observed traffic volumes indicate that warrants are satisfied. If it is determined that warrants for all-way stop control are not yet satisfied, other safety improvements may be implemented, such as enhancing the visibility of stop signs and warning signs (potentially with flashing beacons), installing street lighting, and ensuring adequate sight distance.

- 5. Minnewawa and Behymer Avenues: In order to operate at acceptable LOS, the intersection would require signalization with the following minimum lane configurations:

  Eastbound: one shared left-turn/through/right-turn lane with permissive left turns

  Westbound: one shared left-turn/through/right-turn lane with permissive left turns

  Northbound: one left-turn lane and one shared through/right-turn lane

  Southbound: one left-turn lane and one shared through/right-turn lane

  It should be noted that the lane configurations suggested above represent the minimum expected to provide acceptable LOS; however, it is more common to construct new traffic signals with dedicated left-turn lanes and protected left-turn phasing, as permissive phasing is generally not considered as safe as protected phasing in the Fresno/Clovis region. Therefore, it is at the discretion of the agency having jurisdiction over the intersection to potentially require protected left-turn phasing with dedicated left-turn lanes. The agency with jurisdiction over the intersection may defer installation of traffic signals until such time as observed traffic volumes indicate that traffic signal warrants are satisfied.

- 17. Sunnyside and Nees Avenues: In order to operate at acceptable LOS, the intersection would require signalization with the following minimum lane configurations:

  Eastbound: one left-turn lane and two through lanes with a shared right turn

  Westbound: one left-turn lane and two through lanes with a shared right turn

  Northbound: one left-turn lane, one through lane, and one right-turn lane

  Southbound: one left-turn lane and one shared through/right-turn lane

  The agency with jurisdiction over the intersection may defer installation of traffic signals until such time as observed traffic volumes indicate that traffic signal warrants are satisfied.

- 18. Sunnyside and Alluvial Avenues: The intersection of Sunnyside and Alluvial is signalized and constructed to its full planned width. The TIA presents a discussion indicating no feasible improvements were identified. It should be noted that intersection is affected primarily during the a.m. peak hour and the intersection is near an elementary school. An acceptable LOS is expected to continue to occur during the p.m. peak hour.

- 20. Fowler and Behymer Avenues: In order to operate at acceptable LOS, the intersection would require signalization with the following minimum lane configurations:

  Eastbound: one left-turn lane, one through lane, and one right-turn lane

  Westbound: one left-turn lane and one shared through/right-turn lane

  Northbound: one left-turn lane and one shared through/right-turn lane

  Southbound: one left-turn lane and one shared through/right-turn lane

  It should be noted that the road segment analyses presented below may recommend additional road widening on Fowler and Behymer Avenues that could require additional lanes at the intersection. In addition, a substantial number of northbound-to-westbound left-turns are expected during the peak hours, resulting in long queues and the potential need for two left-turn lanes on the northbound approach to the intersection.

  The agency with jurisdiction over the intersection may defer installation of traffic signals until such time as observed traffic volumes indicate that traffic signal warrants are satisfied.

- 21. Fowler and Perrin Avenues: In order to operate at acceptable LOS, the intersection would require signalization with the following minimum lane configurations:

  Eastbound: does not exist

  Westbound: one shared left-turn/right-turn lane

  Northbound: one shared through/right-turn lane

  Southbound: one left-turn lane and one through lane

  It should be noted that the road segment analyses presented below may recommend additional road widening on Fowler Avenue that could require additional lanes at the intersection. The agency with jurisdiction over the intersection may defer installation of traffic signals until such time as observed traffic volumes indicate that traffic signal warrants are satisfied.

- 22. Fowler and Shepherd Avenues: Increase the length of the left-turn lane on the eastbound approach to 225 feet by modifying the existing striping and increase the length of the left-turn lane on the southbound approach to 275 feet.

- 25. Fowler and Alluvial Avenues: The intersection of Fowler and Alluvial is signalized and constructed to its full planned width. However, a minor modification to add a right-turn lane on the southbound approach, potentially limited to restriping, would slightly reduce the delays associated with LOS E during the a.m. peak hour. It should be noted that the intersection is expected to operate at acceptable LOS during the p.m. peak hour without any improvements.

- 30. Armstrong and Shepherd Avenues: In order to operate at acceptable LOS, the intersection would require signalization with the following minimum lane configurations:

  Eastbound: one U-turn lane and two through lanes with a shared right turn

  Westbound: one left-turn lane and one through lane

  Northbound: one shared left-turn/right-turn lane

  Southbound: does not exist

  The agency with jurisdiction over the intersection may defer installation of traffic signals until such time as observed traffic volumes indicate that traffic signal warrants are satisfied.

- 31. Temperance and Shepherd Avenues: The intersection is signalized. In order to operate at acceptable LOS, the intersection would require modification to the following minimum lane configurations:

  - Eastbound: one left-turn lane, two through lanes, and one right-turn lane
  - Westbound: one left-turn lane, two through lanes, and one right-turn lane
  - Northbound: one left-turn lane, one through lane, and one right-turn lane
  - Southbound: one left-turn lane, one through lane, and one right-turn lane

- 35. Temperance and SR 168 Eastbound Ramps: The intersection is signalized. In order to operate at acceptable LOS, the intersection would likely require widening of the off ramp to provide one left-turn lane and two right-turn lanes and widening of the northbound approach to provide a third through lane dedicated to the westbound loop on ramp. The resulting intersection lane configurations would be as follows:

  - Eastbound: one shared left-turn/through lane and two dedicated right-turn lanes
  - Northbound: three through lanes with a shared right turn
  - Southbound: one left-turn lane and two through lanes

  In order to optimize lane utilization on the northbound approach, it is suggested that the northbound receiving lanes north of the eastbound ramps be restriped to create two lanes accessing the westbound freeway on ramp. The configuration of the northbound lanes departing the intersection would include one dedicated through lane, one shared through lane/westbound on-ramp lane, and one dedicated westbound on-ramp lane. This configuration is expected to be feasible because there are two existing westbound loop on-ramp lanes. A similar configuration exists on westbound Herndon Avenue to the westbound on ramp at the SR 168 interchange.

- 36. Locan and Shepherd Avenues: In order to operate at acceptable LOS, the intersection would require signalization with the following minimum lane configurations:

  Eastbound: one left-turn lane, two through lanes, and one right-turn lane

  Westbound: one left-turn lane, two through lanes, and one right-turn lane

  Northbound: one shared left-turn/through/right-turn lane

  Southbound: one shared left-turn/through and one right-turn lane

It should be noted that the lane configurations suggested above represent the minimum expected to provide acceptable LOS, and would require permissive phasing (or split phasing) to accommodate the shared lane already existing on the northbound approach. The agency with jurisdiction over the intersection may defer installation of traffic signals until such time as observed traffic volumes indicate that traffic signal warrants are satisfied.

- 40. DeWolf Avenue and Owens Mountain Parkway: The City plans to convert the intersection to a roundabout. The intersection is expected to operate at acceptable LOS as a single-lane roundabout in the near-term condition with the Development.
- 41. Owens Mountain Parkway and SR 168: The intersection is signalized. In order to operate at acceptable LOS, the intersection would require modification of the Owens Mountain Parkway southbound approach to add a second right-turn lane on (a condition that existed when the intersection was originally constructed), with the following resulting lane configurations:
  - Eastbound: two left-turn lanes, two through lanes, and one right-turn lane
  - Westbound: one left-turn lane, two through lanes, and one right-turn lane
  - Northbound: one left-turn lane, two through lanes, and one right-turn lane
  - Southbound: one left-turn lane, one through lane, and two right-turn lanes

### *9.3.2 Near-Term Plus Master Plan (Residential Only)*

The improvements discussed above for the Development project are applicable to the Master Plan as well. In addition, the intersection of Clovis and Herndon Avenue requires a discussion of potential improvements in the Master Plan scenario.

- 12. Clovis and Herndon Avenues: The intersection of Clovis and Herndon Avenues is signalized and constructed to its full planned width. The TIA presents a discussion considering right-turn overlaps. Given the substantial demand for U-turns at the intersection, the only feasible overlap location is likely the southbound-to-westbound right turn, which would require preventing eastbound-to-westbound U-turns. Before considering traffic signal modifications to install an overlapping right-turn phase, consideration could be given to restriping the northbound approach to change the three through lanes with a shared right turn to two through lanes and a dedicated right-lane. This modification is expected to result in LOS D or better during the peak hours.

### *9.3.3 Summary of Near-Term Conditions with Vista Ranch Residential*

Table 2 presents the results of the analysis of the improved conditions. The intersection analysis sheets for the improved conditions are presented in Appendix C. The calculated 95$^{th}$-percentile queue lengths for the improved conditions are presented in Table C-1 at the end of Appendix C.

**Table 2**
**Near-Term With-Project Intersection Operations – Improved Conditions**

| ID | Intersection | Control Type | Peak Hour | Near Term With Development Residential | | Near Term with Master Plan Residential | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 4 | Minnewawa Ave & International Ave | AW Stop | AM | 21.4 | C | 23.7 | C |
| | | | PM | 28.9 | D | 32.1 | D |
| 5 | Minnewawa Ave & Behymer Ave | Signal | AM | 22.5 | C | 25.0 | C |
| | | | PM | 35.8 | D | 40.7 | D |
| 12 | Clovis Ave & Herndon Ave | Signal | AM | 31.7 | C | 32.2 | C |
| | | | PM | 54.5 | D | 51.4 | D |
| 17 | Sunnyside Ave & Nees Ave | Signal | AM | 25.0 | C | 25.4 | C |
| | | | PM | 20.3 | C | 20.5 | C |
| 18 | Sunnyside Ave & Alluvial Ave | Signal | AM | **98.1** | **F** | **100.8** | **F** |
| | | | PM | 21.5 | C | 22.0 | C |
| 20 | Fowler Ave & Behymer Ave | Signal | AM | 31.0 | C | 32.1 | C |
| | | | PM | 38.5 | D | 41.9 | D |
| 21 | Fowler Ave & Perrin Ave | Signal | AM | 12.9 | B | 15.6 | B |
| | | | PM | 19.2 | B | 29.9 | C |
| 25 | Fowler Ave & Alluvial Ave | Signal | AM | **60.2** | **E** | **62.2** | **E** |
| | | | PM | 19.8 | B | 20.3 | C |
| 30 | Armstrong Ave & Shepherd Ave | Signal | AM | 8.0 | A | 8.5 | A |
| | | | PM | 8.2 | A | 8.3 | A |
| 31 | Temperance Ave & Shepherd Ave | Signal | AM | 23.0 | C | 25.4 | C |
| | | | PM | 18.8 | B | 19.9 | B |
| 35 | Temperance Ave & SR 168 EB Ramps | Signal | AM | 17.0 | B | 17.2 | B |
| | | | PM | 23.8 | C | 25.9 | C |
| 36 | Locan Ave & Shepherd Ave | Signal | AM | 10.7 | B | 11.2 | B |
| | | | PM | 9.5 | A | 9.8 | A |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Round. | AM | 7.3 | A | 7.5 | A |
| | | | PM | 5.8 | A | 5.9 | A |
| 41 | Owens Mountain Pkwy & SR 168 | Signal | AM | 25.9 | C | 26.5 | C |
| | | | PM | 15.8 | B | 16.0 | B |

The recommended improvements would provide LOS D or better operations at 11 of the 13 intersections that are projected to have deficient operations with near term development plus the Vista Ranch Development residential only and at 12 of the 14 intersections that are projected to have deficient operations with near term development plus the Vista Ranch Master Plan residential only. The following two intersections would still have deficient LOS E or F operations.

18. Sunnyside Avenue and Alluvial Avenue: No feasible improvements were identified within the available street right-of-way. As shown in Table 15 of the TIA, however, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. The TIA indicates that this is because planned citywide

street improvements are expected to allow diversion of traffic away from Sunnyside Avenue and Alluvial Avenue.

25. Fowler Avenue and Alluvial Avenue: No feasible improvements were identified within the available street right-of-way. As shown in Table 15 of the TIA, however, this intersection is projected to operate at acceptable LOS under 2046 cumulative conditions without additional improvements. The TIA indicates that this is because planned citywide street improvements are expected to allow diversion of traffic away from Fowler Avenue and Alluvial Avenue.

## 10.0 ROAD SEGMENT ANALYSES

The levels of service at the study road segments for the near-term with-project (residential) scenarios are presented in Table 3. Levels of service worse than the target LOS are indicated in bold type and are underlined. Roadway capacities were obtained from the TIA.

The analyses identified the following road segments that are expected to operate worse than the target LOS in the near-term condition with construction of the residential portions of the Vista Ranch Development:

2. Behymer Avenue from Minnewawa Avenue to Sunnyside Avenue
3. Behymer Avenue from Sunnyside Avenue to Fowler Avenue
5. Fowler Avenue from Behymer Avenue to Shepherd Avenue

The analyses indicate that, with the construction of all residences in the Vista Ranch Master Plan, the same road segments listed above would operate worse than the target LOS in the near-term condition. In order to operate at acceptable LOS, the road segments listed above would require widening prior to completion of the Development residences. Due to right-of-way limitations and existing residences, it may not be feasible to build out the affected roadways to the ultimate planned width. Applying the LOS D threshold of 1,680 trips for a two-lane collector street with a two-way left-turn lane as presented in the TIA, each of the roadways listed above would operate at an acceptable LOS D or better during the peak hours in the near-term condition with construction of the residential portions of the Vista Ranch Development and the residential portions of the Master Plan. Therefore, it is recommended that the roadways be widened in an interim configuration to provide a two-way left-turn lane and one lane in each direction.

## Table 3
## Near-Term With-Project Road Segment Operations

| ID | Roadway Segment | Hour | Threshold | | | Near Term With Development Residential | | Near Term with Master Plan Residential | |
|---|---|---|---|---|---|---|---|---|---|
| | | | LOS C | LOS D | LOS E | Volume | LOS | Volume | LOS |
| 1 | Behymer Ave from Willow to Minnewawa | AM | 570 | 1,230 | 1,310 | 757 | D | 794 | D |
| | | PM | | | | 781 | D | 830 | D |
| 2 | Behymer Avenue from Minnewawa to Sunnyside | AM | 570 | 1,230 | 1,310 | 1,048 | D | 1,088 | D |
| | | PM | | | | 1,343 | **F** | 1,411 | **F** |
| 3 | Behymer Ave from Sunnyside to Fowler | AM | 570 | 930 | 1,000 | 1,048 | **F** | 1,088 | **F** |
| | | PM | | | | 1,343 | **F** | 1,411 | **F** |
| 4 | Behymer Ave from Fowler to Project Access North | AM | 570 | 930 | 1,000 | 280 | C | 329 | C |
| | | PM | | | | 375 | C | 441 | C |
| 5 | Fowler Ave from Behymer to Shepherd | AM | 570 | 930 | 1,000 | 1,461 | **F** | 1,541 | **F** |
| | | PM | | | | 1,547 | **F** | 1,661 | **F** |
| 6 | Fowler Ave from Shepherd to Teague | AM | 1,400 | 2,670 | 2,830 | 828 | C | 879 | C |
| | | PM | | | | 981 | C | 1,048 | C |
| 7 | Fowler Ave from Teague to Nees | AM | 570 | 1,230 | 1,310 | 720 | D | 771 | D |
| | | PM | | | | 1,003 | D | 1,070 | D |

## 11.0 CRASH RECORDS

The TIA refers to the Fresno Council of Governments (COG) Multijurisdictional Local Road Safety Plan (MLRSP) dated January 2022. The only study intersection in the 95th-percentile of crash severity scores is the intersection of Shepherd Avenue and Minnewawa Avenue.

An additional search of crash records available from the Statewide Integrated Traffic Records System (SWITRS) database for the years 2019 through 2023 at each of the study intersections was performed and is summarized in Table D-1 in Appendix D.

Table 4 presents a general summary of the crash rates calculated for each intersection. The average daily traffic volumes were roughly estimated by assuming that the combined a.m. and p.m. peak hour traffic volumes represent 20 percent of the daily trips. The values presented are intended to provide a relative comparison of crash rates. Those locations with the greatest crash rates could be investigated to identify issues that potentially contribute to crashes.

**Table 4**
**Crash Rates**

| ID | Intersection | Crash Rate | ID | Intersection | Crash Rate |
|---|---|---|---|---|---|
| 1 | Willow / International | 0.186 | 23 | Fowler / Teague | 0.479 |
| 2 | Willow / Behymer | 0.000 | 24 | Fowler / Nees | 0.222 |
| 3 | Willow / Shepherd | 0.339 | 25 | Fowler / Alluvial | 0.221 |
| 4 | Minnewawa / International | 0.899 | 26 | Fowler / SR 168 WB Ramps | 0.000 |
| 5 | Minnewawa / Behymer | 0.994 | 27 | Fowler / SR 168 EB Ramps | 0.023 |
| 6 | Minnewawa / Shepherd | 0.510 | 28 | Perrin Rd / Burgan | 0.000 |
| 7 | Clovis / International | N/A | 29 | Burgan / Shepherd | 0.000 |
| 8 | Clovis / Behymer | N/A | 30 | Armstrong / Shepherd | 0.133 |
| 9 | Clovis / Shepherd | 0.219 | 31 | Temperance / Shepherd | 0.420 |
| 10 | Clovis / Nees | 0.269 | 32 | Nees / Temperance | 0.239 |
| 11 | Clovis / Alluvial | 0.247 | 33 | Temperance / Alluvial | 0.224 |
| 12 | Clovis / Herndon | 0.508 | 34 | Temperance / SR 168 WB Ramps | 0.000 |
| 13 | SR 168 EB Ramps / Herndon | 0.116 | 35 | Temperance / SR 168 EB Ramps | 0.140 |
| 14 | SR 168 WB Ramps / Herndon | 0.012 | 36 | Locan / Shepherd | 0.099 |
| 15 | Behymer / Sunnyside | 0.598 | 37 | Locan / Nees | 0.255 |
| 16 | Sunnyside / Shepherd | 0.294 | 38 | Locan / Owens Mountain | N/A |
| 17 | Sunnyside / Nees | 0.600 | 39 | De Wolf / Shepherd | 0.340 |
| 18 | Sunnyside / Alluvial | 0.069 | 40 | De Wolf / Owens Mountain | 0.070 |
| 19 | Sunnyside / Herndon | 0.340 | 41 | Owens Mountain Pkwy / SR 168 | 0.031 |
| 20 | Fowler / Behymer | 0.453 | 42 | Shepherd / SR 168 | 0.700 |
| 21 | Fowler / Perrin | 0.269 | 43 | Shepherd / Project Access | N/A |
| 22 | Fowler / Shepherd | 0.445 | 44 | Behymer / Project Access | N/A |

Note: crash rates are reported in crashes per million vehicles entering the intersection (traffic volumes estimated from peak hour counts)

It is noted that there are generally four types of intersections listed in Table 4: 1) signalized, 2) all-way stop, 3) one-way stop, and 4) two-way stop.

**Signalized and All-Way Stop.** In general, the additional trips generated by a proposed Project are not likely to create a safety issue or substantially exacerbate the existing safety conditions at a signalized intersection or an all-way-stop-controlled intersection because the right of way is

assigned by the control, regardless of the length of the queues at the intersection. These systems for determining which vehicles or pedestrians may proceed at any given time reduces the potential for conflicts and driver confusion (provided that the capacity of the intersection is not exceeded).

**One-Way and Two-Way Stop.** The types of intersections at which additional traffic volumes are most likely to have the potential to contribute to safety issues are one-way- and two-way-stop-controlled intersections. At these locations, traffic on the major street is not required to stop, and increased delays resulting from additional traffic on either street may increase the likelihood that drivers become impatient and are willing to take additional risks to avoid queuing, such as pulling out into busy traffic. Where an acceptable LOS exists at a one-way or two-way stop-controlled intersection with adequate visibility and design features, the likelihood that drivers become impatient decreases. Conversely, where a poor LOS occurs, driver impatience tends to increase.

Thus, if mitigation proposed for a one-way or two-way stop results in an acceptable LOS for that intersection, or contemplates improvements such as an all-way stop or signalization, the intersection would not be expected to experience new or exacerbated adverse safety impacts.

Generally speaking, improvements to the intersection control at an intersection are feasible only if warrants for all-way stop control or traffic signals are satisfied; however, where warrants are not satisfied, the installation of all-way stop control or traffic signals would be infeasible.

Of the study intersections, only the following are one-way or two-way stop controlled under the existing conditions:

- Minnewawa Avenue / International Avenue (potential all-way stop to be installed as described previously in this report)
- Fowler Avenue / Perrin Avenue (potential traffic signal to be installed as described previously in this report)
- Fowler Avenue / Teague Avenue (acceptable LOS with Project)
- Burgan Avenue / Perrin Avenue (acceptable LOS with Project)
- Burgan Avenue / Shepherd Avenue (acceptable LOS with Project)
- Armstrong Avenue / Shepherd Avenue (potential traffic signal to be installed as described previously in this report)
- Locan Avenue / Shepherd Avenue (potential traffic signal to be installed as described previously in this report)

Based on the foregoing, following the above mitigation, the Project would not result in any one-way or two-way stops operating at a deficient LOS. As a result, the Project is not expected to create or exacerbate safety concerns at the study intersections.

Below is a more in-depth evaluation of the intersections that experience the greatest crash rates among the study intersections in terms of crashes per million vehicles:

- Minnewawa Avenue / Behymer Avenue (existing all-way stop): 0.994 crashes per million vehicles
- Minnewawa Avenue / International Avenue (existing two-way stop): 0.899 crashes per million vehicles
- Shepherd Avenue / SR 168 (existing signalized): 0.700 crashes per million vehicles
- Sunnyside Avenue / Nees Avenue (existing all-way stop): 0.600 crashes per million vehicles

The predominant type of crash at the intersection of Minnewawa and Behymer Avenues is a rear-end collision, followed by hitting an object and broadside collisions. It is likely that many drivers traveling at unsafe speeds may not anticipate queues associated with delays and congestion. Where advance warning signage already exists, consideration could be given to enhancing the visibility of the signage, potentially including stop beacon to the stop signs in accordance with CMUTCD Section 4L.05. The intersection has been identified as requiring signalization in the near-term condition. With these improvements, the Project would not cause or exacerbate an unsafe traffic condition.

The predominant type of crash at the intersection of Minnewawa and International Avenues is a broadside collision. There was one fatality in 2023. The intersection has been identified as potentially requiring installation of all-way stop control in the near-term condition based on peak-hour operations alone. The CMUTCD indicates that an intersection may be converted to all-way stop control if five crashes susceptible to correction with stop signs occur within a 12-month period. During the five-year period of 2019 through 2023, there were up to four crashes during a 12-month period that would be considered susceptible to correction with stop signs, but there were no 12-month periods identified with five crashes. Considering the increase in traffic volumes expected as a result of development in the region, and the calculated collision rate, it appears likely that the number of collisions at the intersection could increase. Along with installation of all-way stop control, consideration should be given to enhancing the visibility of signage at the intersection, adding flashing beacons, installing street lighting. With these improvements, the Project would not cause or exacerbate an unsafe traffic condition. For the interim period during which two-way stop control remains, it is recommended that W4-4P "CROSS TRAFFIC DOES NOT STOP" plaques be installed beneath the existing stop signs.

The predominant type of crash at the intersection of Shepherd Avenue and SR 168 (which is a signalized intersection under Caltrans jurisdiction) is a broadside collision, followed by hitting an object. The collisions tend to be the result of right-of-way violations and improper turns. It is likely the large size of the intersection contributes to driver willingness to turn in front of other vehicles or misjudge speeds and distances. Considering that the intersection is signalized, the Project would not cause or exacerbate an unsafe traffic condition.

The predominant type of crash at the intersection of Sunnyside and Nees Avenues, which is a four-way stop, is a broadside collision associate with running a stop sign or a right-of-way violation. The intersection has been identified as requiring signalization in the near-term condition, which would reduce potential safety impacts associated with the Project. An interim measure may include installation of stop beacons to the stop signs on Sunnyside Avenue in

accordance with CMUTCD Section 4L.05. Stop beacons already exist on the stop signs on Nees Avenue.

The predominant type of crash at the signalized intersection of Shepherd and Minnewawa Avenues is a broadside collision, followed by rear-end collisions. The intersection has been identified as requiring additional lanes in the near-term condition, which would further reduce potential safety impacts associated with the Project.

None of the intersections affected by the Project are expected to have safety issues exacerbated by the Project in the improved condition.

## 12.0 VMT MITIGATION MEASURES

The TIA includes a CEQA transportation impact analysis that quantifies VMT for the project area. The TIA found that the VMT per capita and VMT per employee will cause a significant impact. The significant impact is expected to be the same whether or not the commercial portions of the Project have been constructed. Several mitigation measures are recommended in the TIA to reduce VMT.

The California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* dated October 2024 presents several measures that potentially reduce VMT. The potential mitigation measures can generally be grouped as either: 1) managing land use (primarily infill, high-density development, and connectivity), 2) promoting active transportation (primarily walking and biking), 3) promoting transit (primarily buses), and 4) managing commutes and limiting parking supply.

The proposed Project, along with the recommended Project mitigation measures, addresses (either directly or indirectly) at least 17 of the CAPCOA measures as listed in Table 5.

**Table 5**
**Project-Related CAPCOA Measures**

| ID | CAPCOA Measure | ID | Intersection |
|---|---|---|---|
| T-3 | Provide Transit-Oriented Development | T-17 | Improve Street Connectivity |
| T-5 | Implement Commute Trip Reduction Program (Voluntary) | T-18 | Provide Pedestrian Network Improvement |
| T-6 | Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring) | T-19-A | Construct or Improve Bike Facility |
| T-7 | Implement Commute Trip Reduction Marketing | T-20 | Expand Bikeway Network |
| T-8 | Provide Ridesharing Program | T-25 | Extend Transit Network Coverage or Hours |
| T-9 | Implement Subsidized or Discounted Transit Program | T-27 | Implement Transit-Supportive Roadway Treatments |
| T-10 | Provide End-of-Trip Bicycle Facilities | T-46 | Provide Transit Shelters |
| T-11 | Provide Employer-Sponsored Vanpool | T-56 | Active Modes of Transportation for Youth |
| T-14 | Provide Electric Vehicle Charging Infrastructure | | |

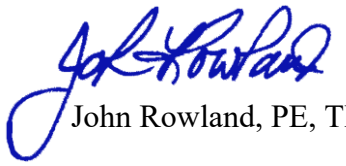
The TIA presents an estimated quantification of the VMT reduction. However, there are few (if any) feasible mitigation measures that can substantially and measurably reduce VMT for most projects in the Clovis / Fresno region. In general, the geography, development, and climate in the Clovis / Fresno region, and essentially the entirety of central California, are not conducive to residents being able to go to work, perform the required shopping, and other (such as health care or entertainment) via means of transportation such as walking, bicycling, or mass transit. As the Clovis/Fresno region is not a dense city with high-rise residential, office, health care, and shopping all within close proximity, and with high heat in the summer and cold/rain/fog in the winter, simply providing for and promoting active transportation and transit opportunities does not generally result in a noticeable reduction in the number of vehicle miles residents must travel per day. The regional transit system has not been developed to the extent that a majority of residents are willing to utilize it; therefore, on a Project level, providing additional transit facilities, including the measures identified in Table 5, would not be effective in reducing VMT in anything other than de minimis levels. Likewise, carpooling has been promoted for several decades with minimal benefit as many employees tend to work different hours, do not live near each other, are required to attend appointments, or continue to enjoy the independence and opportunity to run other errands during the commute. For these reasons, VMT mitigation measures, including those identified in Table 5, will not be effective in reducing the Project's VMT. As such, the TIA found that the transportation impact based on VMT is likely to remain significant and unavoidable even with the inclusion of VMT mitigation measures such as those identified in Table 5.

## 13.0 CONCLUSIONS

Generally-accepted traffic engineering principles and methods were employed to estimate the number of trips expected to be generated by the Project and to analyze the traffic conditions projected to occur in the near-term condition. This report includes discussion of the study intersections and recommendations for improvements in the near-term condition that are intended to supplement the information presented in the TIA to be utilized in the RDEIR for the project.

Thank you for the opportunity to perform this Supplemental Traffic Analyses. Please feel free to contact our office if you have any questions.

**PETERS ENGINEERING GROUP**

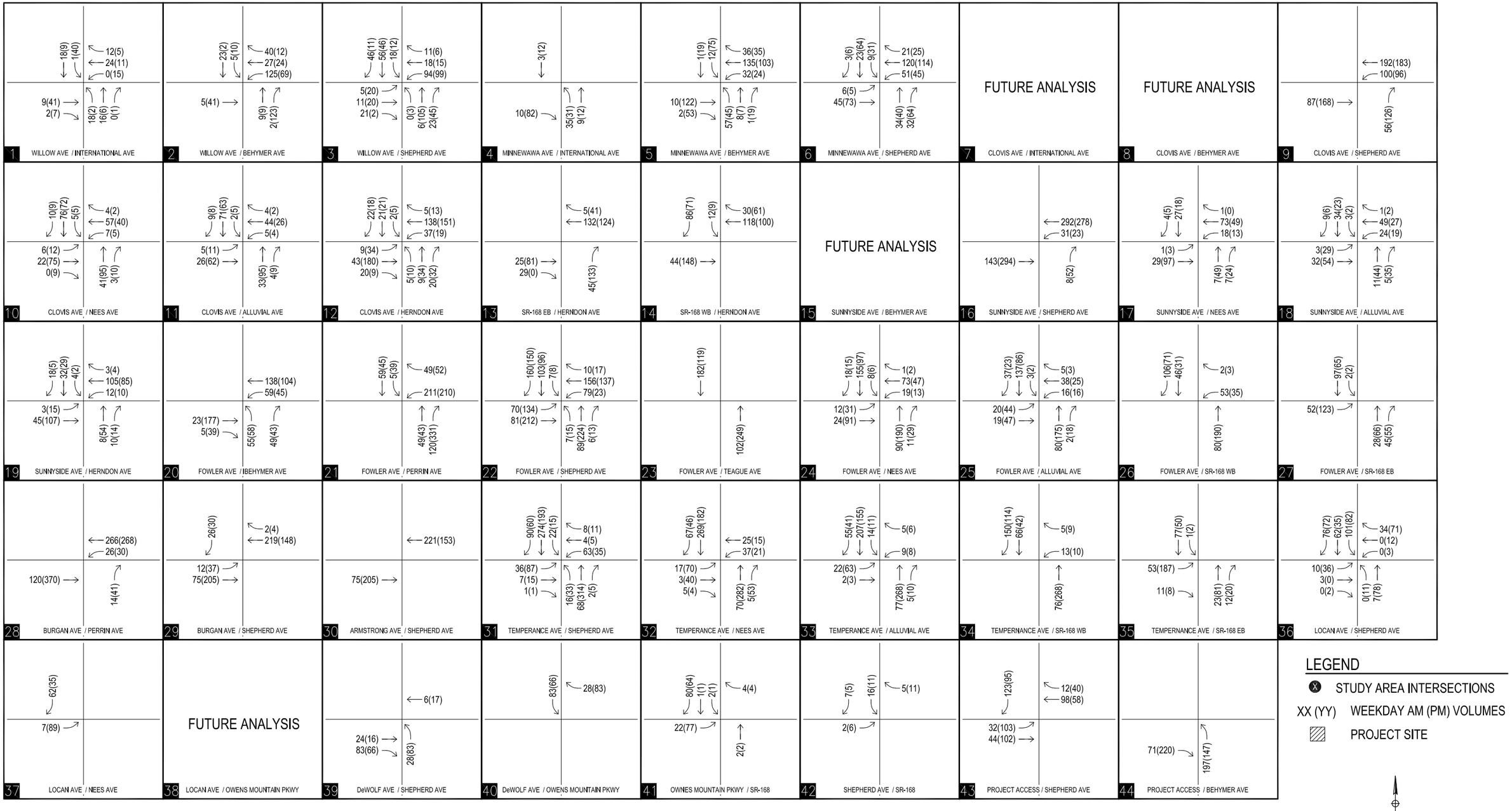


John Rowland, PE, TE



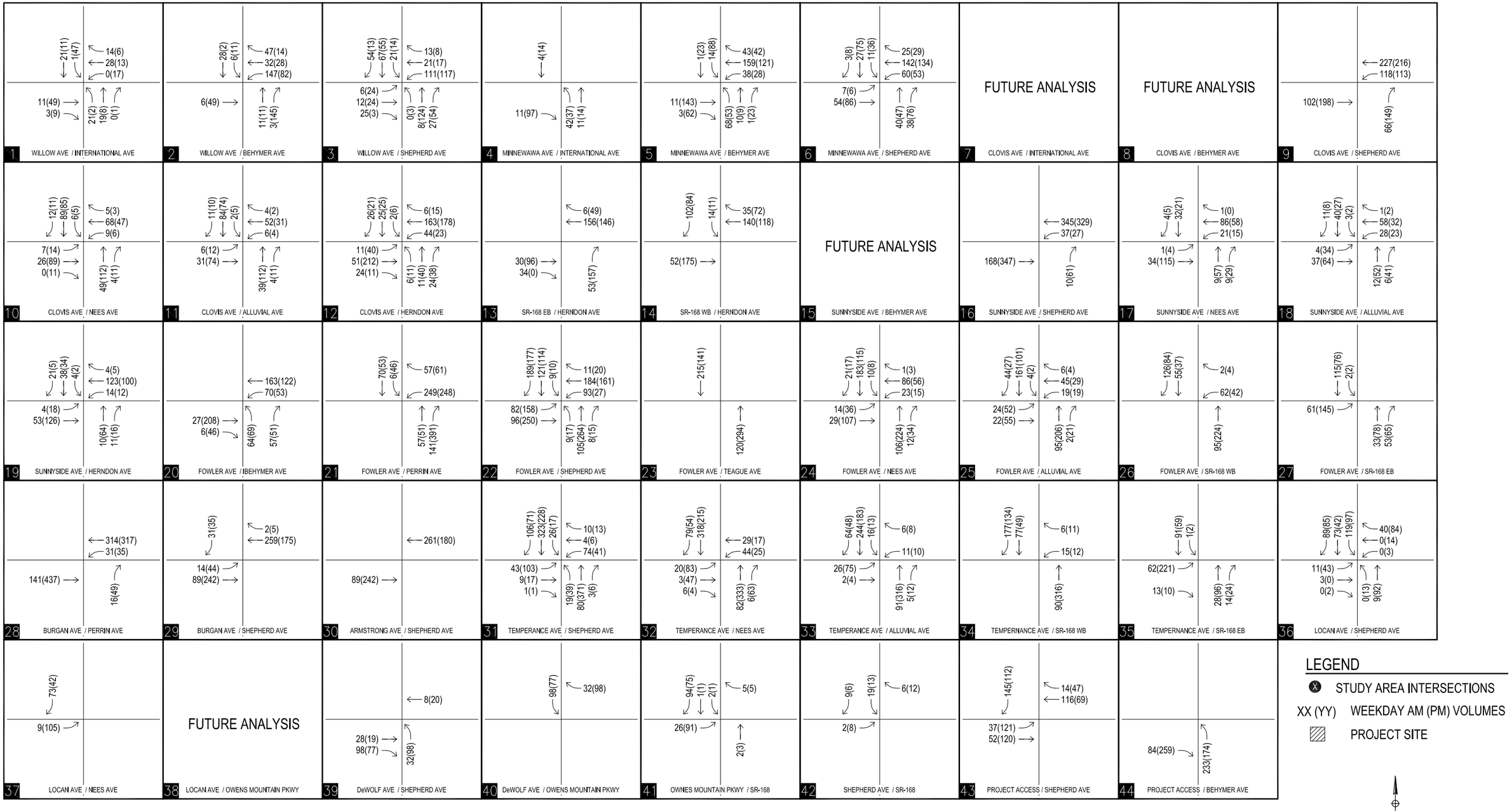

Attachments: Figures 1 through 5
Appendix A – Trip Generation
Appendix B – Intersection Analysis Sheets
Appendix C – Intersection Analysis Sheets – Improved Conditions
Appendix D – Crash Records Summary

# FIGURES



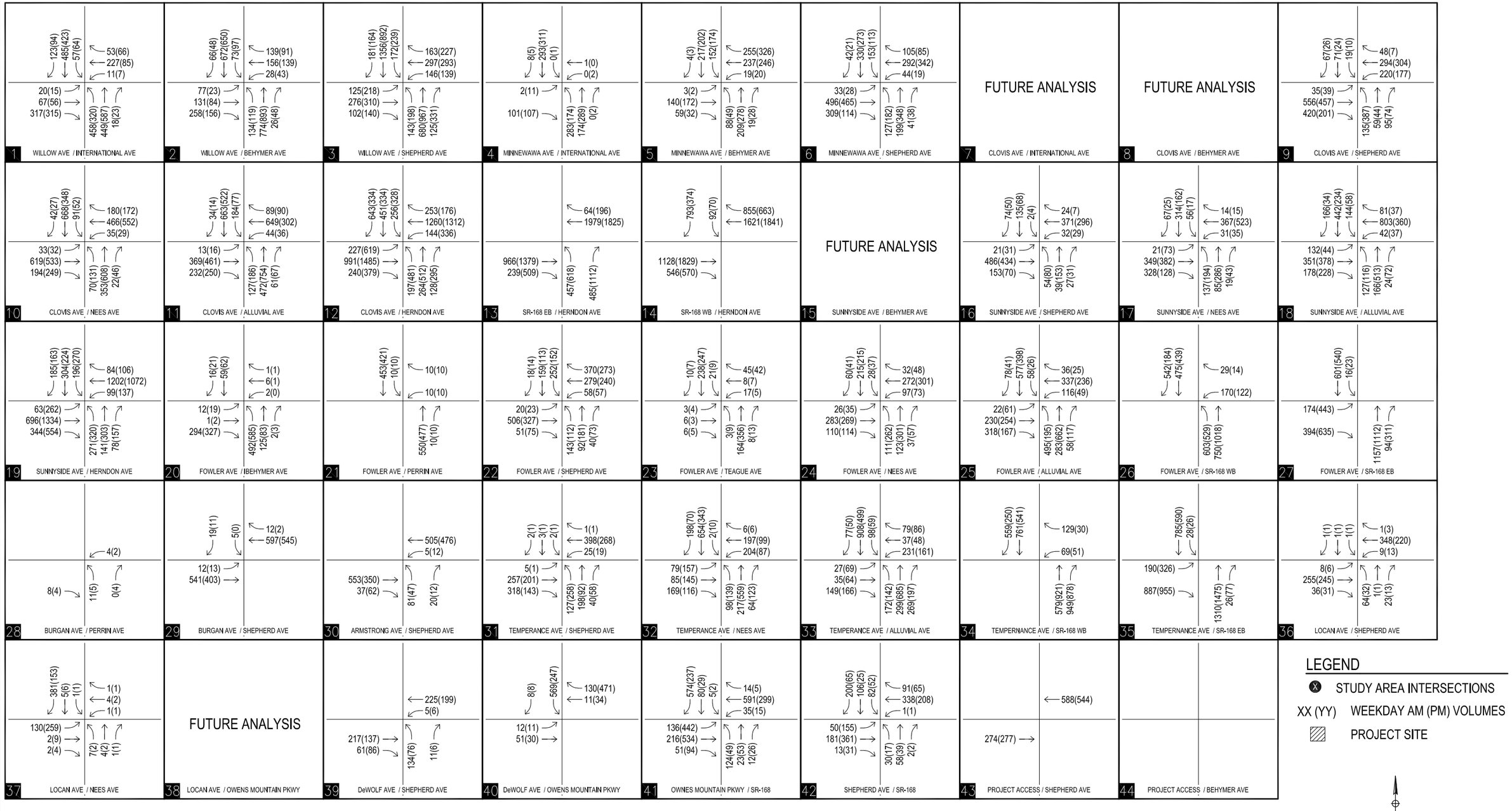

# DEVELOPMENT PROJECT PEAK-HOUR RESIDENTIAL TRAFFIC VOLUMES

Vista Ranch
Clovis, California



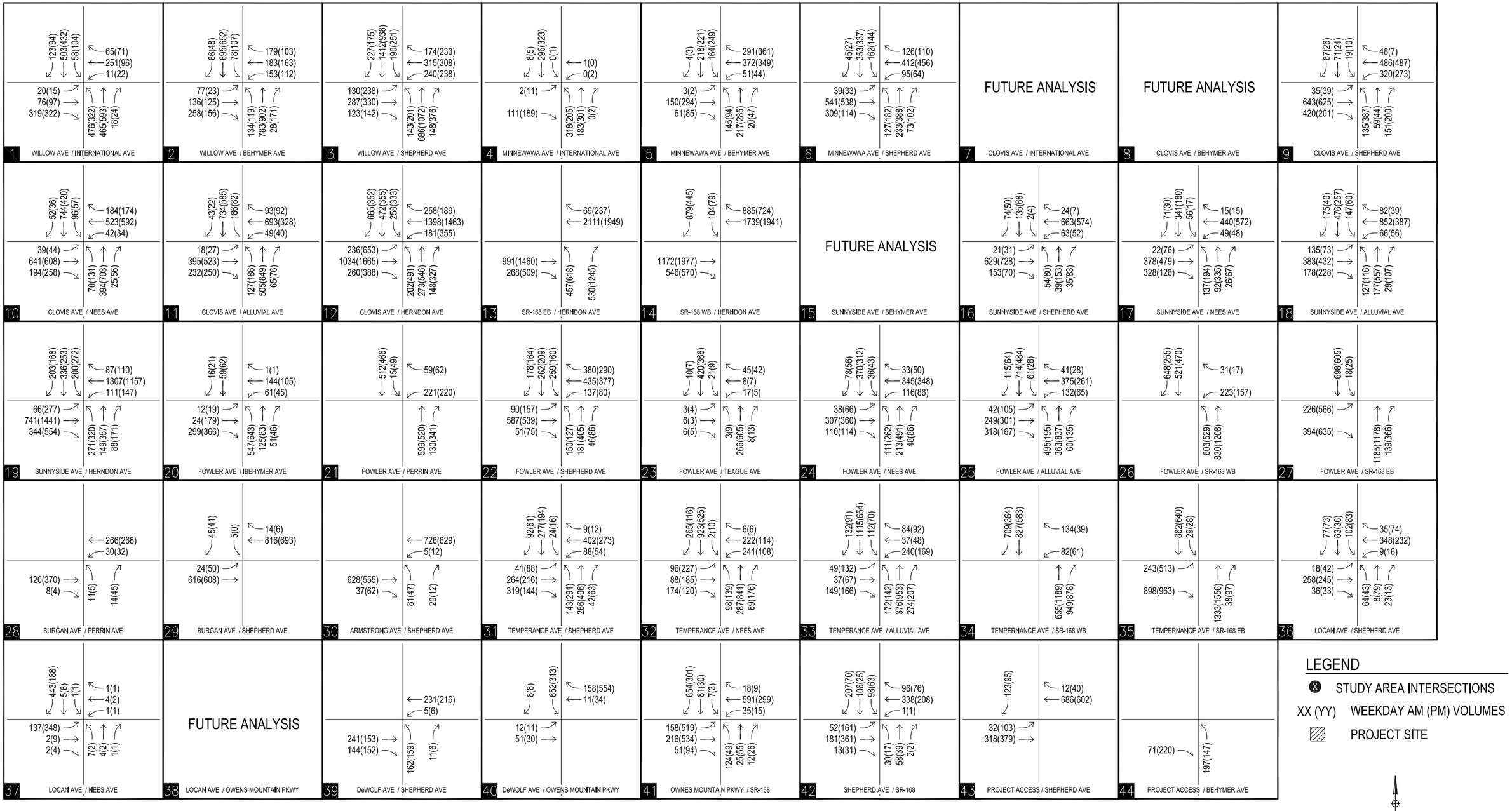

# MASTER PLAN PROJECT PEAK-HOUR RESIDENTIAL TRAFFIC VOLUMES

Vista Ranch
Clovis, California



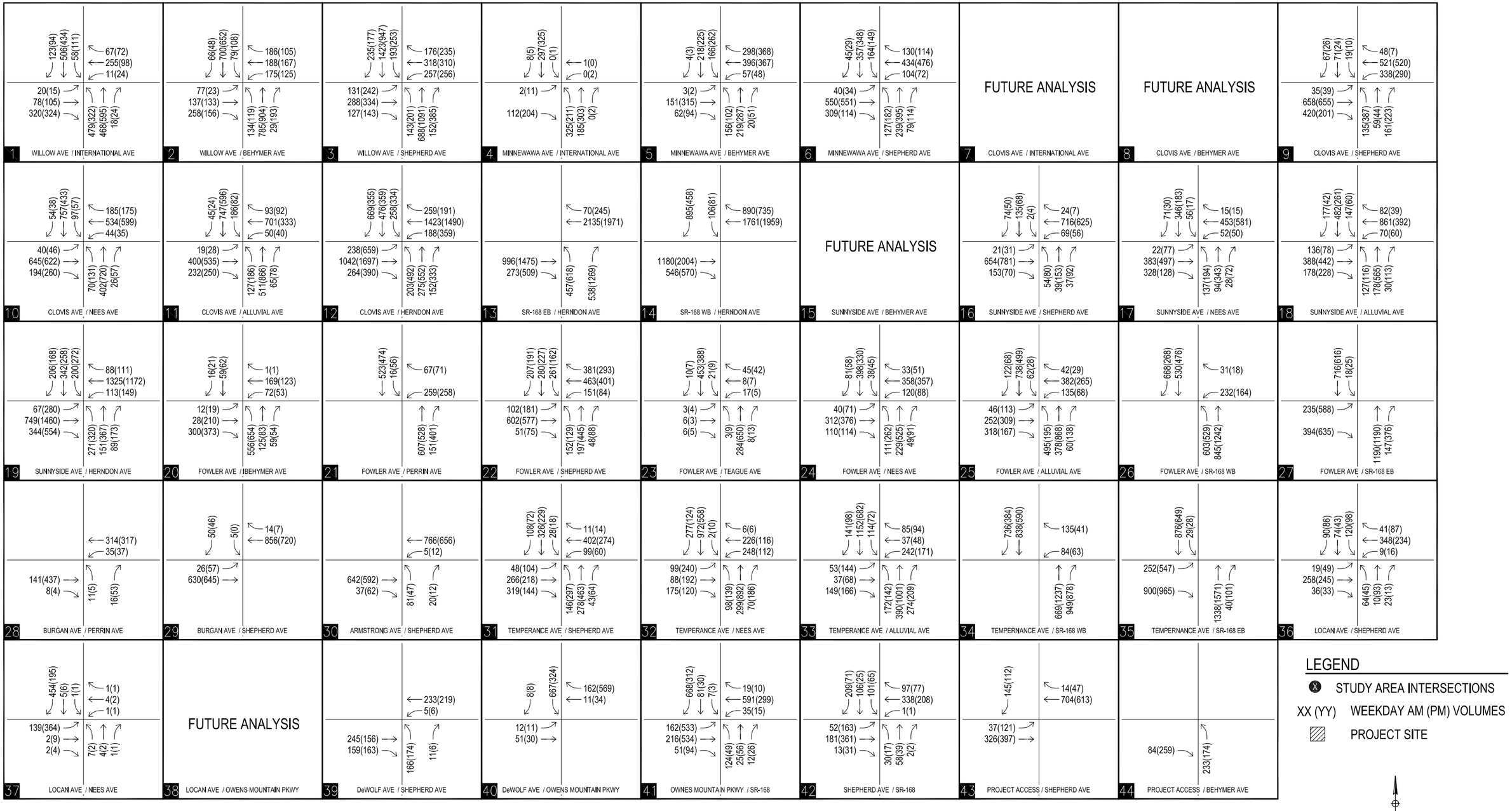

# NEAR-TERM NO PROJECT PEAK-HOUR TRAFFIC VOLUMES

Vista Ranch
Clovis, California




# NEAR-TERM PEAK-HOUR TRAFFIC VOLUMES
# WITH DEVELOPMENT PROJECT RESIDENTIAL ONLY

Vista Ranch
Clovis, California




# NEAR-TERM PEAK-HOUR TRAFFIC VOLUMES WITH MASTER PLAN PROJECT RESIDENTIAL ONLY

Vista Ranch
Clovis, California

# APPENDIX A

## TRIP GENERATION

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

# TABLE A-1
# PROJECT TRIP GENERATION

| ***Development Project (Master Plan Area 1)*** | | | | **Weekday** | | **AM** | | | | | | **PM** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Phase** | **Land Use Type** | **Units** | **ITE Code** | **Rate** | **Volume** | **Rate** | **In %** | **Out %** | **In** | **Out** | **Total** | **Rate** | **In %** | **Out %** | **In** | **Out** | **Total** |
| 1 | Single-Family Residential | 448 | 210 | 9.43 | 4,225 | 0.70 | 26% | 74% | 82 | 232 | 314 | 0.94 | 63% | 37% | 266 | 156 | 422 |
| | Park | 1 | 411 | 0.78 | 1 | 0.02 | 59% | 41% | 1 | 0 | 1 | 0.11 | 55% | 45% | 1 | 0 | 1 |
| 2 | Single-Family Residential | 448 | 210 | 9.43 | 4,225 | 0.70 | 26% | 74% | 82 | 232 | 314 | 0.94 | 63% | 37% | 266 | 156 | 422 |
| | Community Recreation Center | 4 | 495 | 28.82 | 116 | 1.91 | 66% | 34% | 5 | 3 | 8 | 2.50 | 47% | 53% | 5 | 5 | 10 |
| | Park | 2.7 | 411 | 0.78 | 3 | 0.02 | 59% | 41% | 1 | 0 | 1 | 0.11 | 55% | 45% | 1 | 0 | 1 |
| 3 | Single-Family Residential | 244 | 210 | 9.43 | 2,301 | 0.70 | 26% | 74% | 44 | 127 | 171 | 0.94 | 63% | 37% | 145 | 85 | 230 |
| | Commercial | 85 | 821 | 67.52 | 5,740 | 1.73 | 62% | 38% | 92 | 56 | 148 | 5.19 | 49% | 51% | 217 | 225 | 442 |
| 4 | Single-Family Residential | 453 | 210 | 9.43 | 4,272 | 0.70 | 26% | 74% | 83 | 235 | 318 | 0.94 | 63% | 37% | 268 | 158 | 426 |
| | Multi-Family Residential | 233 | 220 | 6.74 | 1,571 | 0.40 | 24% | 76% | 23 | 71 | 94 | 0.51 | 63% | 37% | 75 | 44 | 119 |
| 5 | Single-Family Residential | 470 | 210 | 9.43 | 4,433 | 0.70 | 26% | 74% | 86 | 243 | 329 | 0.94 | 63% | 37% | 278 | 164 | 442 |
| | Park | 3.32 | 411 | 0.78 | 3 | 0.02 | 59% | 41% | 1 | 0 | 1 | 0.11 | 55% | 45% | 1 | 0 | 1 |
| 6 | Single-Family Residential | 131 | 210 | 9.43 | 1,236 | 0.70 | 26% | 74% | 24 | 68 | 92 | 0.94 | 63% | 37% | 78 | 46 | 124 |
| | Multi-Family Residential | 291 | 220 | 6.74 | 1,962 | 0.40 | 24% | 76% | 28 | 89 | 117 | 0.51 | 63% | 37% | 94 | 55 | 149 |
| | Park | 1 | 411 | 0.78 | 1 | 0.02 | 59% | 41% | 1 | 0 | 1 | 0.11 | 55% | 45% | 1 | 0 | 1 |
| | | | | | | | | | | | | | | | | | |
| ***Development Subtotal*** | | | | | ***30,089*** | | | | ***550*** | ***1,359*** | ***1,909*** | | | | ***1,694*** | ***1,096*** | ***2,790*** |
| ***Development Residential Only*** | | ***2,718*** | | | ***24,225*** | | | | ***451*** | ***1,298*** | ***1,749*** | | | | ***1,470*** | ***864*** | ***2,334*** |

| ***Master Plan Area 2*** | | | | **Weekday** | | **AM** | | | | | | **PM** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Phase** | **Land Use Type** | **Units** | **ITE Code** | **Rate** | **Volume** | **Rate** | **In %** | **Out %** | **In** | **Out** | **Total** | **Rate** | **In %** | **Out %** | **In** | **Out** | **Total** |
| Not applicable | Single-Family Residential | 450 | 210 | 9.43 | 4,244 | 0.70 | 26% | 74% | 82 | 233 | 315 | 0.94 | 63% | 37% | 266 | 157 | 423 |
| Not applicable | Commercial | 115 | 821 | 67.52 | 7,765 | 1.73 | 62% | 38% | 123 | 76 | 199 | 5.19 | 49% | 51% | 293 | 304 | 597 |
| Not applicable | School | 750 | 520 | 2.27 | 1,703 | 0.74 | 54% | 46% | 300 | 255 | 555 | 0.16 | 46% | 54% | 55 | 65 | 120 |
| | | | | | | | | | | | | | | | | | |
| ***Master Plan Area 2 Subtotal*** | | | | | ***13,712*** | | | | ***505*** | ***564*** | ***1,069*** | | | | ***614*** | ***526*** | ***1,140*** |
| ***MP Area 2 Residential Only*** | | ***450*** | | | ***4,244*** | | | | ***82*** | ***233*** | ***315*** | | | | ***266*** | ***157*** | ***423*** |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***MASTER PLAN AREAS GRAND TOTAL*** | | | | | ***43,801*** | | | | ***1,055*** | ***1,923*** | ***2,978*** | | | | ***2,308*** | ***1,622*** | ***3,930*** |
| | | | | | | | | | | | | | | | | | |
| ***MASTER PLAN RESIDENTIAL ONLY GRAND TOTAL*** | | ***3,168*** | | | ***28,469*** | | | | ***532*** | ***1,532*** | ***2,064*** | | | | ***1,737*** | ***1,020*** | ***2,757*** |

***Reference: ITE Trip Generation Manual, 11th Edition (2021)***

**ITE Land Uses:**

210: Single-Family Detached Housing
220: Multifamily Housing (Low-Rise) Not Close to Rail Transit
411: Public Park
495: Community Recreation Center
520: Elementary School
821: Shopping Plaza (45-150k) - Supermarket - No

Rates are reported in trips per dwelling unit, per 1,000 square feet of commercial, per acre (park), or per student as applicable

# TABLE A-2
# TRIP GENERATION COMPARISON

| ***Development Project (MP Area 1)*** | **Weekday** | **AM** | | | **PM** | | |
|---|---|---|---|---|---|---|---|
| **Scenario** | **Volume** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| Current External Trip Gen | 30,089 | 550 | 1,359 | 1,909 | 1,694 | 1,096 | 2,790 |
| TIA | 30,989 | 553 | 1,429 | 1,982 | 1,755 | 1,132 | 2,887 |
| ***Difference (Current Trip Gen minus TIA values)*** | ***-900*** | ***-3*** | ***-70*** | ***-73*** | ***-61*** | ***-36*** | ***-97*** |
| MP Area 1 Development Difference divided by Current Trip Gen: | -3.0% | -0.6% | -5.1% | -3.8% | -3.6% | -3.3% | -3.5% |
| MP Area 1 Development Difference divided by TIA Trip Gen: | -2.9% | -0.6% | -4.9% | -3.7% | -3.5% | -3.2% | -3.4% |

| ***Master Plan Area 2*** | **Weekday** | **AM** | | | **PM** | | |
|---|---|---|---|---|---|---|---|
| **Scenario** | **Volume** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| Current External Trip Gen | 13,712 | 505 | 564 | 1,069 | 614 | 526 | 1,140 |
| TIA | 14,377 | 525 | 587 | 1,112 | 648 | 562 | 1,210 |
| ***Difference (Current Trip Gen minus TIA values)*** | ***-665*** | ***-20*** | ***-23*** | ***-43*** | ***-34*** | ***-36*** | ***-70*** |

| ***Total Master Plan*** | **Weekday** | **AM** | | | **PM** | | |
|---|---|---|---|---|---|---|---|
| **Scenario** | **Volume** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| Current External Trip Gen | 43,801 | 1,055 | 1,923 | 2,978 | 2,308 | 1,622 | 3,930 |
| TIA | 45,366 | 1,078 | 2,016 | 3,094 | 2,403 | 1,694 | 4,097 |
| ***Difference (Current Trip Gen minus TIA values)*** | ***-1,565*** | ***-23*** | ***-93*** | ***-116*** | ***-95*** | ***-72*** | ***-167*** |
| Total MP Difference divided by Current Trip Gen: | -3.6% | -2.2% | -4.8% | -3.9% | -4.1% | -4.4% | -4.2% |
| Total MP Difference divided by TIA Trip Gen: | -3.4% | -2.1% | -4.6% | -3.7% | -3.9% | -4.3% | -4.1% |

Negative numbers indicate current project generates fewer trips than previously studied in TIA

# TABLE A-3
# TRIP GENERATION COMPARISON
# (Excluding Mini Storage)

| ***Development Project (MP Area 1)*** | **Weekday** | **AM** | | | **PM** | | |
|---|---|---|---|---|---|---|---|
| **Scenario** | **Volume** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| Current External Trip Gen | 30,089 | 550 | 1,359 | 1,909 | 1,694 | 1,096 | 2,790 |
| TIA | 30,989 | 553 | 1,429 | 1,982 | 1,755 | 1,132 | 2,887 |
| ***Difference (Current Trip Gen minus TIA values)*** | ***-900*** | ***-3*** | ***-70*** | ***-73*** | ***-61*** | ***-36*** | ***-97*** |
| MP Area 1 Development Difference divided by Current Trip Gen: | -3.0% | -0.6% | -5.1% | -3.8% | -3.6% | -3.3% | -3.5% |
| MP Area 1 Development Difference divided by TIA Trip Gen: | -2.9% | -0.6% | -4.9% | -3.7% | -3.5% | -3.2% | -3.4% |

| ***Master Plan Area 2*** | **Weekday** | **AM** | | | **PM** | | |
|---|---|---|---|---|---|---|---|
| **Scenario** | **Volume** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| Current External Trip Gen | 13,712 | 505 | 564 | 1,069 | 614 | 526 | 1,140 |
| TIA minus Mini Storage | 13,766 | 503 | 571 | 1,074 | 618 | 528 | 1,146 |
| ***Difference (Current Trip Gen minus TIA values)*** | ***-54*** | ***2*** | ***-7*** | ***-5*** | ***-4*** | ***-2*** | ***-6*** |

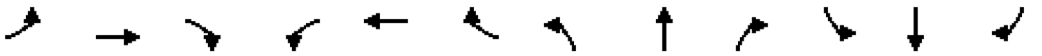
| ***Total Master Plan*** | **Weekday** | **AM** | | | **PM** | | |
|---|---|---|---|---|---|---|---|
| **Scenario** | **Volume** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| Current External Trip Gen | 43,801 | 1,055 | 1,923 | 2,978 | 2,308 | 1,622 | 3,930 |
| TIA minus Mini Storage | 44,755 | 1,056 | 2,000 | 3,056 | 2,373 | 1,660 | 4,033 |
| ***Difference (Current Trip Gen minus TIA values)*** | ***-954*** | ***-1*** | ***-77*** | ***-78*** | ***-65*** | ***-38*** | ***-103*** |
| Total MP Difference divided by Current Trip Gen: | -2.2% | -0.1% | -4.0% | -2.6% | -2.8% | -2.4% | -2.6% |
| Total MP Difference divided by TIA Trip Gen: | -2.1% | -0.1% | -3.8% | -2.6% | -2.7% | -2.3% | -2.6% |

Negative numbers indicate current project generates fewer trips than previously studied in TIA

# APPENDIX B

## INTERSECTION ANALYSIS SHEETS

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 76 | 319 | 11 | 251 | 65 | 476 | 465 | 18 | 58 | 503 | 123 |
| Future Volume (veh/h) | 20 | 76 | 319 | 11 | 251 | 65 | 476 | 465 | 18 | 58 | 503 | 123 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 26 | 99 | 331 | 14 | 326 | 67 | 618 | 604 | 18 | 75 | 653 | 128 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 52 | 481 | 403 | 31 | 459 | 384 | 787 | 1357 | 597 | 104 | 1085 | 332 |
| Arrive On Green | 0.03 | 0.26 | 0.26 | 0.02 | 0.25 | 0.25 | 0.23 | 0.38 | 0.38 | 0.06 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1781 | 1870 | 1567 | 1781 | 1870 | 1566 | 3456 | 3554 | 1564 | 1781 | 5106 | 1563 |
| Grp Volume(v), veh/h | 26 | 99 | 331 | 14 | 326 | 67 | 618 | 604 | 18 | 75 | 653 | 128 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1567 | 1781 | 1870 | 1566 | 1728 | 1777 | 1564 | 1781 | 1702 | 1563 |
| Q Serve(g_s), s | 0.9 | 2.6 | 12.4 | 0.5 | 9.9 | 2.1 | 10.5 | 7.9 | 0.4 | 2.6 | 7.2 | 4.4 |
| Cycle Q Clear(g_c), s | 0.9 | 2.6 | 12.4 | 0.5 | 9.9 | 2.1 | 10.5 | 7.9 | 0.4 | 2.6 | 7.2 | 4.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 52 | 481 | 403 | 31 | 459 | 384 | 787 | 1357 | 597 | 104 | 1085 | 332 |
| V/C Ratio(X) | 0.50 | 0.21 | 0.82 | 0.46 | 0.71 | 0.17 | 0.79 | 0.45 | 0.03 | 0.72 | 0.60 | 0.39 |
| Avail Cap(c_a), veh/h | 169 | 723 | 606 | 169 | 723 | 605 | 1275 | 1870 | 823 | 269 | 1573 | 481 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.8 | 18.2 | 21.8 | 30.3 | 21.5 | 18.6 | 22.6 | 14.3 | 12.0 | 28.8 | 22.2 | 21.1 |
| Incr Delay (d2), s/veh | 7.3 | 0.2 | 5.6 | 10.1 | 2.1 | 0.2 | 1.8 | 0.2 | 0.0 | 9.1 | 0.5 | 0.7 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.5 | 1.0 | 4.5 | 0.3 | 4.0 | 0.7 | 3.8 | 2.6 | 0.1 | 1.2 | 2.5 | 1.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 37.1 | 18.4 | 27.4 | 40.5 | 23.6 | 18.8 | 24.4 | 14.6 | 12.1 | 37.9 | 22.7 | 21.8 |
| LnGrp LOS | D | B | C | D | C | B | C | B | B | D | C | C |
| Approach Vol, veh/h | | 456 | | | 407 | | | 1240 | | | 856 | |
| Approach Delay, s/veh | | 26.0 | | | 23.4 | | | 19.4 | | | 23.9 | |
| Approach LOS | | C | | | C | | | B | | | C | |

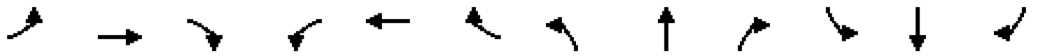
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 28.7 | 5.1 | 20.9 | 18.2 | 18.1 | 5.8 | 20.2 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 9.4 | 32.8 | 5.9 | 24.1 | 23.0 | 19.2 | 5.9 | 24.1 |
| Max Q Clear Time (g_c+I1), s | 4.6 | 9.9 | 2.5 | 14.4 | 12.5 | 9.2 | 2.9 | 11.9 |
| Green Ext Time (p_c), s | 0.0 | 3.7 | 0.0 | 1.2 | 1.7 | 3.1 | 0.0 | 1.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 26 | 99 | 414 | 14 | 326 | 84 | 618 | 604 | 23 | 75 | 653 | 160 |
| v/c Ratio | 0.16 | 0.19 | 0.57 | 0.09 | 0.69 | 0.16 | 0.69 | 0.42 | 0.03 | 0.36 | 0.57 | 0.34 |
| Control Delay (s/veh) | 39.6 | 22.2 | 6.2 | 38.8 | 33.7 | 0.7 | 29.5 | 18.3 | 0.1 | 38.8 | 27.8 | 7.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 39.6 | 22.2 | 6.2 | 38.8 | 33.7 | 0.7 | 29.5 | 18.3 | 0.1 | 38.8 | 27.8 | 7.0 |
| Queue Length 50th (ft) | 10 | 30 | 0 | 5 | 112 | 0 | 110 | 88 | 0 | 27 | 80 | 0 |
| Queue Length 95th (ft) | 34 | 71 | 30 | 23 | 209 | 0 | 183 | 152 | 0 | 71 | 135 | 27 |
| Internal Link Dist (ft) | | 2502 | | | 5399 | | | 2584 | | | 1653 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 25 | 255 | | | 255 | | 205 |
| Base Capacity (vph) | 163 | 742 | 862 | 163 | 704 | 686 | 1238 | 1820 | 836 | 260 | 1530 | 581 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.16 | 0.13 | 0.48 | 0.09 | 0.46 | 0.12 | 0.50 | 0.33 | 0.03 | 0.29 | 0.43 | 0.28 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 77 | 136 | 258 | 153 | 183 | 179 | 134 | 783 | 28 | 78 | 695 | 66 |
| Future Volume (veh/h) | 77 | 136 | 258 | 153 | 183 | 179 | 134 | 783 | 28 | 78 | 695 | 66 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 87 | 153 | 232 | 172 | 206 | 161 | 151 | 880 | 16 | 88 | 781 | 67 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 118 | 393 | 328 | 216 | 256 | 200 | 191 | 1463 | 446 | 118 | 1254 | 381 |
| Arrive On Green | 0.07 | 0.21 | 0.21 | 0.12 | 0.27 | 0.27 | 0.11 | 0.29 | 0.29 | 0.07 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1781 | 1870 | 1562 | 1781 | 968 | 756 | 1781 | 5106 | 1557 | 1781 | 5106 | 1553 |
| Grp Volume(v), veh/h | 87 | 153 | 232 | 172 | 0 | 367 | 151 | 880 | 16 | 88 | 781 | 67 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1562 | 1781 | 0 | 1724 | 1781 | 1702 | 1557 | 1781 | 1702 | 1553 |
| Q Serve(g_s), s | 2.7 | 4.0 | 7.8 | 5.3 | 0.0 | 11.2 | 4.7 | 8.4 | 0.4 | 2.7 | 7.7 | 1.9 |
| Cycle Q Clear(g_c), s | 2.7 | 4.0 | 7.8 | 5.3 | 0.0 | 11.2 | 4.7 | 8.4 | 0.4 | 2.7 | 7.7 | 1.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.44 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 118 | 393 | 328 | 216 | 0 | 457 | 191 | 1463 | 446 | 118 | 1254 | 381 |
| V/C Ratio(X) | 0.74 | 0.39 | 0.71 | 0.80 | 0.00 | 0.80 | 0.79 | 0.60 | 0.04 | 0.74 | 0.62 | 0.18 |
| Avail Cap(c_a), veh/h | 193 | 598 | 499 | 253 | 0 | 609 | 221 | 1813 | 553 | 196 | 1741 | 529 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.8 | 19.1 | 20.6 | 24.1 | 0.0 | 19.3 | 24.5 | 17.3 | 14.5 | 25.8 | 18.9 | 16.7 |
| Incr Delay (d2), s/veh | 8.7 | 0.6 | 2.8 | 14.1 | 0.0 | 5.7 | 15.3 | 0.4 | 0.0 | 8.9 | 0.5 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.3 | 1.5 | 2.6 | 2.8 | 0.0 | 4.4 | 2.5 | 2.7 | 0.1 | 1.3 | 2.5 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 34.6 | 19.8 | 23.5 | 38.2 | 0.0 | 25.0 | 39.8 | 17.7 | 14.5 | 34.7 | 19.4 | 17.0 |
| LnGrp LOS | C | B | C | D | | C | D | B | B | C | B | B |
| Approach Vol, veh/h | | 472 | | | 539 | | | 1047 | | | 936 | |
| Approach Delay, s/veh | | 24.3 | | | 29.2 | | | 20.9 | | | 20.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.7 | 21.0 | 10.8 | 16.7 | 10.0 | 18.7 | 7.7 | 19.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.2 | 20.0 | 8.0 | 18.0 | 7.0 | 19.2 | 6.1 | 19.9 |
| Max Q Clear Time (g_c+I1), s | 4.7 | 10.4 | 7.3 | 9.8 | 6.7 | 9.7 | 4.7 | 13.2 |
| Green Ext Time (p_c), s | 0.0 | 3.8 | 0.0 | 1.0 | 0.0 | 3.4 | 0.0 | 1.1 |

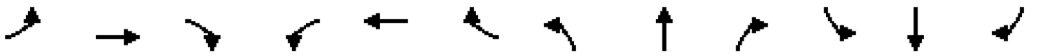
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.9 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 87 | 153 | 290 | 172 | 407 | 151 | 880 | 31 | 88 | 781 | 74 |
| v/c Ratio | 0.51 | 0.37 | 0.54 | 0.76 | 0.74 | 0.77 | 0.57 | 0.05 | 0.51 | 0.61 | 0.15 |
| Control Delay (s/veh) | 42.6 | 23.8 | 9.0 | 54.6 | 27.9 | 58.6 | 21.7 | 0.2 | 42.4 | 23.6 | 0.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 42.6 | 23.8 | 9.0 | 54.6 | 27.9 | 58.6 | 21.7 | 0.2 | 42.4 | 23.6 | 0.6 |
| Queue Length 50th (ft) | 36 | 52 | 13 | 72 | 127 | 63 | 117 | 0 | 36 | 104 | 0 |
| Queue Length 95th (ft) | #90 | 99 | 69 | #174 | #258 | #160 | 156 | 0 | #91 | 139 | 1 |
| Internal Link Dist (ft) | | 2539 | | | 5389 | | 2581 | | | 2584 | |
| Turn Bay Length (ft) | 230 | | | 75 | | 250 | | 105 | 250 | | 205 |
| Base Capacity (vph) | 171 | 534 | 621 | 225 | 587 | 197 | 1645 | 596 | 174 | 1554 | 571 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.51 | 0.29 | 0.47 | 0.76 | 0.69 | 0.77 | 0.53 | 0.05 | 0.51 | 0.50 | 0.13 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 130 | 287 | 123 | 240 | 315 | 174 | 143 | 686 | 148 | 190 | 1412 | 227 |
| Future Volume (veh/h) | 130 | 287 | 123 | 240 | 315 | 174 | 143 | 686 | 148 | 190 | 1412 | 227 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 144 | 319 | 109 | 267 | 350 | 154 | 159 | 762 | 131 | 211 | 1569 | 202 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 241 | 566 | 248 | 369 | 697 | 306 | 247 | 1923 | 592 | 313 | 2021 | 622 |
| Arrive On Green | 0.07 | 0.16 | 0.16 | 0.11 | 0.20 | 0.20 | 0.07 | 0.38 | 0.38 | 0.09 | 0.40 | 0.40 |
| Sat Flow, veh/h | 3456 | 3554 | 1555 | 3456 | 3554 | 1561 | 3456 | 5106 | 1572 | 3456 | 5106 | 1573 |
| Grp Volume(v), veh/h | 144 | 319 | 109 | 267 | 350 | 154 | 159 | 762 | 131 | 211 | 1569 | 202 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1555 | 1728 | 1777 | 1561 | 1728 | 1702 | 1572 | 1728 | 1702 | 1573 |
| Q Serve(g_s), s | 2.7 | 5.5 | 4.2 | 5.0 | 5.9 | 5.9 | 3.0 | 7.3 | 3.8 | 3.9 | 17.9 | 5.9 |
| Cycle Q Clear(g_c), s | 2.7 | 5.5 | 4.2 | 5.0 | 5.9 | 5.9 | 3.0 | 7.3 | 3.8 | 3.9 | 17.9 | 5.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 241 | 566 | 248 | 369 | 697 | 306 | 247 | 1923 | 592 | 313 | 2021 | 622 |
| V/C Ratio(X) | 0.60 | 0.56 | 0.44 | 0.72 | 0.50 | 0.50 | 0.64 | 0.40 | 0.22 | 0.67 | 0.78 | 0.32 |
| Avail Cap(c_a), veh/h | 373 | 959 | 420 | 466 | 1055 | 463 | 311 | 1960 | 604 | 497 | 2236 | 689 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.1 | 25.9 | 25.3 | 28.8 | 23.9 | 23.9 | 30.1 | 15.2 | 14.1 | 29.4 | 17.6 | 14.0 |
| Incr Delay (d2), s/veh | 2.4 | 0.9 | 1.2 | 4.1 | 0.6 | 1.3 | 3.0 | 0.1 | 0.2 | 2.5 | 1.6 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 2.1 | 1.5 | 2.1 | 2.2 | 2.0 | 1.2 | 2.3 | 1.1 | 1.6 | 5.9 | 1.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 32.5 | 26.8 | 26.6 | 32.9 | 24.5 | 25.2 | 33.2 | 15.4 | 14.3 | 31.9 | 19.2 | 14.3 |
| LnGrp LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| Approach Vol, veh/h | | 572 | | | 771 | | | 1052 | | | 1982 | |
| Approach Delay, s/veh | | 28.2 | | | 27.5 | | | 17.9 | | | 20.1 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.0 | 30.0 | 11.1 | 15.5 | 8.8 | 31.3 | 8.7 | 18.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 9.6 | 25.6 | 9.0 | 18.0 | 6.0 | 29.2 | 7.2 | 19.8 |
| Max Q Clear Time (g_c+I1), s | 5.9 | 9.3 | 7.0 | 7.5 | 5.0 | 19.9 | 4.7 | 7.9 |
| Green Ext Time (p_c), s | 0.2 | 4.6 | 0.2 | 1.6 | 0.0 | 6.5 | 0.1 | 2.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 21.9 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 144 | 319 | 137 | 267 | 350 | 193 | 159 | 762 | 164 | 211 | 1569 | 252 |
| v/c Ratio | 0.44 | 0.55 | 0.37 | 0.65 | 0.52 | 0.43 | 0.56 | 0.43 | 0.25 | 0.51 | 0.79 | 0.34 |
| Control Delay (s/veh) | 36.8 | 32.0 | 8.5 | 39.7 | 29.8 | 7.5 | 41.9 | 19.7 | 4.6 | 35.3 | 23.8 | 5.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 36.8 | 32.0 | 8.5 | 39.7 | 29.8 | 7.5 | 41.9 | 19.7 | 4.6 | 35.3 | 23.8 | 5.3 |
| Queue Length 50th (ft) | 32 | 71 | 0 | 60 | 76 | 0 | 37 | 96 | 0 | 46 | 223 | 10 |
| Queue Length 95th (ft) | 62 | 110 | 43 | #106 | 116 | 49 | #71 | 141 | 39 | 84 | 308 | 57 |
| Internal Link Dist (ft) | | 2544 | | | 5360 | | | 2600 | | | 2626 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 100 | 250 | | 160 | 250 | | 150 |
| Base Capacity (vph) | 338 | 873 | 484 | 423 | 960 | 559 | 282 | 1797 | 651 | 451 | 2035 | 748 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.43 | 0.37 | 0.28 | 0.63 | 0.36 | 0.35 | 0.56 | 0.42 | 0.25 | 0.47 | 0.77 | 0.34 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 2 | 0 | 111 | 0 | 1 | 0 | 318 | 183 | 0 | 0 | 296 | 8 |
| Future Vol, veh/h | 2 | 0 | 111 | 0 | 1 | 0 | 318 | 183 | 0 | 0 | 296 | 8 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 2 | 0 | 135 | 0 | 1 | 0 | 388 | 223 | 0 | 0 | 361 | 10 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1385 | 1385 | 386 | 1380 | 1390 | 243 | 381 | 0 | 0 | 233 | 0 | 0 |
| Stage 1 | 376 | 376 | - | 1009 | 1009 | - | - | - | - | - | - | - |
| Stage 2 | 1009 | 1009 | - | 371 | 381 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.15 | 6.55 | 6.25 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.15 | - | - |
| Critical Hdwy Stg 1 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.545 | 4.045 | 3.345 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.245 | - | - |
| Pot Cap-1 Maneuver | 119 | 141 | 655 | 120 | 140 | 788 | 1161 | - | - | 1317 | - | - |
| Stage 1 | 639 | 611 | - | 286 | 314 | - | - | - | - | - | - | - |
| Stage 2 | 286 | 314 | - | 643 | 608 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 71 | 85 | 643 | 57 | 85 | 773 | 1150 | - | - | 1304 | - | - |
| Mov Cap-2 Maneuver | 71 | 85 | - | 57 | 85 | - | - | - | - | - | - | - |
| Stage 1 | 633 | 605 | - | 174 | 191 | - | - | - | - | - | - | - |
| Stage 2 | 173 | 191 | - | 503 | 602 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 13.46 | 48.12 | 6.16 | 0 |
| HCM LOS | B | E | | |

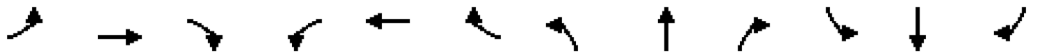
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1008 | - | - | 563 | 85 | 1304 | - | - |
| HCM Lane V/C Ratio | 0.337 | - | - | 0.245 | 0.014 | - | - | - |
| HCM Ctrl Dly (s/v) | 9.7 | 0 | - | 13.5 | 48.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | E | A | - | - |
| HCM 95th %tile Q(veh) | 1.5 | - | - | 1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 191.8 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 3 | 150 | 61 | 51 | 372 | 291 | 145 | 217 | 20 | 164 | 218 | 4 |
| Future Vol, veh/h | 3 | 150 | 61 | 51 | 372 | 291 | 145 | 217 | 20 | 164 | 218 | 4 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 3 | 160 | 65 | 54 | 396 | 310 | 154 | 231 | 21 | 174 | 232 | 4 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 29.4 | 366.5 | 73.2 | 76 |
| HCM LOS | D | F | F | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 38% | 1% | 7% | 42% |
| Vol Thru, % | 57% | 70% | 52% | 56% |
| Vol Right, % | 5% | 29% | 41% | 1% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 382 | 214 | 714 | 386 |
| LT Vol | 145 | 3 | 51 | 164 |
| Through Vol | 217 | 150 | 372 | 218 |
| RT Vol | 20 | 61 | 291 | 4 |
| Lane Flow Rate | 406 | 228 | 760 | 411 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.961 | 0.586 | 1.748 | 0.973 |
| Departure Headway (Hd) | 10.623 | 11.415 | 8.286 | 10.625 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 345 | 319 | 441 | 345 |
| Service Time | 8.623 | 9.415 | 6.365 | 8.625 |
| HCM Lane V/C Ratio | 1.177 | 0.715 | 1.723 | 1.191 |
| HCM Control Delay, s/veh | 73.2 | 29.4 | 366.5 | 76 |
| HCM Lane LOS | F | D | F | F |
| HCM 95th-tile Q | 10.3 | 3.5 | 46.3 | 10.6 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 39 | 541 | 309 | 95 | 412 | 126 | 127 | 233 | 73 | 162 | 353 | 45 |
| Future Volume (veh/h) | 39 | 541 | 309 | 95 | 412 | 126 | 127 | 233 | 73 | 162 | 353 | 45 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 44 | 615 | 281 | 108 | 468 | 115 | 144 | 265 | 66 | 184 | 401 | 41 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 74 | 917 | 401 | 138 | 549 | 458 | 182 | 438 | 367 | 228 | 487 | 408 |
| Arrive On Green | 0.04 | 0.26 | 0.26 | 0.08 | 0.30 | 0.30 | 0.10 | 0.24 | 0.24 | 0.13 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1739 | 3469 | 1518 | 1739 | 1826 | 1522 | 1739 | 1826 | 1528 | 1739 | 1826 | 1530 |
| Grp Volume(v), veh/h | 44 | 615 | 281 | 108 | 468 | 115 | 144 | 265 | 66 | 184 | 401 | 41 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1518 | 1739 | 1826 | 1522 | 1739 | 1826 | 1528 | 1739 | 1826 | 1530 |
| Q Serve(g_s), s | 1.5 | 9.9 | 10.4 | 3.8 | 15.0 | 3.6 | 5.0 | 8.0 | 2.1 | 6.4 | 12.9 | 1.3 |
| Cycle Q Clear(g_c), s | 1.5 | 9.9 | 10.4 | 3.8 | 15.0 | 3.6 | 5.0 | 8.0 | 2.1 | 6.4 | 12.9 | 1.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 74 | 917 | 401 | 138 | 549 | 458 | 182 | 438 | 367 | 228 | 487 | 408 |
| V/C Ratio(X) | 0.59 | 0.67 | 0.70 | 0.78 | 0.85 | 0.25 | 0.79 | 0.60 | 0.18 | 0.81 | 0.82 | 0.10 |
| Avail Cap(c_a), veh/h | 165 | 1235 | 540 | 217 | 706 | 588 | 251 | 621 | 519 | 307 | 679 | 569 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.3 | 20.5 | 20.7 | 28.2 | 20.5 | 16.5 | 27.3 | 21.1 | 18.8 | 26.3 | 21.5 | 17.2 |
| Incr Delay (d2), s/veh | 7.3 | 0.9 | 2.5 | 9.3 | 8.0 | 0.3 | 11.2 | 1.3 | 0.2 | 10.9 | 5.8 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 3.4 | 3.4 | 1.8 | 6.5 | 1.1 | 2.4 | 3.1 | 0.7 | 3.0 | 5.5 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.6 | 21.4 | 23.3 | 37.5 | 28.5 | 16.8 | 38.5 | 22.4 | 19.1 | 37.3 | 27.3 | 17.3 |
| LnGrp LOS | D | C | C | D | C | B | D | C | B | D | C | B |
| Approach Vol, veh/h | | 940 | | | 691 | | | 475 | | | 626 | |
| Approach Delay, s/veh | | 22.7 | | | 27.9 | | | 26.8 | | | 29.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.2 | 19.9 | 8.9 | 21.4 | 10.5 | 21.5 | 6.7 | 23.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 11.0 | 21.2 | 7.8 | 22.2 | 9.0 | 23.2 | 5.9 | 24.1 |
| Max Q Clear Time (g_c+I1), s | 8.4 | 10.0 | 5.8 | 12.4 | 7.0 | 14.9 | 3.5 | 17.0 |
| Green Ext Time (p_c), s | 0.1 | 1.2 | 0.0 | 3.3 | 0.1 | 1.5 | 0.0 | 1.7 |

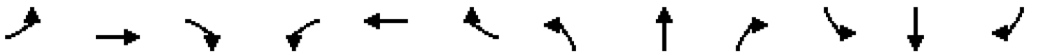
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 26.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 44 | 615 | 351 | 108 | 468 | 143 | 144 | 265 | 83 | 184 | 401 | 51 |
| v/c Ratio | 0.31 | 0.65 | 0.58 | 0.59 | 0.80 | 0.25 | 0.68 | 0.58 | 0.17 | 0.72 | 0.80 | 0.10 |
| Control Delay (s/veh) | 40.9 | 27.8 | 11.0 | 49.1 | 36.3 | 6.2 | 51.9 | 30.7 | 2.2 | 50.5 | 39.0 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.9 | 27.8 | 11.0 | 49.1 | 36.3 | 6.2 | 51.9 | 30.7 | 2.2 | 50.5 | 39.0 | 0.4 |
| Queue Length 50th (ft) | 21 | 141 | 31 | 53 | 218 | 3 | 71 | 114 | 0 | 90 | 182 | 0 |
| Queue Length 95th (ft) | 52 | 192 | 103 | #119 | #369 | 40 | #155 | 184 | 10 | #186 | #301 | 0 |
| Internal Link Dist (ft) | | 5360 | | | 2582 | | | 1302 | | | 2564 | |
| Turn Bay Length (ft) | 230 | | 75 | 215 | | 55 | 225 | | | 255 | | 25 |
| Base Capacity (vph) | 147 | 1107 | 657 | 194 | 660 | 623 | 224 | 556 | 554 | 274 | 609 | 594 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.30 | 0.56 | 0.53 | 0.56 | 0.71 | 0.23 | 0.64 | 0.48 | 0.15 | 0.67 | 0.66 | 0.09 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 35 | 643 | 420 | 320 | 486 | 48 | 135 | 59 | 151 | 19 | 71 | 67 |
| Future Volume (veh/h) | 35 | 643 | 420 | 320 | 486 | 48 | 135 | 59 | 151 | 19 | 71 | 67 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 43 | 784 | 410 | 390 | 593 | 47 | 165 | 72 | 147 | 23 | 87 | 66 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 146 | 1124 | 497 | 509 | 1497 | 663 | 208 | 736 | 320 | 91 | 414 | 177 |
| Arrive On Green | 0.04 | 0.32 | 0.32 | 0.15 | 0.42 | 0.42 | 0.12 | 0.21 | 0.21 | 0.03 | 0.12 | 0.12 |
| Sat Flow, veh/h | 3428 | 3526 | 1558 | 3428 | 3526 | 1561 | 1767 | 3526 | 1535 | 3428 | 3526 | 1506 |
| Grp Volume(v), veh/h | 43 | 784 | 410 | 390 | 593 | 47 | 165 | 72 | 147 | 23 | 87 | 66 |
| Grp Sat Flow(s),veh/h/ln | 1714 | 1763 | 1558 | 1714 | 1763 | 1561 | 1767 | 1763 | 1535 | 1714 | 1763 | 1506 |
| Q Serve(g_s), s | 0.7 | 11.7 | 14.6 | 6.5 | 7.0 | 1.1 | 5.4 | 1.0 | 5.0 | 0.4 | 1.3 | 2.4 |
| Cycle Q Clear(g_c), s | 0.7 | 11.7 | 14.6 | 6.5 | 7.0 | 1.1 | 5.4 | 1.0 | 5.0 | 0.4 | 1.3 | 2.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 146 | 1124 | 497 | 509 | 1497 | 663 | 208 | 736 | 320 | 91 | 414 | 177 |
| V/C Ratio(X) | 0.29 | 0.70 | 0.83 | 0.77 | 0.40 | 0.07 | 0.79 | 0.10 | 0.46 | 0.25 | 0.21 | 0.37 |
| Avail Cap(c_a), veh/h | 338 | 1243 | 549 | 630 | 1544 | 684 | 295 | 1426 | 621 | 338 | 1184 | 506 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 27.8 | 17.9 | 18.8 | 24.5 | 11.9 | 10.2 | 25.7 | 19.1 | 20.7 | 28.5 | 23.9 | 24.4 |
| Incr Delay (d2), s/veh | 1.1 | 1.5 | 9.3 | 4.5 | 0.2 | 0.0 | 9.3 | 0.1 | 1.0 | 1.4 | 0.2 | 1.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 4.0 | 5.5 | 2.6 | 2.1 | 0.3 | 2.6 | 0.4 | 1.6 | 0.2 | 0.5 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 28.9 | 19.4 | 28.1 | 28.9 | 12.1 | 10.3 | 34.9 | 19.2 | 21.7 | 30.0 | 24.1 | 25.7 |
| LnGrp LOS | C | B | C | C | B | B | C | B | C | C | C | C |
| Approach Vol, veh/h | | 1237 | | | 1030 | | | 384 | | | 176 | |
| Approach Delay, s/veh | | 22.6 | | | 18.4 | | | 26.9 | | | 25.5 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.6 | 17.4 | 12.9 | 24.0 | 11.0 | 11.9 | 6.6 | 30.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 24.2 | 11.0 | 21.1 | 10.0 | 20.1 | 5.9 | 26.2 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 7.0 | 8.5 | 16.6 | 7.4 | 4.4 | 2.7 | 9.0 |
| Green Ext Time (p_c), s | 0.0 | 0.7 | 0.4 | 2.5 | 0.1 | 0.5 | 0.0 | 3.4 |

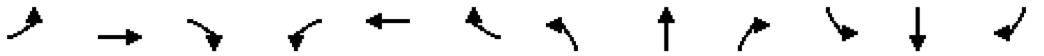
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 21.8 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 43 | 784 | 512 | 390 | 593 | 59 | 165 | 72 | 184 | 23 | 87 | 82 |
| v/c Ratio | 0.14 | 0.73 | 0.80 | 0.70 | 0.38 | 0.07 | 0.64 | 0.07 | 0.33 | 0.08 | 0.23 | 0.22 |
| Control Delay (s/veh) | 29.9 | 25.0 | 22.5 | 34.1 | 14.3 | 0.2 | 40.5 | 19.4 | 5.6 | 29.2 | 28.9 | 1.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 29.9 | 25.0 | 22.5 | 34.1 | 14.3 | 0.2 | 40.5 | 19.4 | 5.6 | 29.2 | 28.9 | 1.3 |
| Queue Length 50th (ft) | 8 | 146 | 96 | 78 | 90 | 0 | 64 | 10 | 0 | 4 | 17 | 0 |
| Queue Length 95th (ft) | 20 | 187 | #180 | 111 | 121 | 0 | #115 | 26 | 35 | 13 | 33 | 0 |
| Internal Link Dist (ft) | | 2582 | | | 2532 | | | 2598 | | | 898 | |
| Turn Bay Length (ft) | 240 | | 50 | 245 | | 175 | 235 | | | 250 | | 100 |
| Base Capacity (vph) | 307 | 1134 | 660 | 574 | 1564 | 787 | 268 | 1301 | 677 | 307 | 1081 | 632 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.14 | 0.69 | 0.78 | 0.68 | 0.38 | 0.07 | 0.62 | 0.06 | 0.27 | 0.07 | 0.08 | 0.13 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 39 | 641 | 194 | 42 | 523 | 184 | 70 | 394 | 25 | 96 | 744 | 52 |
| Future Volume (veh/h) | 39 | 641 | 194 | 42 | 523 | 184 | 70 | 394 | 25 | 96 | 744 | 52 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 42 | 689 | 167 | 45 | 562 | 158 | 75 | 424 | 22 | 103 | 800 | 45 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 65 | 741 | 623 | 67 | 744 | 626 | 95 | 852 | 375 | 130 | 922 | 403 |
| Arrive On Green | 0.04 | 0.41 | 0.41 | 0.04 | 0.41 | 0.41 | 0.05 | 0.25 | 0.25 | 0.07 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1739 | 1826 | 1536 | 1739 | 1826 | 1536 | 1739 | 3469 | 1528 | 1739 | 3469 | 1518 |
| Grp Volume(v), veh/h | 42 | 689 | 167 | 45 | 562 | 158 | 75 | 424 | 22 | 103 | 800 | 45 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1826 | 1536 | 1739 | 1826 | 1536 | 1739 | 1735 | 1528 | 1739 | 1735 | 1518 |
| Q Serve(g_s), s | 2.0 | 30.1 | 6.1 | 2.1 | 22.0 | 5.7 | 3.6 | 8.8 | 0.9 | 4.9 | 18.4 | 1.9 |
| Cycle Q Clear(g_c), s | 2.0 | 30.1 | 6.1 | 2.1 | 22.0 | 5.7 | 3.6 | 8.8 | 0.9 | 4.9 | 18.4 | 1.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 65 | 741 | 623 | 67 | 744 | 626 | 95 | 852 | 375 | 130 | 922 | 403 |
| V/C Ratio(X) | 0.65 | 0.93 | 0.27 | 0.67 | 0.76 | 0.25 | 0.79 | 0.50 | 0.06 | 0.79 | 0.87 | 0.11 |
| Avail Cap(c_a), veh/h | 104 | 790 | 664 | 104 | 790 | 664 | 106 | 864 | 381 | 177 | 1006 | 440 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 39.6 | 23.7 | 16.5 | 39.6 | 21.2 | 16.3 | 39.0 | 27.1 | 24.1 | 38.0 | 29.2 | 23.2 |
| Incr Delay (d2), s/veh | 10.4 | 16.8 | 0.2 | 10.8 | 4.0 | 0.2 | 28.8 | 0.5 | 0.1 | 15.4 | 7.7 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.0 | 14.8 | 2.0 | 1.1 | 9.1 | 1.8 | 2.2 | 3.4 | 0.3 | 2.5 | 8.0 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 50.0 | 40.5 | 16.8 | 50.4 | 25.1 | 16.5 | 67.7 | 27.5 | 24.2 | 53.3 | 37.0 | 23.3 |
| LnGrp LOS | D | D | B | D | C | B | E | C | C | D | D | C |
| Approach Vol, veh/h | | 898 | | | 765 | | | 521 | | | 948 | |
| Approach Delay, s/veh | | 36.5 | | | 24.8 | | | 33.2 | | | 38.1 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.2 | 25.4 | 8.1 | 38.8 | 9.5 | 27.1 | 8.0 | 38.9 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 8.5 | 20.8 | 5.0 | 36.1 | 5.1 | 24.2 | 5.0 | 36.1 |
| Max Q Clear Time (g_c+I1), s | 6.9 | 10.8 | 4.1 | 32.1 | 5.6 | 20.4 | 4.0 | 24.0 |
| Green Ext Time (p_c), s | 0.0 | 1.8 | 0.0 | 1.8 | 0.0 | 1.8 | 0.0 | 3.1 |

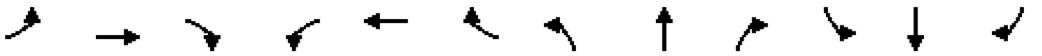
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 33.6 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 42 | 689 | 209 | 45 | 562 | 198 | 75 | 424 | 27 | 103 | 800 | 56 |
| v/c Ratio | 0.37 | 0.89 | 0.27 | 0.40 | 0.72 | 0.27 | 0.65 | 0.49 | 0.06 | 0.58 | 0.82 | 0.11 |
| Control Delay (s/veh) | 50.5 | 39.0 | 3.8 | 51.9 | 27.7 | 7.2 | 69.5 | 30.3 | 0.2 | 52.9 | 37.2 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 50.5 | 39.0 | 3.8 | 51.9 | 27.7 | 7.2 | 69.5 | 30.3 | 0.2 | 52.9 | 37.2 | 0.4 |
| Queue Length 50th (ft) | 24 | 371 | 0 | 25 | 271 | 19 | 43 | 111 | 0 | 57 | 227 | 0 |
| Queue Length 95th (ft) | #60 | #601 | 41 | #67 | #407 | 63 | #120 | 158 | 0 | #128 | #328 | 0 |
| Internal Link Dist (ft) | | 2056 | | | 3072 | | | 1478 | | | 985 | |
| Turn Bay Length (ft) | 230 | | | 55 | | 60 | 330 | | 95 | 265 | | 145 |
| Base Capacity (vph) | 113 | 860 | 820 | 113 | 860 | 785 | 115 | 940 | 512 | 192 | 1094 | 565 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.37 | 0.80 | 0.25 | 0.40 | 0.65 | 0.25 | 0.65 | 0.45 | 0.05 | 0.54 | 0.73 | 0.10 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 18 | 395 | 232 | 49 | 693 | 93 | 127 | 505 | 65 | 186 | 734 | 43 |
| Future Volume (veh/h) | 18 | 395 | 232 | 49 | 693 | 93 | 127 | 505 | 65 | 186 | 734 | 43 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 20 | 449 | 212 | 56 | 788 | 84 | 144 | 574 | 59 | 211 | 834 | 39 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 37 | 790 | 665 | 72 | 827 | 696 | 171 | 772 | 336 | 240 | 910 | 398 |
| Arrive On Green | 0.02 | 0.43 | 0.43 | 0.04 | 0.45 | 0.45 | 0.10 | 0.22 | 0.22 | 0.14 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1753 | 1841 | 1549 | 1753 | 1841 | 1550 | 1753 | 3497 | 1525 | 1753 | 3497 | 1530 |
| Grp Volume(v), veh/h | 20 | 449 | 212 | 56 | 788 | 84 | 144 | 574 | 59 | 211 | 834 | 39 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 1841 | 1549 | 1753 | 1841 | 1550 | 1753 | 1749 | 1525 | 1753 | 1749 | 1530 |
| Q Serve(g_s), s | 1.2 | 19.1 | 9.4 | 3.3 | 42.7 | 3.3 | 8.4 | 15.8 | 3.2 | 12.2 | 24.0 | 2.0 |
| Cycle Q Clear(g_c), s | 1.2 | 19.1 | 9.4 | 3.3 | 42.7 | 3.3 | 8.4 | 15.8 | 3.2 | 12.2 | 24.0 | 2.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 37 | 790 | 665 | 72 | 827 | 696 | 171 | 772 | 336 | 240 | 910 | 398 |
| V/C Ratio(X) | 0.54 | 0.57 | 0.32 | 0.78 | 0.95 | 0.12 | 0.84 | 0.74 | 0.18 | 0.88 | 0.92 | 0.10 |
| Avail Cap(c_a), veh/h | 100 | 802 | 675 | 156 | 860 | 724 | 171 | 794 | 346 | 244 | 939 | 411 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 50.2 | 22.3 | 19.5 | 49.2 | 27.5 | 16.6 | 45.9 | 37.6 | 32.7 | 43.8 | 37.2 | 29.1 |
| Incr Delay (d2), s/veh | 11.7 | 0.9 | 0.3 | 16.4 | 19.8 | 0.1 | 29.8 | 3.7 | 0.2 | 28.1 | 13.2 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 7.8 | 3.2 | 1.7 | 21.5 | 1.1 | 4.9 | 6.9 | 1.2 | 7.0 | 11.4 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 61.9 | 23.2 | 19.8 | 65.6 | 47.3 | 16.7 | 75.7 | 41.3 | 33.0 | 71.9 | 50.4 | 29.2 |
| LnGrp LOS | E | C | B | E | D | B | E | D | C | E | D | C |
| Approach Vol, veh/h | | 681 | | | 928 | | | 777 | | | 1084 | |
| Approach Delay, s/veh | | 23.3 | | | 45.6 | | | 47.1 | | | 53.8 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 18.2 | 27.7 | 8.2 | 49.4 | 14.1 | 31.9 | 6.2 | 51.4 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 14.4 | 23.5 | 9.2 | 45.1 | 10.1 | 27.8 | 5.9 | 48.4 |
| Max Q Clear Time (g_c+I1), s | 14.2 | 17.8 | 5.3 | 21.1 | 10.4 | 26.0 | 3.2 | 44.7 |
| Green Ext Time (p_c), s | 0.0 | 1.8 | 0.0 | 3.3 | 0.0 | 1.0 | 0.0 | 1.8 |

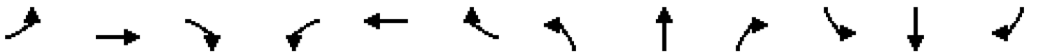
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 44.1 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 20 | 449 | 264 | 56 | 788 | 106 | 144 | 574 | 74 | 211 | 834 | 49 |
| v/c Ratio | 0.20 | 0.61 | 0.37 | 0.42 | 0.93 | 0.14 | 0.84 | 0.73 | 0.17 | 0.87 | 0.90 | 0.11 |
| Control Delay (s/veh) | 53.9 | 29.3 | 10.3 | 56.7 | 46.0 | 1.9 | 85.6 | 44.2 | 0.8 | 77.5 | 51.1 | 0.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 53.9 | 29.3 | 10.3 | 56.7 | 46.0 | 1.9 | 85.6 | 44.2 | 0.8 | 77.5 | 51.1 | 0.7 |
| Queue Length 50th (ft) | 12 | 241 | 44 | 34 | 440 | 0 | 92 | 177 | 0 | 133 | 265 | 0 |
| Queue Length 95th (ft) | 39 | 339 | 101 | 78 | #772 | 16 | #216 | 259 | 0 | #283 | #414 | 2 |
| Internal Link Dist (ft) | | 2744 | | | 2456 | | | 1336 | | | 1121 | |
| Turn Bay Length (ft) | 150 | | 100 | 165 | | 105 | 230 | | 85 | 240 | | 85 |
| Base Capacity (vph) | 100 | 803 | 753 | 155 | 861 | 783 | 171 | 794 | 443 | 243 | 940 | 471 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.20 | 0.56 | 0.35 | 0.36 | 0.92 | 0.14 | 0.84 | 0.72 | 0.17 | 0.87 | 0.89 | 0.10 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 236 | 1034 | 260 | 181 | 1398 | 258 | 202 | 273 | 148 | 258 | 472 | 665 |
| Future Volume (veh/h) | 236 | 1034 | 260 | 181 | 1398 | 258 | 202 | 273 | 148 | 258 | 472 | 665 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 254 | 1112 | 223 | 195 | 1503 | 221 | 217 | 294 | 127 | 277 | 508 | 572 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 327 | 1936 | 596 | 268 | 1848 | 569 | 289 | 837 | 335 | 356 | 1297 | 700 |
| Arrive On Green | 0.10 | 0.39 | 0.39 | 0.08 | 0.37 | 0.37 | 0.09 | 0.24 | 0.24 | 0.11 | 0.26 | 0.26 |
| Sat Flow, veh/h | 3374 | 4985 | 1535 | 3374 | 4985 | 1535 | 3374 | 3481 | 1396 | 3374 | 4985 | 2692 |
| Grp Volume(v), veh/h | 254 | 1112 | 223 | 195 | 1503 | 221 | 217 | 280 | 141 | 277 | 508 | 572 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1662 | 1535 | 1687 | 1662 | 1535 | 1687 | 1662 | 1554 | 1687 | 1662 | 1346 |
| Q Serve(g_s), s | 7.0 | 16.8 | 9.9 | 5.4 | 25.9 | 10.1 | 6.0 | 6.7 | 7.3 | 7.6 | 8.0 | 19.0 |
| Cycle Q Clear(g_c), s | 7.0 | 16.8 | 9.9 | 5.4 | 25.9 | 10.1 | 6.0 | 6.7 | 7.3 | 7.6 | 8.0 | 19.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.90 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 327 | 1936 | 596 | 268 | 1848 | 569 | 289 | 799 | 373 | 356 | 1297 | 700 |
| V/C Ratio(X) | 0.78 | 0.57 | 0.37 | 0.73 | 0.81 | 0.39 | 0.75 | 0.35 | 0.38 | 0.78 | 0.39 | 0.82 |
| Avail Cap(c_a), veh/h | 424 | 2064 | 636 | 410 | 2044 | 629 | 389 | 909 | 425 | 531 | 1573 | 850 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 42.1 | 23.0 | 20.9 | 42.9 | 27.0 | 22.1 | 42.6 | 30.1 | 30.3 | 41.6 | 29.1 | 33.1 |
| Incr Delay (d2), s/veh | 6.7 | 0.3 | 0.4 | 3.8 | 2.4 | 0.4 | 5.5 | 0.3 | 0.6 | 4.3 | 0.2 | 5.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.1 | 6.1 | 3.4 | 2.3 | 9.8 | 3.5 | 2.6 | 2.6 | 2.6 | 3.2 | 3.0 | 6.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 48.7 | 23.3 | 21.3 | 46.7 | 29.5 | 22.5 | 48.1 | 30.3 | 30.9 | 45.9 | 29.3 | 38.4 |
| LnGrp LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Approach Vol, veh/h | | 1589 | | | 1919 | | | 638 | | | 1357 | |
| Approach Delay, s/veh | | 27.1 | | | 30.4 | | | 36.5 | | | 36.5 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 14.1 | 27.8 | 11.6 | 41.9 | 12.2 | 29.7 | 13.2 | 40.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 15.0 | 26.1 | 11.6 | 39.5 | 11.0 | 30.1 | 12.0 | 39.1 |
| Max Q Clear Time (g_c+I1), s | 9.6 | 9.3 | 7.4 | 18.8 | 8.0 | 21.0 | 9.0 | 27.9 |
| Green Ext Time (p_c), s | 0.4 | 2.2 | 0.2 | 8.3 | 0.2 | 3.8 | 0.2 | 7.4 |

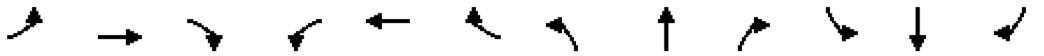
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.7 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 254 | 1112 | 280 | 195 | 1503 | 277 | 217 | 453 | 277 | 508 | 715 |
| v/c Ratio | 0.68 | 0.59 | 0.38 | 0.56 | 0.82 | 0.42 | 0.63 | 0.43 | 0.64 | 0.44 | 0.80 |
| Control Delay (s/veh) | 54.3 | 27.4 | 4.6 | 51.5 | 33.9 | 11.4 | 54.0 | 26.8 | 50.3 | 34.2 | 23.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 54.3 | 27.4 | 4.6 | 51.5 | 33.9 | 11.4 | 54.0 | 26.8 | 50.3 | 34.2 | 23.9 |
| Queue Length 50th (ft) | 85 | 216 | 0 | 64 | 328 | 44 | 73 | 70 | 91 | 106 | 122 |
| Queue Length 95th (ft) | #134 | 284 | 55 | 106 | 420 | 119 | 118 | 104 | 141 | 140 | 201 |
| Internal Link Dist (ft) | | 542 | | | 2532 | | | 2220 | | 1300 | |
| Turn Bay Length (ft) | 240 | | 240 | 250 | | 150 | 200 | | 230 | | 185 |
| Base Capacity (vph) | 406 | 1998 | 770 | 393 | 1964 | 701 | 373 | 1315 | 508 | 1512 | 1066 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.63 | 0.56 | 0.36 | 0.50 | 0.77 | 0.40 | 0.58 | 0.34 | 0.55 | 0.34 | 0.67 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

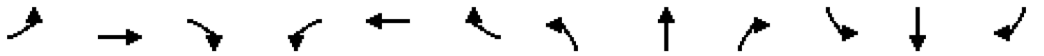


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | | ↑↑↑↑↑ | ↱ | ↰↰↰ | | ↱↱ | | | |
| Traffic Volume (veh/h) | 0 | 991 | 268 | 0 | 2111 | 69 | 457 | 0 | 530 | 0 | 0 | 0 |
| Future Volume (veh/h) | 0 | 991 | 268 | 0 | 2111 | 69 | 457 | 0 | 530 | 0 | 0 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Work Zone On Approach | | No | | | No | | | No | | | | |
| Adj Sat Flow, veh/h/ln | 0 | 1856 | 1856 | 0 | 1856 | 1856 | 1856 | 0 | 1856 | | | |
| Adj Flow Rate, veh/h | 0 | 1054 | 0 | 0 | 2246 | 58 | 486 | 0 | 451 | | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | |
| Percent Heavy Veh, % | 0 | 3 | 3 | 0 | 3 | 3 | 3 | 0 | 3 | | | |
| Cap, veh/h | 0 | 2962 | 919 | 0 | 4394 | 912 | 1237 | 0 | 687 | | | |
| Arrive On Green | 0.00 | 0.58 | 0.00 | 0.00 | 0.58 | 0.58 | 0.25 | 0.00 | 0.25 | | | |
| Sat Flow, veh/h | 0 | 5233 | 1572 | 0 | 7867 | 1559 | 4983 | 0 | 2768 | | | |
| Grp Volume(v), veh/h | 0 | 1054 | 0 | 0 | 2246 | 58 | 486 | 0 | 451 | | | |
| Grp Sat Flow(s),veh/h/ln | 0 | 1689 | 1572 | 0 | 1503 | 1559 | 1661 | 0 | 1384 | | | |
| Q Serve(g_s), s | 0.0 | 6.4 | 0.0 | 0.0 | 10.4 | 0.9 | 4.8 | 0.0 | 8.6 | | | |
| Cycle Q Clear(g_c), s | 0.0 | 6.4 | 0.0 | 0.0 | 10.4 | 0.9 | 4.8 | 0.0 | 8.6 | | | |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 0 | 2962 | 919 | 0 | 4394 | 912 | 1237 | 0 | 687 | | | |
| V/C Ratio(X) | 0.00 | 0.36 | 0.00 | 0.00 | 0.51 | 0.06 | 0.39 | 0.00 | 0.66 | | | |
| Avail Cap(c_a), veh/h | 0 | 3808 | 1182 | 0 | 5649 | 1172 | 3067 | 0 | 1703 | | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 0.0 | 6.4 | 0.0 | 0.0 | 7.2 | 5.3 | 18.4 | 0.0 | 19.8 | | | |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 1.1 | | | |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.4 | 0.0 | 0.0 | 2.1 | 0.2 | 1.7 | 0.0 | 2.6 | | | |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 6.5 | 0.0 | 0.0 | 7.3 | 5.3 | 18.6 | 0.0 | 20.9 | | | |
| LnGrp LOS | | A | | | A | A | B | | C | | | |
| Approach Vol, veh/h | | 1054 | | | 2304 | | | 937 | | | | |
| Approach Delay, s/veh | | 6.5 | | | 7.3 | | | 19.7 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Timer - Assigned Phs | | 2 | | 4 | | | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 19.5 | | 39.2 | | | | 39.2 | | | | |
| Change Period (Y+Rc), s | | 4.9 | | 4.9 | | | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 36.1 | | 44.1 | | | | 44.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 10.6 | | 8.4 | | | | 12.4 | | | | |
| Green Ext Time (p_c), s | | 4.0 | | 8.1 | | | | 21.9 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 7th Control Delay, s/veh | | | 9.8 | | | | | | | | | |
| HCM 7th LOS | | | A | | | | | | | | | |



| Lane Group | EBT | EBR | WBT | WBR | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1054 | 285 | 2246 | 73 | 486 | 564 |
| v/c Ratio | 0.36 | 0.29 | 0.52 | 0.08 | 0.37 | 0.72 |
| Control Delay (s/veh) | 8.1 | 2.0 | 9.1 | 2.4 | 21.3 | 24.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 8.1 | 2.0 | 9.1 | 2.4 | 21.3 | 24.3 |
| Queue Length 50th (ft) | 72 | 0 | 118 | 0 | 62 | 105 |
| Queue Length 95th (ft) | 127 | 32 | 188 | 17 | 89 | 164 |
| Internal Link Dist (ft) | 739 | | 542 | | | |
| Turn Bay Length (ft) | | | | 450 | | |
| Base Capacity (vph) | 3449 | 1115 | 5117 | 1068 | 2771 | 1550 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.31 | 0.26 | 0.44 | 0.07 | 0.18 | 0.36 |

Intersection Summary

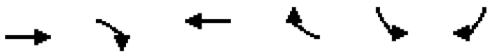


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑↑ | ↱ | | ↑↑↑↑ | ↱ | | | | ↰↰ | | ↱↱ |
| Traffic Volume (veh/h) | 0 | 1172 | 546 | 0 | 1739 | 885 | 0 | 0 | 0 | 104 | 0 | 879 |
| Future Volume (veh/h) | 0 | 1172 | 546 | 0 | 1739 | 885 | 0 | 0 | 0 | 104 | 0 | 879 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | | | | No | |
| Adj Sat Flow, veh/h/ln | 0 | 1856 | 1856 | 0 | 1856 | 1856 | | | | 1856 | 0 | 1856 |
| Adj Flow Rate, veh/h | 0 | 1221 | 455 | 0 | 1811 | 0 | | | | 108 | 0 | 733 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | | | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 0 | 3 | 3 | 0 | 3 | 3 | | | | 3 | 0 | 3 |
| Cap, veh/h | 0 | 3073 | 749 | 0 | 3573 | 1294 | | | | 1170 | 0 | 945 |
| Arrive On Green | 0.00 | 0.48 | 0.48 | 0.00 | 0.48 | 0.00 | | | | 0.34 | 0.00 | 0.34 |
| Sat Flow, veh/h | 0 | 6643 | 1556 | 0 | 7422 | 1572 | | | | 3428 | 0 | 2768 |
| Grp Volume(v), veh/h | 0 | 1221 | 455 | 0 | 1811 | 0 | | | | 108 | 0 | 733 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1596 | 1556 | 0 | 1856 | 1572 | | | | 1714 | 0 | 1384 |
| Q Serve(g_s), s | 0.0 | 6.8 | 11.8 | 0.0 | 9.3 | 0.0 | | | | 1.2 | 0.0 | 13.1 |
| Cycle Q Clear(g_c), s | 0.0 | 6.8 | 11.8 | 0.0 | 9.3 | 0.0 | | | | 1.2 | 0.0 | 13.1 |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 3073 | 749 | 0 | 3573 | 1294 | | | | 1170 | 0 | 945 |
| V/C Ratio(X) | 0.00 | 0.40 | 0.61 | 0.00 | 0.51 | 0.00 | | | | 0.09 | 0.00 | 0.78 |
| Avail Cap(c_a), veh/h | 0 | 4515 | 1101 | 0 | 5250 | 1649 | | | | 2549 | 0 | 2058 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 9.2 | 10.5 | 0.0 | 9.8 | 0.0 | | | | 12.4 | 0.0 | 16.3 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.8 | 0.0 | 0.1 | 0.0 | | | | 0.0 | 0.0 | 1.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.7 | 3.0 | 0.0 | 2.7 | 0.0 | | | | 0.4 | 0.0 | 3.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 9.3 | 11.3 | 0.0 | 9.9 | 0.0 | | | | 12.4 | 0.0 | 17.7 |
| LnGrp LOS | | A | B | | A | | | | | B | | B |
| Approach Vol, veh/h | | 1676 | | | 1811 | | | | | | 841 | |
| Approach Delay, s/veh | | 9.8 | | | 9.9 | | | | | | 17.0 | |
| Approach LOS | | A | | | A | | | | | | B | |

| Timer - Assigned Phs | | | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | | | 31.5 | | 23.8 | | 31.5 | | | | |
| Change Period (Y+Rc), s | | | | 4.9 | | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | | | 39.1 | | 41.1 | | 39.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | | | 13.8 | | 15.1 | | 11.3 | | | | |
| Green Ext Time (p_c), s | | | | 11.2 | | 3.7 | | 15.4 | | | | |

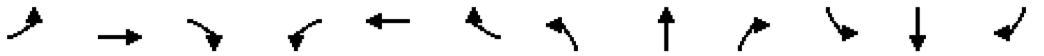
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 11.3 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |

| Notes |
|---|
| User approved volume balancing among the lanes for turning movement. |
| User approved changes to right turn type. |



| Lane Group | EBT | EBR | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1221 | 569 | 2244 | 489 | 108 | 916 |
| v/c Ratio | 0.40 | 0.55 | 0.80 | 0.45 | 0.08 | 0.85 |
| Control Delay (s/veh) | 14.9 | 3.8 | 20.8 | 1.8 | 14.7 | 29.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 14.9 | 3.8 | 20.8 | 1.8 | 14.7 | 29.5 |
| Queue Length 50th (ft) | 110 | 0 | 272 | 0 | 17 | 228 |
| Queue Length 95th (ft) | 166 | 58 | 397 | 0 | 31 | 311 |
| Internal Link Dist (ft) | 1332 | | 739 | | | |
| Turn Bay Length (ft) | | 360 | | 100 | | |
| Base Capacity (vph) | 3126 | 1040 | 2887 | 1158 | 1760 | 1402 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.39 | 0.55 | 0.78 | 0.42 | 0.06 | 0.65 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 21 | 629 | 153 | 63 | 663 | 24 | 54 | 39 | 35 | 2 | 135 | 74 |
| Future Volume (veh/h) | 21 | 629 | 153 | 63 | 663 | 24 | 54 | 39 | 35 | 2 | 135 | 74 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 23 | 684 | 132 | 68 | 721 | 21 | 59 | 42 | 30 | 2 | 147 | 64 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 48 | 799 | 669 | 103 | 857 | 718 | 95 | 373 | 312 | 5 | 279 | 231 |
| Arrive On Green | 0.03 | 0.43 | 0.43 | 0.06 | 0.46 | 0.46 | 0.05 | 0.20 | 0.20 | 0.00 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1781 | 1870 | 1566 | 1781 | 1870 | 1568 | 1781 | 1870 | 1561 | 1781 | 1870 | 1553 |
| Grp Volume(v), veh/h | 23 | 684 | 132 | 68 | 721 | 21 | 59 | 42 | 30 | 2 | 147 | 64 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1566 | 1781 | 1870 | 1568 | 1781 | 1870 | 1561 | 1781 | 1870 | 1553 |
| Q Serve(g_s), s | 0.7 | 18.8 | 3.0 | 2.1 | 19.3 | 0.4 | 1.8 | 1.0 | 0.9 | 0.1 | 4.1 | 2.1 |
| Cycle Q Clear(g_c), s | 0.7 | 18.8 | 3.0 | 2.1 | 19.3 | 0.4 | 1.8 | 1.0 | 0.9 | 0.1 | 4.1 | 2.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 48 | 799 | 669 | 103 | 857 | 718 | 95 | 373 | 312 | 5 | 279 | 231 |
| V/C Ratio(X) | 0.48 | 0.86 | 0.20 | 0.66 | 0.84 | 0.03 | 0.62 | 0.11 | 0.10 | 0.41 | 0.53 | 0.28 |
| Avail Cap(c_a), veh/h | 185 | 1055 | 884 | 185 | 1055 | 884 | 185 | 602 | 502 | 185 | 602 | 500 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 27.3 | 14.7 | 10.2 | 26.3 | 13.6 | 8.5 | 26.4 | 18.6 | 18.6 | 28.3 | 22.4 | 21.5 |
| Incr Delay (d2), s/veh | 7.4 | 5.6 | 0.1 | 7.0 | 5.2 | 0.0 | 6.5 | 0.1 | 0.1 | 47.2 | 1.5 | 0.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 7.0 | 0.8 | 1.0 | 6.9 | 0.1 | 0.9 | 0.4 | 0.3 | 0.1 | 1.7 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 34.7 | 20.3 | 10.3 | 33.2 | 18.8 | 8.5 | 32.9 | 18.8 | 18.7 | 75.5 | 23.9 | 22.1 |
| LnGrp LOS | C | C | B | C | B | A | C | B | B | E | C | C |
| Approach Vol, veh/h | | 839 | | | 810 | | | 131 | | | 213 | |
| Approach Delay, s/veh | | 19.1 | | | 19.8 | | | 25.1 | | | 23.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.2 | 16.3 | 7.3 | 29.2 | 7.0 | 13.4 | 5.5 | 31.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 18.3 | 5.9 | 32.1 | 5.9 | 18.3 | 5.9 | 32.1 |
| Max Q Clear Time (g_c+I1), s | 2.1 | 3.0 | 4.1 | 20.8 | 3.8 | 6.1 | 2.7 | 21.3 |
| Green Ext Time (p_c), s | 0.0 | 0.2 | 0.0 | 3.5 | 0.0 | 0.7 | 0.0 | 3.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 23 | 684 | 166 | 68 | 721 | 26 | 59 | 42 | 38 | 2 | 147 | 80 |
| v/c Ratio | 0.13 | 0.76 | 0.20 | 0.37 | 0.76 | 0.03 | 0.32 | 0.10 | 0.08 | 0.01 | 0.44 | 0.21 |
| Control Delay (s/veh) | 34.4 | 23.8 | 3.4 | 38.3 | 22.6 | 0.1 | 37.1 | 22.3 | 0.3 | 32.5 | 30.8 | 2.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.4 | 23.8 | 3.4 | 38.3 | 22.6 | 0.1 | 37.1 | 22.3 | 0.3 | 32.5 | 30.8 | 2.7 |
| Queue Length 50th (ft) | 10 | 259 | 0 | 30 | 201 | 0 | 26 | 14 | 0 | 1 | 62 | 0 |
| Queue Length 95th (ft) | 33 | #500 | 33 | #79 | #542 | 0 | 64 | 43 | 0 | 7 | 114 | 11 |
| Internal Link Dist (ft) | | 2532 | | | 910 | | | 5241 | | | 1172 | |
| Turn Bay Length (ft) | 265 | | 265 | 155 | | 25 | 100 | | 50 | 175 | | 105 |
| Base Capacity (vph) | 189 | 1085 | 953 | 189 | 1136 | 978 | 189 | 653 | 629 | 189 | 619 | 603 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.12 | 0.63 | 0.17 | 0.36 | 0.63 | 0.03 | 0.31 | 0.06 | 0.06 | 0.01 | 0.24 | 0.13 |

Intersection Summary

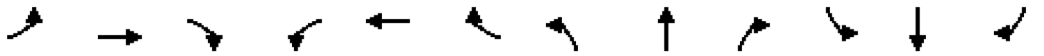
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 167.8 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 22 | 378 | 328 | 49 | 440 | 15 | 137 | 92 | 26 | 56 | 341 | 71 |
| Future Vol, veh/h | 22 | 378 | 328 | 49 | 440 | 15 | 137 | 92 | 26 | 56 | 341 | 71 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 24 | 406 | 353 | 53 | 473 | 16 | 147 | 99 | 28 | 60 | 367 | 76 |
| Number of Lanes | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 3 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 3 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 2 | 3 |
| HCM Control Delay, s/veh | 23.9 | 213.3 | 48.5 | 252.3 |
| HCM LOS | F | F | E | F |

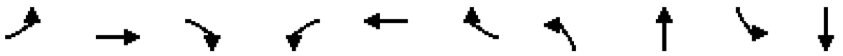
| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 60% | 0% | 100% | 0% | 0% | 100% | 0% | 12% |
| Vol Thru, % | 40% | 0% | 0% | 100% | 28% | 0% | 97% | 73% |
| Vol Right, % | 0% | 100% | 0% | 0% | 72% | 0% | 3% | 15% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 229 | 26 | 22 | 252 | 454 | 49 | 455 | 468 |
| LT Vol | 137 | 0 | 22 | 0 | 0 | 49 | 0 | 56 |
| Through Vol | 92 | 0 | 0 | 252 | 126 | 0 | 440 | 341 |
| RT Vol | 0 | 26 | 0 | 0 | 328 | 0 | 15 | 71 |
| Lane Flow Rate | 246 | 28 | 24 | 271 | 488 | 53 | 489 | 503 |
| Geometry Grp | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Degree of Util (X) | 0.771 | 0.08 | 0.068 | 0.74 | 1.266 | 0.159 | 1.409 | 1.456 |
| Departure Headway (Hd) | 14.078 | 13.001 | 12.483 | 11.948 | 11.406 | 12.796 | 12.23 | 11.832 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 259 | 277 | 289 | 306 | 322 | 282 | 303 | 312 |
| Service Time | 11.778 | 10.701 | 10.183 | 9.648 | 9.106 | 10.496 | 9.93 | 9.532 |
| HCM Lane V/C Ratio | 0.95 | 0.101 | 0.083 | 0.886 | 1.516 | 0.188 | 1.614 | 1.612 |
| HCM Control Delay, s/veh | 52.1 | 16.8 | 16.1 | 42.2 | 174.4 | 17.9 | 234.3 | 252.3 |
| HCM Lane LOS | F | C | C | E | F | C | F | F |
| HCM 95th-tile Q | 5.7 | 0.3 | 0.2 | 5.5 | 18.6 | 0.6 | 22.1 | 24.2 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 135 | 383 | 178 | 66 | 852 | 82 | 127 | 177 | 29 | 147 | 476 | 175 |
| Future Volume (veh/h) | 135 | 383 | 178 | 66 | 852 | 82 | 127 | 177 | 29 | 147 | 476 | 175 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 171 | 485 | 179 | 84 | 1078 | 84 | 161 | 224 | 29 | 186 | 603 | 178 |
| Peak Hour Factor | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 151 | 952 | 802 | 105 | 903 | 760 | 139 | 570 | 73 | 210 | 593 | 175 |
| Arrive On Green | 0.09 | 0.51 | 0.51 | 0.06 | 0.49 | 0.49 | 0.08 | 0.18 | 0.18 | 0.12 | 0.22 | 0.22 |
| Sat Flow, veh/h | 1767 | 1856 | 1563 | 1767 | 1856 | 1563 | 1767 | 3133 | 400 | 1767 | 2669 | 786 |
| Grp Volume(v), veh/h | 171 | 485 | 179 | 84 | 1078 | 84 | 161 | 125 | 128 | 186 | 398 | 383 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1563 | 1767 | 1856 | 1563 | 1767 | 1763 | 1770 | 1767 | 1763 | 1693 |
| Q Serve(g_s), s | 12.0 | 24.1 | 8.8 | 6.6 | 68.1 | 4.1 | 11.0 | 8.7 | 9.0 | 14.5 | 31.1 | 31.1 |
| Cycle Q Clear(g_c), s | 12.0 | 24.1 | 8.8 | 6.6 | 68.1 | 4.1 | 11.0 | 8.7 | 9.0 | 14.5 | 31.1 | 31.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.23 | 1.00 | | 0.46 |
| Lane Grp Cap(c), veh/h | 151 | 952 | 802 | 105 | 903 | 760 | 139 | 321 | 322 | 210 | 392 | 376 |
| V/C Ratio(X) | 1.13 | 0.51 | 0.22 | 0.80 | 1.19 | 0.11 | 1.16 | 0.39 | 0.40 | 0.89 | 1.02 | 1.02 |
| Avail Cap(c_a), veh/h | 151 | 952 | 802 | 168 | 903 | 760 | 139 | 321 | 322 | 237 | 392 | 376 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 64.0 | 22.5 | 18.8 | 65.0 | 35.9 | 19.5 | 64.5 | 50.4 | 50.5 | 60.8 | 54.4 | 54.5 |
| Incr Delay (d2), s/veh | 111.9 | 0.5 | 0.1 | 13.1 | 98.4 | 0.1 | 125.6 | 0.8 | 0.8 | 28.6 | 49.5 | 51.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 10.0 | 10.2 | 3.1 | 3.3 | 53.5 | 1.5 | 9.7 | 3.9 | 4.0 | 8.1 | 18.9 | 18.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 175.9 | 22.9 | 18.9 | 78.1 | 134.3 | 19.6 | 190.1 | 51.2 | 51.3 | 89.3 | 104.0 | 105.8 |
| LnGrp LOS | F | C | B | E | F | B | F | D | D | F | F | F |
| Approach Vol, veh/h | | 835 | | | 1246 | | | 414 | | | 967 | |
| Approach Delay, s/veh | | 53.4 | | | 122.8 | | | 105.2 | | | 101.9 | |
| Approach LOS | | D | | | F | | | F | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 20.6 | 30.4 | 12.3 | 76.7 | 15.0 | 36.0 | 16.0 | 73.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 18.8 | 23.3 | 13.3 | 66.8 | 11.0 | 31.1 | 12.0 | 68.1 |
| Max Q Clear Time (g_c+I1), s | 16.5 | 11.0 | 8.6 | 26.1 | 13.0 | 33.1 | 14.0 | 70.1 |
| Green Ext Time (p_c), s | 0.1 | 1.0 | 0.1 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 98.1 |
| HCM 7th LOS | F |

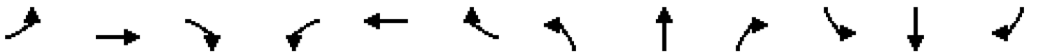


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 171 | 485 | 225 | 84 | 1078 | 104 | 161 | 261 | 186 | 825 |
| v/c Ratio | 1.14 | 0.53 | 0.28 | 0.60 | 1.20 | 0.13 | 1.18 | 0.43 | 0.84 | 1.08 |
| Control Delay (s/veh) | 171.1 | 27.6 | 11.3 | 79.6 | 134.7 | 3.5 | 185.3 | 52.3 | 90.2 | 105.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 171.1 | 27.6 | 11.3 | 79.6 | 134.7 | 3.5 | 185.3 | 52.3 | 90.2 | 105.6 |
| Queue Length 50th (ft) | ~181 | 301 | 55 | 75 | ~1189 | 0 | ~174 | 109 | 166 | ~427 |
| Queue Length 95th (ft) | #276 | 346 | 87 | 114 | #1170 | 19 | #269 | 134 | #221 | #444 |
| Internal Link Dist (ft) | | 2456 | | | 2474 | | | 1532 | | 255 |
| Turn Bay Length (ft) | 100 | | 100 | 140 | | 50 | 115 | | 140 | |
| Base Capacity (vph) | 150 | 908 | 802 | 166 | 897 | 791 | 137 | 603 | 235 | 762 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.14 | 0.53 | 0.28 | 0.51 | 1.20 | 0.13 | 1.18 | 0.43 | 0.79 | 1.08 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 66 | 741 | 344 | 111 | 1307 | 87 | 271 | 149 | 88 | 200 | 336 | 203 |
| Future Volume (veh/h) | 66 | 741 | 344 | 111 | 1307 | 87 | 271 | 149 | 88 | 200 | 336 | 203 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 71 | 797 | 296 | 119 | 1405 | 76 | 291 | 160 | 76 | 215 | 361 | 174 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 173 | 1670 | 514 | 206 | 1718 | 529 | 336 | 960 | 424 | 306 | 604 | 265 |
| Arrive On Green | 0.05 | 0.34 | 0.34 | 0.06 | 0.34 | 0.34 | 0.19 | 0.28 | 0.28 | 0.09 | 0.17 | 0.17 |
| Sat Flow, veh/h | 3374 | 4985 | 1534 | 3374 | 4985 | 1534 | 1739 | 3469 | 1531 | 3374 | 3469 | 1521 |
| Grp Volume(v), veh/h | 71 | 797 | 296 | 119 | 1405 | 76 | 291 | 160 | 76 | 215 | 361 | 174 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1662 | 1534 | 1687 | 1662 | 1534 | 1739 | 1735 | 1531 | 1687 | 1735 | 1521 |
| Q Serve(g_s), s | 1.5 | 9.5 | 12.0 | 2.6 | 19.4 | 2.6 | 12.2 | 2.6 | 2.8 | 4.7 | 7.2 | 8.0 |
| Cycle Q Clear(g_c), s | 1.5 | 9.5 | 12.0 | 2.6 | 19.4 | 2.6 | 12.2 | 2.6 | 2.8 | 4.7 | 7.2 | 8.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 173 | 1670 | 514 | 206 | 1718 | 529 | 336 | 960 | 424 | 306 | 604 | 265 |
| V/C Ratio(X) | 0.41 | 0.48 | 0.58 | 0.58 | 0.82 | 0.14 | 0.87 | 0.17 | 0.18 | 0.70 | 0.60 | 0.66 |
| Avail Cap(c_a), veh/h | 265 | 1776 | 546 | 323 | 1862 | 573 | 439 | 1273 | 562 | 475 | 885 | 388 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.6 | 19.8 | 20.6 | 34.4 | 22.5 | 17.0 | 29.4 | 20.6 | 20.7 | 33.2 | 28.6 | 29.0 |
| Incr Delay (d2), s/veh | 1.5 | 0.2 | 1.3 | 2.6 | 2.8 | 0.1 | 13.3 | 0.1 | 0.2 | 2.9 | 1.0 | 2.8 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 3.3 | 4.0 | 1.1 | 7.1 | 0.8 | 6.0 | 1.0 | 0.9 | 1.9 | 2.9 | 2.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.1 | 20.0 | 21.9 | 37.0 | 25.3 | 17.1 | 42.7 | 20.7 | 20.9 | 36.2 | 29.6 | 31.7 |
| LnGrp LOS | D | C | C | D | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 1164 | | | 1600 | | | 527 | | | 750 | |
| Approach Delay, s/veh | | 21.5 | | | 25.8 | | | 32.9 | | | 32.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.8 | 25.7 | 8.6 | 30.1 | 18.5 | 18.0 | 7.9 | 30.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 10.6 | 27.6 | 7.2 | 26.8 | 19.0 | 19.2 | 5.9 | 28.1 |
| Max Q Clear Time (g_c+I1), s | 6.7 | 4.8 | 4.6 | 14.0 | 14.2 | 10.0 | 3.5 | 21.4 |
| Green Ext Time (p_c), s | 0.2 | 1.1 | 0.1 | 5.0 | 0.4 | 1.9 | 0.0 | 4.6 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 26.6 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 71 | 797 | 370 | 119 | 1405 | 94 | 291 | 160 | 95 | 215 | 361 | 218 |
| v/c Ratio | 0.29 | 0.49 | 0.51 | 0.41 | 0.84 | 0.15 | 0.80 | 0.17 | 0.19 | 0.53 | 0.59 | 0.52 |
| Control Delay (s/veh) | 42.1 | 24.5 | 5.9 | 42.4 | 31.7 | 0.8 | 49.2 | 23.7 | 3.9 | 40.7 | 35.5 | 12.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 42.1 | 24.5 | 5.9 | 42.4 | 31.7 | 0.8 | 49.2 | 23.7 | 3.9 | 40.7 | 35.5 | 12.5 |
| Queue Length 50th (ft) | 19 | 128 | 3 | 31 | 258 | 0 | 148 | 34 | 0 | 56 | 95 | 15 |
| Queue Length 95th (ft) | 41 | 178 | 69 | 61 | #369 | 3 | #286 | 58 | 23 | 96 | 139 | 77 |
| Internal Link Dist (ft) | | 2532 | | | 4548 | | | 2495 | | | 509 | |
| Turn Bay Length (ft) | 200 | | 100 | 300 | | 100 | 150 | | 60 | 180 | | 75 |
| Base Capacity (vph) | 252 | 1697 | 751 | 307 | 1779 | 646 | 418 | 1216 | 606 | 453 | 846 | 507 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.47 | 0.49 | 0.39 | 0.79 | 0.15 | 0.70 | 0.13 | 0.16 | 0.47 | 0.43 | 0.43 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 113.2 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 12 | 24 | 299 | 61 | 144 | 1 | 547 | 125 | 51 | 0 | 59 | 16 |
| Future Vol, veh/h | 12 | 24 | 299 | 61 | 144 | 1 | 547 | 125 | 51 | 0 | 59 | 16 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.25 | 0.91 | 0.91 |
| Heavy Vehicles, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Mvmt Flow | 13 | 26 | 329 | 67 | 158 | 1 | 601 | 137 | 56 | 0 | 65 | 18 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 21 | 17 | 193.8 | 12.4 |
| HCM LOS | C | C | F | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 76% | 4% | 30% | 0% |
| Vol Thru, % | 17% | 7% | 70% | 79% |
| Vol Right, % | 7% | 89% | 0% | 21% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 723 | 335 | 206 | 75 |
| LT Vol | 547 | 12 | 61 | 0 |
| Through Vol | 125 | 24 | 144 | 59 |
| RT Vol | 51 | 299 | 1 | 16 |
| Lane Flow Rate | 795 | 368 | 226 | 82 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.364 | 0.626 | 0.439 | 0.163 |
| Departure Headway (Hd) | 6.18 | 7.016 | 7.941 | 7.864 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 588 | 519 | 457 | 459 |
| Service Time | 4.233 | 5.016 | 5.941 | 5.864 |
| HCM Lane V/C Ratio | 1.352 | 0.709 | 0.495 | 0.179 |
| HCM Control Delay, s/veh | 193.8 | 21 | 17 | 12.4 |
| HCM Lane LOS | F | C | C | B |
| HCM 95th-tile Q | 34.8 | 4.3 | 2.2 | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 64.7 |

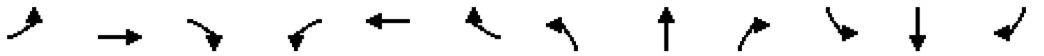
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 221 | 59 | 599 | 130 | 15 | 512 |
| Future Vol, veh/h | 221 | 59 | 599 | 130 | 15 | 512 |
| Conflicting Peds, #/hr | 10 | 10 | 0 | 10 | 10 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 240 | 64 | 651 | 141 | 16 | 557 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1331 | 742 | 0 | 0 | 802 | 0 |
| Stage 1 | 732 | - | - | - | - | - |
| Stage 2 | 599 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | ~ 170 | 416 | - | - | 821 | - |
| Stage 1 | 476 | - | - | - | - | - |
| Stage 2 | 549 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | ~ 162 | 408 | - | - | 813 | - |
| Mov Cap-2 Maneuver | ~ 162 | - | - | - | - | - |
| Stage 1 | 471 | - | - | - | - | - |
| Stage 2 | 528 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | $ 354.29 | 0 | 0.27 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 186 | 51 | - |
| HCM Lane V/C Ratio | - | - | 1.637 | 0.02 | - |
| HCM Ctrl Dly (s/v) | - | - | $ 354.3 | 9.5 | 0 |
| HCM Lane LOS | - | - | F | A | A |
| HCM 95th %tile Q(veh) | - | - | 20.4 | 0.1 | - |

| Notes | |
|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s |
| +: Computation Not Defined | *: All major volume in platoon |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 90 | 587 | 51 | 137 | 435 | 380 | 150 | 181 | 46 | 259 | 262 | 178 |
| Future Volume (veh/h) | 90 | 587 | 51 | 137 | 435 | 380 | 150 | 181 | 46 | 259 | 262 | 178 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 98 | 638 | 44 | 149 | 473 | 330 | 163 | 197 | 40 | 282 | 285 | 154 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 126 | 871 | 60 | 186 | 548 | 456 | 201 | 405 | 338 | 328 | 327 | 177 |
| Arrive On Green | 0.07 | 0.26 | 0.26 | 0.10 | 0.29 | 0.29 | 0.11 | 0.22 | 0.22 | 0.18 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1781 | 3370 | 232 | 1781 | 1870 | 1558 | 1781 | 1870 | 1563 | 1781 | 1134 | 613 |
| Grp Volume(v), veh/h | 98 | 336 | 346 | 149 | 473 | 330 | 163 | 197 | 40 | 282 | 0 | 439 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1825 | 1781 | 1870 | 1558 | 1781 | 1870 | 1563 | 1781 | 0 | 1747 |
| Q Serve(g_s), s | 4.1 | 13.0 | 13.1 | 6.2 | 18.1 | 14.3 | 6.7 | 7.0 | 1.6 | 11.6 | 0.0 | 18.0 |
| Cycle Q Clear(g_c), s | 4.1 | 13.0 | 13.1 | 6.2 | 18.1 | 14.3 | 6.7 | 7.0 | 1.6 | 11.6 | 0.0 | 18.0 |
| Prop In Lane | 1.00 | | 0.13 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.35 |
| Lane Grp Cap(c), veh/h | 126 | 459 | 472 | 186 | 548 | 456 | 201 | 405 | 338 | 328 | 0 | 503 |
| V/C Ratio(X) | 0.78 | 0.73 | 0.73 | 0.80 | 0.86 | 0.72 | 0.81 | 0.49 | 0.12 | 0.86 | 0.00 | 0.87 |
| Avail Cap(c_a), veh/h | 165 | 516 | 530 | 265 | 647 | 539 | 236 | 511 | 427 | 437 | 0 | 674 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.5 | 25.6 | 25.6 | 33.0 | 25.2 | 23.9 | 32.7 | 25.9 | 23.8 | 29.8 | 0.0 | 25.5 |
| Incr Delay (d2), s/veh | 15.9 | 4.7 | 4.6 | 10.8 | 10.3 | 3.9 | 16.6 | 0.9 | 0.2 | 12.4 | 0.0 | 9.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.2 | 5.5 | 5.6 | 3.0 | 8.5 | 5.1 | 3.6 | 2.9 | 0.5 | 5.7 | 0.0 | 8.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 50.4 | 30.2 | 30.2 | 43.8 | 35.6 | 27.9 | 49.3 | 26.8 | 23.9 | 42.3 | 0.0 | 35.0 |
| LnGrp LOS | D | C | C | D | D | C | D | C | C | D | | D |
| Approach Vol, veh/h | | 780 | | | 952 | | | 400 | | | 721 | |
| Approach Delay, s/veh | | 32.7 | | | 34.2 | | | 35.7 | | | 37.9 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 17.9 | 21.2 | 11.9 | 24.4 | 12.5 | 26.6 | 9.3 | 27.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 18.5 | 20.6 | 11.2 | 21.9 | 10.0 | 29.1 | 7.0 | 26.1 |
| Max Q Clear Time (g_c+I1), s | 13.6 | 9.0 | 8.2 | 15.1 | 8.7 | 20.0 | 6.1 | 20.1 |
| Green Ext Time (p_c), s | 0.4 | 0.8 | 0.1 | 2.1 | 0.0 | 1.7 | 0.0 | 2.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 34.9 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 98 | 693 | 149 | 473 | 413 | 163 | 197 | 50 | 282 | 478 |
| v/c Ratio | 0.67 | 0.82 | 0.68 | 0.81 | 0.70 | 0.78 | 0.48 | 0.10 | 0.81 | 0.87 |
| Control Delay (s/veh) | 63.3 | 39.4 | 54.2 | 41.4 | 23.7 | 65.5 | 34.0 | 0.4 | 52.2 | 44.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 63.3 | 39.4 | 54.2 | 41.4 | 23.7 | 65.5 | 34.0 | 0.4 | 52.2 | 44.1 |
| Queue Length 50th (ft) | 56 | 193 | 82 | 255 | 126 | 92 | 97 | 0 | 153 | 229 |
| Queue Length 95th (ft) | #134 | #266 | #165 | #429 | #245 | #200 | 163 | 0 | #274 | #395 |
| Internal Link Dist (ft) | | 1 | | 1257 | | | 2574 | | | 2558 |
| Turn Bay Length (ft) | 115 | | 260 | | 55 | 155 | | | 205 | |
| Base Capacity (vph) | 149 | 925 | 238 | 587 | 592 | 212 | 461 | 545 | 393 | 627 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.66 | 0.75 | 0.63 | 0.81 | 0.70 | 0.77 | 0.43 | 0.09 | 0.72 | 0.76 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

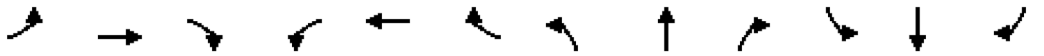
| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 6 | 6 | 17 | 8 | 45 | 3 | 266 | 8 | 21 | 420 | 10 |
| Future Vol, veh/h | 3 | 6 | 6 | 17 | 8 | 45 | 3 | 266 | 8 | 21 | 420 | 10 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 100 | - | - | 255 | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 4 | 8 | 8 | 22 | 10 | 57 | 4 | 337 | 10 | 27 | 532 | 13 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 954 | 959 | 552 | 958 | 967 | 362 | 554 | 0 | 0 | 357 | 0 | 0 |
| Stage 1 | 595 | 595 | - | 359 | 359 | - | - | - | - | - | - | - |
| Stage 2 | 359 | 364 | - | 599 | 607 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.15 | 6.55 | 6.25 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.15 | - | - |
| Critical Hdwy Stg 1 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.545 | 4.045 | 3.345 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.245 | - | - |
| Pot Cap-1 Maneuver | 235 | 254 | 528 | 234 | 251 | 676 | 1001 | - | - | 1185 | - | - |
| Stage 1 | 486 | 488 | - | 653 | 622 | - | - | - | - | - | - | - |
| Stage 2 | 653 | 618 | - | 483 | 481 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 197 | 243 | 518 | 214 | 240 | 663 | 992 | - | - | 1174 | - | - |
| Mov Cap-2 Maneuver | 197 | 243 | - | 214 | 240 | - | - | - | - | - | - | - |
| Stage 1 | 470 | 472 | - | 644 | 613 | - | - | - | - | - | - | - |
| Stage 2 | 579 | 610 | - | 454 | 466 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 18.23 | 17.03 | 0.09 | 0.38 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 992 | - | - | 291 | 387 | 1174 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | - | 0.065 | 0.229 | 0.023 | - | - |
| HCM Ctrl Dly (s/v) | 8.6 | - | - | 18.2 | 17 | 8.1 | - | - |
| HCM Lane LOS | A | - | - | C | C | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.9 | 0.1 | - | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 38 | 307 | 110 | 116 | 345 | 33 | 111 | 213 | 48 | 36 | 370 | 78 |
| Future Volume (veh/h) | 38 | 307 | 110 | 116 | 345 | 33 | 111 | 213 | 48 | 36 | 370 | 78 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 43 | 345 | 99 | 130 | 388 | 29 | 125 | 239 | 43 | 40 | 416 | 70 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 71 | 572 | 162 | 165 | 451 | 34 | 158 | 674 | 564 | 67 | 482 | 81 |
| Arrive On Green | 0.04 | 0.22 | 0.22 | 0.09 | 0.27 | 0.27 | 0.09 | 0.37 | 0.37 | 0.04 | 0.32 | 0.32 |
| Sat Flow, veh/h | 1739 | 2661 | 752 | 1739 | 1675 | 125 | 1739 | 1826 | 1526 | 1739 | 1519 | 256 |
| Grp Volume(v), veh/h | 43 | 223 | 221 | 130 | 0 | 417 | 125 | 239 | 43 | 40 | 0 | 486 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1678 | 1739 | 0 | 1801 | 1739 | 1826 | 1526 | 1739 | 0 | 1775 |
| Q Serve(g_s), s | 1.7 | 8.0 | 8.3 | 5.1 | 0.0 | 15.3 | 4.9 | 6.6 | 1.3 | 1.6 | 0.0 | 17.9 |
| Cycle Q Clear(g_c), s | 1.7 | 8.0 | 8.3 | 5.1 | 0.0 | 15.3 | 4.9 | 6.6 | 1.3 | 1.6 | 0.0 | 17.9 |
| Prop In Lane | 1.00 | | 0.45 | 1.00 | | 0.07 | 1.00 | | 1.00 | 1.00 | | 0.14 |
| Lane Grp Cap(c), veh/h | 71 | 373 | 361 | 165 | 0 | 485 | 158 | 674 | 564 | 67 | 0 | 563 |
| V/C Ratio(X) | 0.61 | 0.60 | 0.61 | 0.79 | 0.00 | 0.86 | 0.79 | 0.35 | 0.08 | 0.59 | 0.00 | 0.86 |
| Avail Cap(c_a), veh/h | 128 | 497 | 481 | 258 | 0 | 651 | 228 | 888 | 743 | 160 | 0 | 795 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 32.8 | 24.6 | 24.6 | 30.8 | 0.0 | 24.1 | 30.9 | 15.9 | 14.2 | 32.9 | 0.0 | 22.3 |
| Incr Delay (d2), s/veh | 8.2 | 1.5 | 1.7 | 8.4 | 0.0 | 8.8 | 11.2 | 0.3 | 0.1 | 8.1 | 0.0 | 7.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 3.1 | 3.1 | 2.3 | 0.0 | 6.9 | 2.4 | 2.4 | 0.4 | 0.8 | 0.0 | 7.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 41.0 | 26.1 | 26.3 | 39.1 | 0.0 | 32.9 | 42.1 | 16.2 | 14.3 | 41.0 | 0.0 | 29.4 |
| LnGrp LOS | D | C | C | D | | C | D | B | B | D | | C |
| Approach Vol, veh/h | | 487 | | | 547 | | | 407 | | | 526 | |
| Approach Delay, s/veh | | 27.5 | | | 34.4 | | | 24.0 | | | 30.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 30.6 | 11.5 | 19.8 | 11.2 | 26.9 | 7.7 | 23.6 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 6.4 | 33.8 | 10.3 | 19.9 | 9.1 | 31.1 | 5.1 | 25.1 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 8.6 | 7.1 | 10.3 | 6.9 | 19.9 | 3.7 | 17.3 |
| Green Ext Time (p_c), s | 0.0 | 1.3 | 0.1 | 1.7 | 0.1 | 2.1 | 0.0 | 1.4 |

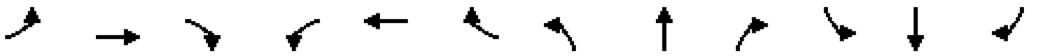
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 29.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 43 | 469 | 130 | 425 | 125 | 239 | 54 | 40 | 504 |
| v/c Ratio | 0.39 | 0.67 | 0.64 | 0.76 | 0.67 | 0.31 | 0.07 | 0.30 | 0.87 |
| Control Delay (s/veh) | 51.4 | 32.4 | 53.1 | 37.9 | 57.5 | 19.6 | 0.2 | 45.6 | 42.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.4 | 32.4 | 53.1 | 37.9 | 57.5 | 19.6 | 0.2 | 45.6 | 42.9 |
| Queue Length 50th (ft) | 24 | 112 | 72 | 225 | 70 | 96 | 0 | 22 | 253 |
| Queue Length 95th (ft) | #59 | 162 | #148 | #381 | #152 | 154 | 0 | 54 | #415 |
| Internal Link Dist (ft) | | 2553 | | 2529 | | 2558 | | | 2587 |
| Turn Bay Length (ft) | 235 | | 145 | | 200 | | | 85 | |
| Base Capacity (vph) | 110 | 857 | 222 | 578 | 196 | 788 | 754 | 138 | 690 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.39 | 0.55 | 0.59 | 0.74 | 0.64 | 0.30 | 0.07 | 0.29 | 0.73 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 42 | 249 | 318 | 132 | 375 | 41 | 495 | 363 | 60 | 61 | 714 | 115 |
| Future Volume (veh/h) | 42 | 249 | 318 | 132 | 375 | 41 | 495 | 363 | 60 | 61 | 714 | 115 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 49 | 293 | 299 | 155 | 441 | 39 | 582 | 427 | 57 | 72 | 840 | 108 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 63 | 305 | 254 | 161 | 775 | 341 | 553 | 1870 | 829 | 92 | 846 | 109 |
| Arrive On Green | 0.04 | 0.16 | 0.16 | 0.09 | 0.22 | 0.22 | 0.31 | 0.53 | 0.53 | 0.05 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1767 | 1856 | 1544 | 1767 | 3526 | 1551 | 1767 | 3526 | 1564 | 1767 | 3134 | 403 |
| Grp Volume(v), veh/h | 49 | 293 | 299 | 155 | 441 | 39 | 582 | 427 | 57 | 72 | 472 | 476 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1544 | 1767 | 1763 | 1551 | 1767 | 1763 | 1564 | 1767 | 1763 | 1774 |
| Q Serve(g_s), s | 3.0 | 17.2 | 18.1 | 9.6 | 12.3 | 2.2 | 34.4 | 7.1 | 2.0 | 4.4 | 29.4 | 29.4 |
| Cycle Q Clear(g_c), s | 3.0 | 17.2 | 18.1 | 9.6 | 12.3 | 2.2 | 34.4 | 7.1 | 2.0 | 4.4 | 29.4 | 29.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.23 |
| Lane Grp Cap(c), veh/h | 63 | 305 | 254 | 161 | 775 | 341 | 553 | 1870 | 829 | 92 | 476 | 479 |
| V/C Ratio(X) | 0.78 | 0.96 | 1.18 | 0.96 | 0.57 | 0.11 | 1.05 | 0.23 | 0.07 | 0.78 | 0.99 | 0.99 |
| Avail Cap(c_a), veh/h | 96 | 305 | 254 | 161 | 775 | 341 | 553 | 1870 | 829 | 162 | 476 | 479 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.6 | 45.6 | 46.0 | 49.8 | 38.3 | 34.3 | 37.8 | 13.8 | 12.6 | 51.5 | 40.0 | 40.0 |
| Incr Delay (d2), s/veh | 19.6 | 40.6 | 112.9 | 60.3 | 1.0 | 0.1 | 53.0 | 0.1 | 0.0 | 13.2 | 39.3 | 39.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 11.1 | 14.6 | 6.8 | 5.2 | 0.8 | 22.1 | 2.6 | 0.6 | 2.2 | 17.3 | 17.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 72.2 | 86.2 | 158.9 | 110.2 | 39.2 | 34.5 | 90.8 | 13.9 | 12.6 | 64.7 | 79.3 | 79.2 |
| LnGrp LOS | E | F | F | F | D | C | F | B | B | E | E | E |
| Approach Vol, veh/h | | 641 | | | 635 | | | 1066 | | | 1020 | |
| Approach Delay, s/veh | | 119.0 | | | 56.3 | | | 55.8 | | | 78.2 | |
| Approach LOS | | F | | | E | | | E | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.7 | 63.3 | 14.0 | 23.0 | 38.4 | 34.6 | 7.9 | 29.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 10.1 | 54.0 | 10.0 | 18.1 | 34.4 | 29.7 | 6.0 | 22.1 |
| Max Q Clear Time (g_c+I1), s | 6.4 | 9.1 | 11.6 | 20.1 | 36.4 | 31.4 | 5.0 | 14.3 |
| Green Ext Time (p_c), s | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 74.7 |
| HCM 7th LOS | E |

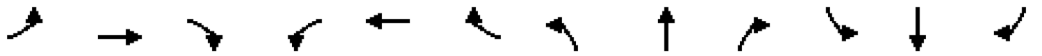


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 49 | 293 | 374 | 155 | 441 | 48 | 582 | 427 | 71 | 72 | 975 |
| v/c Ratio | 0.53 | 0.97 | 0.72 | 0.97 | 0.57 | 0.11 | 1.06 | 0.23 | 0.08 | 0.51 | 1.05 |
| Control Delay (s/veh) | 70.9 | 90.6 | 17.0 | 116.1 | 42.6 | 0.5 | 93.9 | 15.6 | 1.6 | 60.9 | 81.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 70.9 | 90.6 | 17.0 | 116.1 | 42.6 | 0.5 | 93.9 | 15.6 | 1.6 | 60.9 | 81.6 |
| Queue Length 50th (ft) | 34 | 208 | 33 | 111 | 151 | 0 | ~454 | 88 | 0 | 49 | ~390 |
| Queue Length 95th (ft) | #74 | #345 | 113 | #223 | 192 | 0 | #610 | 113 | 11 | 91 | #472 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | |
| Base Capacity (vph) | 95 | 303 | 517 | 159 | 768 | 440 | 547 | 1823 | 838 | 160 | 931 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.52 | 0.97 | 0.72 | 0.97 | 0.57 | 0.11 | 1.06 | 0.23 | 0.08 | 0.45 | 1.05 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 223 | 0 | 31 | 603 | 830 | 0 | 0 | 521 | 648 |
| Future Volume (veh/h) | 0 | 0 | 0 | 223 | 0 | 31 | 603 | 830 | 0 | 0 | 521 | 648 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 1870 | 1870 | 0 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 259 | 0 | 36 | 701 | 965 | 0 | 0 | 606 | 602 |
| Peak Hour Factor | | | | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 304 | 0 | 270 | 801 | 2517 | 0 | 0 | 759 | 669 |
| Arrive On Green | | | | 0.17 | 0.00 | 0.17 | 0.23 | 0.71 | 0.00 | 0.00 | 0.43 | 0.43 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 3456 | 3647 | 0 | 0 | 1870 | 1566 |
| Grp Volume(v), veh/h | | | | 259 | 0 | 36 | 701 | 965 | 0 | 0 | 606 | 602 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 1728 | 1777 | 0 | 0 | 1777 | 1566 |
| Q Serve(g_s), s | | | | 11.4 | 0.0 | 1.6 | 15.8 | 8.8 | 0.0 | 0.0 | 24.0 | 28.9 |
| Cycle Q Clear(g_c), s | | | | 11.4 | 0.0 | 1.6 | 15.8 | 8.8 | 0.0 | 0.0 | 24.0 | 28.9 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 304 | 0 | 270 | 801 | 2517 | 0 | 0 | 759 | 669 |
| V/C Ratio(X) | | | | 0.85 | 0.00 | 0.13 | 0.88 | 0.38 | 0.00 | 0.00 | 0.80 | 0.90 |
| Avail Cap(c_a), veh/h | | | | 403 | 0 | 359 | 898 | 2722 | 0 | 0 | 811 | 715 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 32.5 | 0.0 | 28.4 | 29.9 | 4.7 | 0.0 | 0.0 | 20.1 | 21.6 |
| Incr Delay (d2), s/veh | | | | 12.6 | 0.0 | 0.2 | 9.0 | 0.1 | 0.0 | 0.0 | 5.4 | 13.9 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 5.8 | 0.0 | 0.6 | 7.0 | 2.0 | 0.0 | 0.0 | 9.7 | 11.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 45.1 | 0.0 | 28.7 | 38.9 | 4.8 | 0.0 | 0.0 | 25.5 | 35.5 |
| LnGrp LOS | | | | D | | C | D | A | | | C | D |
| Approach Vol, veh/h | | | | | 295 | | | 1666 | | | 1208 | |
| Approach Delay, s/veh | | | | | 43.1 | | | 19.2 | | | 30.5 | |
| Approach LOS | | | | | D | | | B | | | C | |

| Timer - Assigned Phs | 2 | | 5 | 6 | | 8 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 62.1 | | 22.7 | 39.4 | | 18.7 | | | | | | |
| Change Period (Y+Rc), s | 4.9 | | 4.0 | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 61.9 | | 21.0 | 36.9 | | 18.3 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 10.8 | | 17.8 | 30.9 | | 13.4 | | | | | | |
| Green Ext Time (p_c), s | 7.7 | | 0.9 | 3.6 | | 0.4 | | | | | | |

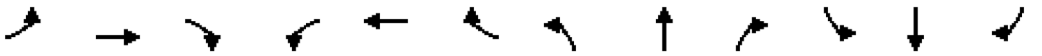
| Intersection Summary | | |
|---|---|---|
| HCM 7th Control Delay, s/veh | 25.7 | |
| HCM 7th LOS | C | |



| Lane Group | WBL | WBR | NBL | NBT | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 259 | 36 | 701 | 965 | 1359 |
| v/c Ratio | 0.76 | 0.10 | 0.85 | 0.40 | 0.89 |
| Control Delay (s/veh) | 48.8 | 2.5 | 43.3 | 6.3 | 24.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 48.8 | 2.5 | 43.3 | 6.3 | 24.6 |
| Queue Length 50th (ft) | 138 | 0 | 198 | 107 | 264 |
| Queue Length 95th (ft) | #215 | 6 | #270 | 130 | 332 |
| Internal Link Dist (ft) | | | | 535 | 971 |
| Turn Bay Length (ft) | | | 260 | | |
| Base Capacity (vph) | 395 | 400 | 881 | 2677 | 1673 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.66 | 0.09 | 0.80 | 0.36 | 0.81 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 226 | 0 | 394 | 0 | 0 | 0 | 0 | 1185 | 139 | 18 | 698 | 0 |
| Future Volume (veh/h) | 226 | 0 | 394 | 0 | 0 | 0 | 0 | 1185 | 139 | 18 | 698 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 248 | 0 | 346 | | | | 0 | 1302 | 122 | 20 | 767 | 0 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | | | | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 900 | 0 | 413 | | | | 0 | 1637 | 153 | 41 | 2112 | 0 |
| Arrive On Green | 0.26 | 0.00 | 0.26 | | | | 0.00 | 0.50 | 0.50 | 0.02 | 0.59 | 0.00 |
| Sat Flow, veh/h | 3456 | 0 | 1585 | | | | 0 | 3376 | 306 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 248 | 0 | 346 | | | | 0 | 703 | 721 | 20 | 767 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 0 | 1585 | | | | 0 | 1777 | 1812 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 3.9 | 0.0 | 13.9 | | | | 0.0 | 22.2 | 22.4 | 0.7 | 7.5 | 0.0 |
| Cycle Q Clear(g_c), s | 3.9 | 0.0 | 13.9 | | | | 0.0 | 22.2 | 22.4 | 0.7 | 7.5 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.17 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 900 | 0 | 413 | | | | 0 | 886 | 903 | 41 | 2112 | 0 |
| V/C Ratio(X) | 0.28 | 0.00 | 0.84 | | | | 0.00 | 0.79 | 0.80 | 0.48 | 0.36 | 0.00 |
| Avail Cap(c_a), veh/h | 1335 | 0 | 613 | | | | 0 | 1160 | 1183 | 135 | 2847 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 19.9 | 0.0 | 23.6 | | | | 0.0 | 14.0 | 14.1 | 32.6 | 7.1 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 6.6 | | | | 0.0 | 2.9 | 3.0 | 8.6 | 0.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 0.0 | 5.6 | | | | 0.0 | 7.5 | 7.7 | 0.4 | 2.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 20.1 | 0.0 | 30.2 | | | | 0.0 | 16.9 | 17.1 | 41.1 | 7.2 | 0.0 |
| LnGrp LOS | C | | C | | | | | B | B | D | A | |
| Approach Vol, veh/h | | 594 | | | | | | 1424 | | | 787 | |
| Approach Delay, s/veh | | 26.0 | | | | | | 17.0 | | | 8.1 | |
| Approach LOS | | C | | | | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.5 | 38.6 | | 22.5 | | 45.0 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 44.1 | | 26.1 | | 54.1 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 24.4 | | 15.9 | | 9.5 |
| Green Ext Time (p_c), s | 0.0 | 9.3 | | 1.7 | | 5.6 |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 16.4 |
| HCM 7th LOS | | | B |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 248 | 433 | 1455 | 20 | 767 |
| v/c Ratio | 0.27 | 0.78 | 0.79 | 0.13 | 0.38 |
| Control Delay (s/veh) | 22.2 | 25.0 | 18.4 | 40.3 | 8.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.2 | 25.0 | 18.4 | 40.3 | 8.6 |
| Queue Length 50th (ft) | 38 | 80 | 194 | 7 | 77 |
| Queue Length 95th (ft) | 86 | 239 | 461 | 34 | 142 |
| Internal Link Dist (ft) | | | 824 | | 535 |
| Turn Bay Length (ft) | | | | 90 | |
| Base Capacity (vph) | 1492 | 781 | 2454 | 150 | 2872 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.17 | 0.55 | 0.59 | 0.13 | 0.27 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 120 | 8 | 30 | 266 | 11 | 14 |
| Future Vol, veh/h | 120 | 8 | 30 | 266 | 11 | 14 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 88 | 88 | 88 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 136 | 9 | 34 | 302 | 13 | 16 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 155 | 0 | 531 | 161 |
| Stage 1 | - | - | - | - | 151 | - |
| Stage 2 | - | - | - | - | 380 | - |
| Critical Hdwy | - | - | 4.15 | - | 6.45 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | - | - | 2.245 | - | 3.545 | 3.345 |
| Pot Cap-1 Maneuver | - | - | 1406 | - | 503 | 876 |
| Stage 1 | - | - | - | - | 870 | - |
| Stage 2 | - | - | - | - | 684 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1393 | - | 479 | 860 |
| Mov Cap-2 Maneuver | - | - | - | - | 479 | - |
| Stage 1 | - | - | - | - | 861 | - |
| Stage 2 | - | - | - | - | 658 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.78 | 10.91 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 637 | - | - | 182 | - |
| HCM Lane V/C Ratio | 0.045 | - | - | 0.024 | - |
| HCM Ctrl Dly (s/v) | 10.9 | - | - | 7.6 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 24 | 616 | 816 | 14 | 5 | 45 |
| Future Vol, veh/h | 24 | 616 | 816 | 14 | 5 | 45 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 100 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 27 | 692 | 917 | 16 | 6 | 51 |

| Major/Minor | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 943 | 0 | - | 0 | 1345 | 945 |
| Stage 1 | - | - | - | - | 935 | - |
| Stage 2 | - | - | - | - | 410 | - |
| Critical Hdwy | 4.145 | - | - | - | 6.645 | 6.245 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.445 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.845 | - |
| Follow-up Hdwy | 2.2285 | - | - | - | 3.5285 | 3.3285 |
| Pot Cap-1 Maneuver | 720 | - | - | - | 153 | 315 |
| Stage 1 | - | - | - | - | 379 | - |
| Stage 2 | - | - | - | - | 637 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 713 | - | - | - | 145 | 309 |
| Mov Cap-2 Maneuver | - | - | - | - | 145 | - |
| Stage 1 | - | - | - | - | 361 | - |
| Stage 2 | - | - | - | - | 631 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.38 | 0 | 21.23 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 713 | - | - | - | 278 |
| HCM Lane V/C Ratio | 0.038 | - | - | - | 0.202 |
| HCM Ctrl Dly (s/v) | 10.2 | - | - | - | 21.2 |
| HCM Lane LOS | B | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.7 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 24.8 |

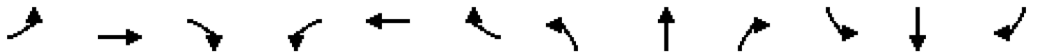
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 628 | 37 | 5 | 726 | 81 | 20 |
| Future Vol, veh/h | 628 | 37 | 5 | 726 | 81 | 20 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | 110 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 76 | 76 | 76 | 76 | 76 | 76 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 826 | 49 | 7 | 955 | 107 | 26 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 885 | 0 | 1839 | 458 |
| Stage 1 | - | - | - | - | 861 | - |
| Stage 2 | - | - | - | - | 978 | - |
| Critical Hdwy | - | - | 4.13 | - | 6.63 | 6.93 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.83 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.43 | - |
| Follow-up Hdwy | - | - | 2.219 | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | - | - | 763 | - | ~ 75 | 551 |
| Stage 1 | - | - | - | - | 375 | - |
| Stage 2 | - | - | - | - | 363 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 755 | - | ~ 72 | 541 |
| Mov Cap-2 Maneuver | - | - | - | - | ~ 72 | - |
| Stage 1 | - | - | - | - | 372 | - |
| Stage 2 | - | - | - | - | 357 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.07 | $ 367.36 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 87 | - | - | 755 | - |
| HCM Lane V/C Ratio | 1.519 | - | - | 0.009 | - |
| HCM Ctrl Dly (s/v) | $ 367.4 | - | - | 9.8 | - |
| HCM Lane LOS | F | - | - | A | - |
| HCM 95th %tile Q(veh) | 10.4 | - | - | 0 | - |

| Notes | |
|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s |
| +: Computation Not Defined | *: All major volume in platoon |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 41 | 264 | 319 | 88 | 402 | 9 | 143 | 266 | 42 | 24 | 277 | 92 |
| Future Volume (veh/h) | 41 | 264 | 319 | 88 | 402 | 9 | 143 | 266 | 42 | 24 | 277 | 92 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 53 | 343 | 331 | 114 | 522 | 9 | 186 | 345 | 45 | 31 | 360 | 96 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 73 | 909 | 401 | 143 | 541 | 9 | 143 | 189 | 788 | 44 | 319 | 78 |
| Arrive On Green | 0.04 | 0.26 | 0.26 | 0.08 | 0.30 | 0.30 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Sat Flow, veh/h | 1767 | 3526 | 1554 | 1767 | 1818 | 31 | 173 | 375 | 1563 | 0 | 633 | 155 |
| Grp Volume(v), veh/h | 53 | 343 | 331 | 114 | 0 | 531 | 531 | 0 | 45 | 487 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1554 | 1767 | 0 | 1849 | 548 | 0 | 1563 | 789 | 0 | 0 |
| Q Serve(g_s), s | 2.6 | 7.0 | 17.6 | 5.6 | 0.0 | 24.8 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 2.6 | 7.0 | 17.6 | 5.6 | 0.0 | 24.8 | 44.2 | 0.0 | 1.3 | 44.2 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.02 | 0.35 | | 1.00 | 0.06 | | 0.20 |
| Lane Grp Cap(c), veh/h | 73 | 909 | 401 | 143 | 0 | 550 | 332 | 0 | 788 | 441 | 0 | 0 |
| V/C Ratio(X) | 0.73 | 0.38 | 0.83 | 0.80 | 0.00 | 0.97 | 1.60 | 0.00 | 0.06 | 1.10 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 119 | 928 | 409 | 179 | 0 | 550 | 332 | 0 | 788 | 441 | 0 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 41.6 | 26.8 | 30.7 | 39.6 | 0.0 | 30.4 | 24.2 | 0.0 | 11.1 | 28.8 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 12.8 | 0.3 | 12.9 | 17.6 | 0.0 | 29.6 | 284.5 | 0.0 | 0.0 | 74.3 | 0.0 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.3 | 2.7 | 7.4 | 3.0 | 0.0 | 14.5 | 33.0 | 0.0 | 0.4 | 16.6 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 54.3 | 27.0 | 43.6 | 57.2 | 0.0 | 60.0 | 308.7 | 0.0 | 11.1 | 103.1 | 0.0 | 0.0 |
| LnGrp LOS | D | C | D | E | | E | F | | B | F | | |
| Approach Vol, veh/h | | 727 | | | 645 | | | 576 | | | 487 | |
| Approach Delay, s/veh | | 36.5 | | | 59.5 | | | 285.5 | | | 103.1 | |
| Approach LOS | | D | | | E | | | F | | | F | |

| Timer - Assigned Phs | 2 | 3 | 4 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 49.1 | 11.1 | 27.5 | 49.1 | 7.6 | 31.0 |
| Change Period (Y+Rc), s | 4.9 | 4.0 | 4.9 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 44.2 | 8.9 | 23.1 | 44.2 | 5.9 | 26.1 |
| Max Q Clear Time (g_c+I1), s | 46.2 | 7.6 | 19.6 | 46.2 | 4.6 | 26.8 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 114.8 |
| HCM 7th LOS | F |

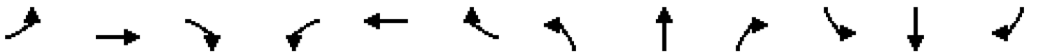


| Lane Group | EBL | EBT | EBR | WBL | WBT | NBT | NBR | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 53 | 343 | 414 | 114 | 534 | 531 | 55 | 510 |
| v/c Ratio | 0.44 | 0.38 | 0.61 | 0.64 | 0.93 | 0.93 | 0.07 | 0.59 |
| Control Delay (s/veh) | 51.7 | 28.4 | 9.0 | 56.5 | 55.0 | 47.3 | 2.4 | 18.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.7 | 28.4 | 9.0 | 56.5 | 55.0 | 47.3 | 2.4 | 18.2 |
| Queue Length 50th (ft) | 30 | 84 | 16 | 64 | ~303 | 277 | 0 | 191 |
| Queue Length 95th (ft) | 57 | 104 | 48 | 100 | #395 | #378 | 9 | 229 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | 2587 | | 894 |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | |
| Base Capacity (vph) | 123 | 1000 | 704 | 187 | 575 | 599 | 843 | 902 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.43 | 0.34 | 0.59 | 0.61 | 0.93 | 0.89 | 0.07 | 0.57 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 96 | 88 | 174 | 241 | 222 | 6 | 98 | 287 | 69 | 2 | 923 | 265 |
| Future Volume (veh/h) | 96 | 88 | 174 | 241 | 222 | 6 | 98 | 287 | 69 | 2 | 923 | 265 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 117 | 107 | 169 | 294 | 271 | 6 | 120 | 350 | 67 | 2 | 1126 | 258 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 148 | 284 | 236 | 331 | 476 | 399 | 150 | 1554 | 685 | 5 | 1264 | 556 |
| Arrive On Green | 0.08 | 0.15 | 0.15 | 0.19 | 0.26 | 0.26 | 0.09 | 0.44 | 0.44 | 0.00 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1542 | 1767 | 1856 | 1554 | 1767 | 3526 | 1555 | 1767 | 3526 | 1551 |
| Grp Volume(v), veh/h | 117 | 107 | 169 | 294 | 271 | 6 | 120 | 350 | 67 | 2 | 1126 | 258 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1542 | 1767 | 1856 | 1554 | 1767 | 1763 | 1555 | 1767 | 1763 | 1551 |
| Q Serve(g_s), s | 5.4 | 4.3 | 8.6 | 13.4 | 10.5 | 0.2 | 5.5 | 5.1 | 2.1 | 0.1 | 24.8 | 10.5 |
| Cycle Q Clear(g_c), s | 5.4 | 4.3 | 8.6 | 13.4 | 10.5 | 0.2 | 5.5 | 5.1 | 2.1 | 0.1 | 24.8 | 10.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 148 | 284 | 236 | 331 | 476 | 399 | 150 | 1554 | 685 | 5 | 1264 | 556 |
| V/C Ratio(X) | 0.79 | 0.38 | 0.72 | 0.89 | 0.57 | 0.02 | 0.80 | 0.23 | 0.10 | 0.42 | 0.89 | 0.46 |
| Avail Cap(c_a), veh/h | 195 | 406 | 337 | 345 | 563 | 472 | 154 | 1554 | 685 | 127 | 1323 | 582 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 37.0 | 31.3 | 33.2 | 32.6 | 26.6 | 22.8 | 37.0 | 14.3 | 13.5 | 41.0 | 24.9 | 20.3 |
| Incr Delay (d2), s/veh | 14.9 | 0.8 | 4.1 | 22.9 | 1.1 | 0.0 | 24.3 | 0.1 | 0.1 | 48.8 | 7.7 | 0.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.8 | 1.9 | 3.3 | 7.4 | 4.4 | 0.1 | 3.2 | 1.8 | 0.7 | 0.1 | 10.4 | 3.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 51.9 | 32.2 | 37.2 | 55.5 | 27.7 | 22.9 | 61.2 | 14.4 | 13.5 | 89.8 | 32.6 | 20.9 |
| LnGrp LOS | D | C | D | E | C | C | E | B | B | F | C | C |
| Approach Vol, veh/h | | 393 | | | 571 | | | 537 | | | 1386 | |
| Approach Delay, s/veh | | 40.2 | | | 42.0 | | | 24.7 | | | 30.5 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.2 | 41.2 | 19.4 | 17.5 | 11.0 | 34.4 | 10.9 | 26.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 32.2 | 16.1 | 18.0 | 7.2 | 30.9 | 9.1 | 25.0 |
| Max Q Clear Time (g_c+I1), s | 2.1 | 7.1 | 15.4 | 10.6 | 7.5 | 26.8 | 7.4 | 12.5 |
| Green Ext Time (p_c), s | 0.0 | 2.2 | 0.1 | 0.6 | 0.0 | 2.7 | 0.0 | 1.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 33.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 117 | 107 | 212 | 294 | 271 | 7 | 120 | 350 | 84 | 2 | 1126 | 323 |
| v/c Ratio | 0.63 | 0.44 | 0.61 | 0.86 | 0.66 | 0.02 | 0.78 | 0.21 | 0.10 | 0.02 | 0.88 | 0.49 |
| Control Delay (s/veh) | 53.2 | 38.6 | 17.2 | 58.6 | 37.9 | 0.0 | 72.5 | 14.2 | 0.3 | 38.5 | 34.2 | 12.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 53.2 | 38.6 | 17.2 | 58.6 | 37.9 | 0.0 | 72.5 | 14.2 | 0.3 | 38.5 | 34.2 | 12.8 |
| Queue Length 50th (ft) | 58 | 52 | 21 | 147 | 130 | 0 | 62 | 48 | 0 | 1 | 274 | 54 |
| Queue Length 95th (ft) | #119 | 89 | 66 | #273 | 185 | 0 | #144 | 95 | 0 | 8 | 354 | 118 |
| Internal Link Dist (ft) | | 2578 | | | 2549 | | | 1811 | | | 2540 | |
| Turn Bay Length (ft) | 240 | | 80 | 100 | | 25 | 240 | | 120 | 250 | | 95 |
| Base Capacity (vph) | 194 | 405 | 466 | 344 | 562 | 549 | 154 | 1688 | 808 | 126 | 1322 | 669 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.60 | 0.26 | 0.45 | 0.85 | 0.48 | 0.01 | 0.78 | 0.21 | 0.10 | 0.02 | 0.85 | 0.48 |

Intersection Summary

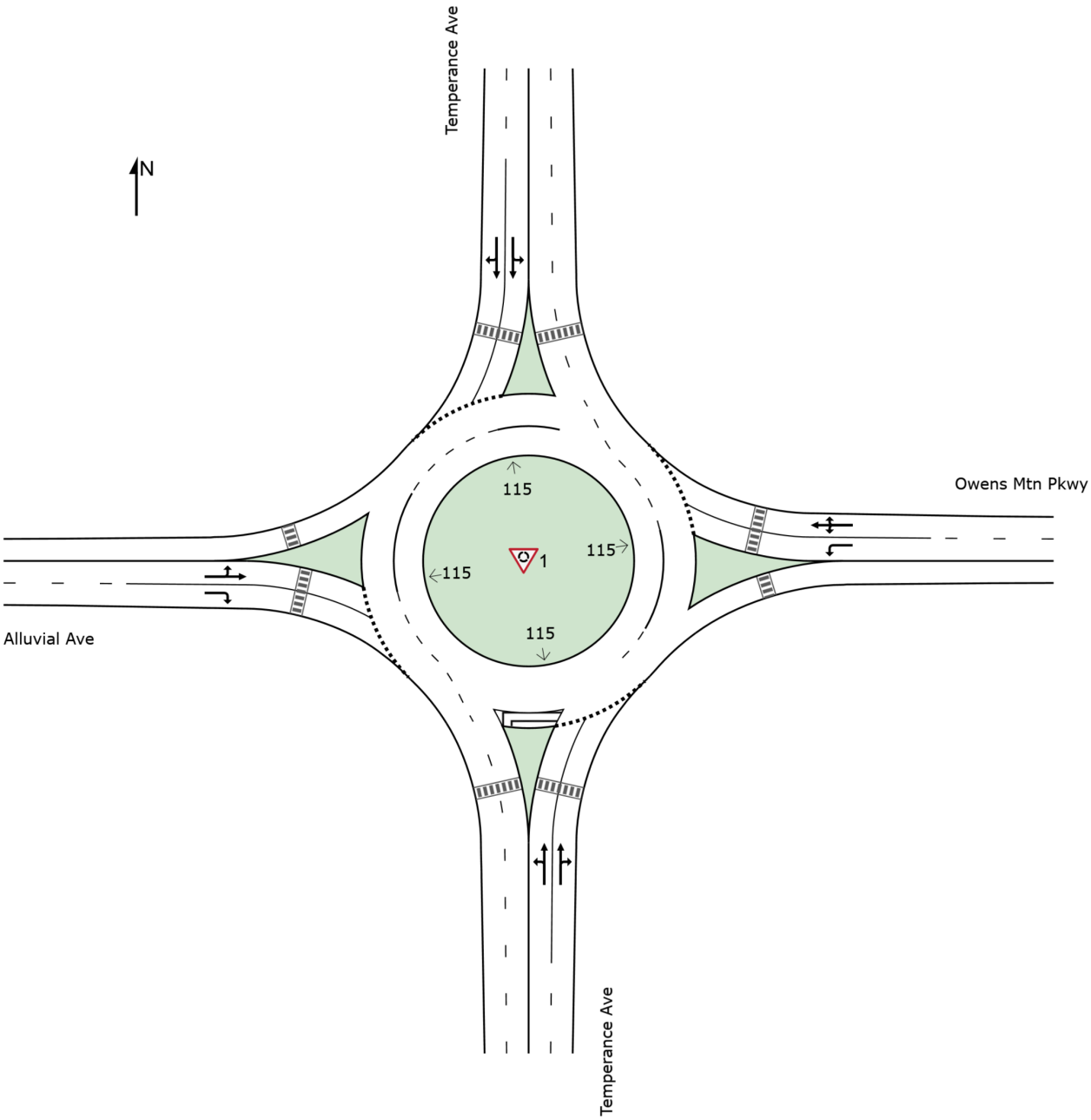
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# SITE LAYOUT

## Site: [1] Temperance - Alluvial NT+Dev AM (Folder1)

Temperance - Alluvial
Near-Term With Development
AM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



# MOVEMENT SUMMARY

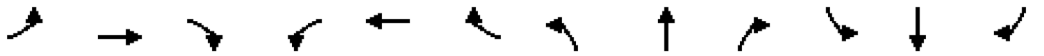
**Site: [1] Temperance - Alluvial NT+Dev AM** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Temperance - Alluvial
Near-Term With Development
AM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] ft | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Temperance Ave | | | | | | | | | | | | | | | |
| 3 | L2 | All MCs | 189 | 3.0 | 189 | 3.0 | 0.374 | 6.9 | LOS A | 2.6 | 65.6 | 0.52 | 0.30 | 0.52 | 30.9 |
| 8 | T1 | All MCs | 413 | 3.0 | 413 | 3.0 | 0.374 | 6.6 | LOS A | 2.6 | 67.4 | 0.51 | 0.30 | 0.51 | 33.0 |
| 18 | R2 | All MCs | 301 | 3.0 | 301 | 3.0 | 0.374 | 6.2 | LOS A | 2.6 | 67.4 | 0.50 | 0.28 | 0.50 | 33.7 |
| Approach | | | 903 | 3.0 | 903 | 3.0 | 0.374 | 6.5 | LOS A | 2.6 | 67.4 | 0.51 | 0.29 | 0.51 | 32.7 |
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 264 | 3.0 | 264 | 3.0 | 0.236 | 6.9 | LOS A | 1.1 | 28.1 | 0.59 | 0.49 | 0.59 | 28.4 |
| 6 | T1 | All MCs | 41 | 3.0 | 41 | 3.0 | 0.236 | 6.5 | LOS A | 1.1 | 28.1 | 0.59 | 0.47 | 0.59 | 34.4 |
| 16 | R2 | All MCs | 92 | 3.0 | 92 | 3.0 | 0.236 | 6.5 | LOS A | 1.1 | 28.1 | 0.59 | 0.47 | 0.59 | 34.1 |
| Approach | | | 397 | 3.0 | 397 | 3.0 | 0.236 | 6.8 | LOS A | 1.1 | 28.1 | 0.59 | 0.48 | 0.59 | 30.6 |
| North: Temperance Ave | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 123 | 3.0 | 123 | 3.0 | 0.811 | 22.3 | LOS C | 13.4 | 343.5 | 0.87 | 1.05 | 1.81 | 29.0 |
| 4 | T1 | All MCs | 1225 | 3.0 | 1225 | 3.0 | 0.811 | 21.7 | LOS C | 13.8 | 353.3 | 0.87 | 1.04 | 1.80 | 24.7 |
| 14 | R2 | All MCs | 145 | 3.0 | 145 | 3.0 | 0.811 | 21.2 | LOS C | 13.8 | 353.3 | 0.86 | 1.04 | 1.78 | 29.9 |
| Approach | | | 1493 | 3.0 | 1493 | 3.0 | 0.811 | 21.7 | LOS C | 13.8 | 353.3 | 0.87 | 1.04 | 1.80 | 25.8 |
| West: Alluvial Ave | | | | | | | | | | | | | | | |
| 5 | L2 | All MCs | 54 | 3.0 | 54 | 3.0 | 0.271 | 15.4 | LOS C | 1.2 | 31.5 | 0.82 | 0.81 | 0.83 | 29.5 |
| 2 | T1 | All MCs | 41 | 3.0 | 41 | 3.0 | 0.271 | 15.4 | LOS C | 1.2 | 31.5 | 0.82 | 0.81 | 0.83 | 30.1 |
| 12 | R2 | All MCs | 164 | 3.0 | 164 | 3.0 | 0.339 | 12.9 | LOS B | 1.8 | 46.6 | 0.85 | 0.82 | 0.91 | 27.7 |
| Approach | | | 258 | 3.0 | 258 | 3.0 | 0.339 | 13.8 | LOS B | 1.8 | 46.6 | 0.84 | 0.82 | 0.88 | 28.6 |
| All Vehicles | | | 3052 | 3.0 | 3052 | 3.0 | 0.811 | 14.6 | LOS B | 13.8 | 353.3 | 0.72 | 0.73 | 1.18 | 28.3 |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 82 | 0 | 134 | 0 | 655 | 949 | 0 | 827 | 709 |
| Future Volume (veh/h) | 0 | 0 | 0 | 82 | 0 | 134 | 0 | 655 | 949 | 0 | 827 | 709 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 0 | 1870 | 1870 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 91 | 0 | 149 | 0 | 728 | 0 | 0 | 919 | 630 |
| Peak Hour Factor | | | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Cap, veh/h | | | | 256 | 0 | 228 | 0 | 2137 | 953 | 0 | 2137 | 945 |
| Arrive On Green | | | | 0.14 | 0.00 | 0.14 | 0.00 | 0.60 | 0.00 | 0.00 | 0.60 | 0.60 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 0 | 3647 | 1585 | 0 | 3647 | 1572 |
| Grp Volume(v), veh/h | | | | 91 | 0 | 149 | 0 | 728 | 0 | 0 | 919 | 630 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 0 | 1777 | 1585 | 0 | 1777 | 1572 |
| Q Serve(g_s), s | | | | 1.8 | 0.0 | 3.4 | 0.0 | 4.0 | 0.0 | 0.0 | 5.3 | 10.3 |
| Cycle Q Clear(g_c), s | | | | 1.8 | 0.0 | 3.4 | 0.0 | 4.0 | 0.0 | 0.0 | 5.3 | 10.3 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 256 | 0 | 228 | 0 | 2137 | 953 | 0 | 2137 | 945 |
| V/C Ratio(X) | | | | 0.36 | 0.00 | 0.65 | 0.00 | 0.34 | 0.00 | 0.00 | 0.43 | 0.67 |
| Avail Cap(c_a), veh/h | | | | 838 | 0 | 746 | 0 | 5737 | 2559 | 0 | 5737 | 2538 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 14.9 | 0.0 | 15.6 | 0.0 | 3.8 | 0.0 | 0.0 | 4.1 | 5.1 |
| Incr Delay (d2), s/veh | | | | 0.8 | 0.0 | 3.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.8 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 0.7 | 0.0 | 1.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.3 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 15.7 | 0.0 | 18.7 | 0.0 | 3.9 | 0.0 | 0.0 | 4.3 | 5.9 |
| LnGrp LOS | | | | B | | B | | A | | | A | A |
| Approach Vol, veh/h | | | | | 240 | | | 728 | | | 1549 | |
| Approach Delay, s/veh | | | | | 17.6 | | | 3.9 | | | 4.9 | |
| Approach LOS | | | | | B | | | A | | | A | |

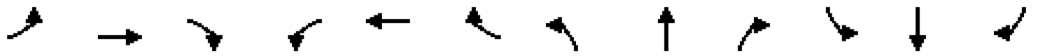
| Timer - Assigned Phs | 2 | | | 6 | | 8 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 28.0 | | | 28.0 | | 10.4 | | | | | | |
| Change Period (Y+Rc), s | 4.9 | | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 62.1 | | | 62.1 | | 18.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 6.0 | | | 12.3 | | 5.4 | | | | | | |
| Green Ext Time (p_c), s | 5.0 | | | 10.9 | | 0.6 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | 5.9 | | | | | | | | | | |
| HCM 7th LOS | | A | | | | | | | | | | |



| Lane Group | WBL | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 91 | 149 | 728 | 1054 | 919 | 788 |
| v/c Ratio | 0.29 | 0.39 | 0.30 | 0.77 | 0.37 | 0.60 |
| Control Delay (s/veh) | 24.5 | 9.0 | 4.2 | 4.7 | 4.6 | 2.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 |
| Total Delay (s/veh) | 24.5 | 9.0 | 4.2 | 5.2 | 4.6 | 2.5 |
| Queue Length 50th (ft) | 18 | 0 | 37 | 0 | 51 | 0 |
| Queue Length 95th (ft) | 88 | 50 | 76 | 29 | 102 | 26 |
| Internal Link Dist (ft) | | | 518 | | 438 | |
| Turn Bay Length (ft) | | | | | | 160 |
| Base Capacity (vph) | 733 | 726 | 3349 | 1488 | 3349 | 1500 |
| Starvation Cap Reductn | 0 | 0 | 0 | 130 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.12 | 0.21 | 0.22 | 0.78 | 0.27 | 0.53 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 243 | 0 | 898 | 0 | 0 | 0 | 0 | 1333 | 38 | 29 | 862 | 0 |
| Future Volume (veh/h) | 243 | 0 | 898 | 0 | 0 | 0 | 0 | 1333 | 38 | 29 | 862 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 0 | 1856 | | | | 0 | 1856 | 1856 | 1856 | 1856 | 0 |
| Adj Flow Rate, veh/h | 264 | 0 | 780 | | | | 0 | 1449 | 32 | 32 | 937 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 0 | 3 | | | | 0 | 3 | 3 | 3 | 3 | 0 |
| Cap, veh/h | 899 | 0 | 800 | | | | 0 | 1311 | 29 | 44 | 1496 | 0 |
| Arrive On Green | 0.51 | 0.00 | 0.51 | | | | 0.00 | 0.37 | 0.37 | 0.02 | 0.42 | 0.00 |
| Sat Flow, veh/h | 1767 | 0 | 1572 | | | | 0 | 3619 | 78 | 1767 | 3618 | 0 |
| Grp Volume(v), veh/h | 264 | 0 | 780 | | | | 0 | 724 | 757 | 32 | 937 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1572 | | | | 0 | 1763 | 1842 | 1767 | 1763 | 0 |
| Q Serve(g_s), s | 12.6 | 0.0 | 70.5 | | | | 0.0 | 54.2 | 54.2 | 2.6 | 30.4 | 0.0 |
| Cycle Q Clear(g_c), s | 12.6 | 0.0 | 70.5 | | | | 0.0 | 54.2 | 54.2 | 2.6 | 30.4 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.04 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 899 | 0 | 800 | | | | 0 | 656 | 685 | 44 | 1496 | 0 |
| V/C Ratio(X) | 0.29 | 0.00 | 0.98 | | | | 0.00 | 1.10 | 1.11 | 0.73 | 0.63 | 0.00 |
| Avail Cap(c_a), veh/h | 923 | 0 | 821 | | | | 0 | 656 | 685 | 72 | 1551 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 20.7 | 0.0 | 34.9 | | | | 0.0 | 45.8 | 45.8 | 70.6 | 32.9 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 25.2 | | | | 0.0 | 67.0 | 67.2 | 20.2 | 0.8 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.3 | 0.0 | 31.9 | | | | 0.0 | 34.8 | 36.4 | 1.4 | 12.6 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 20.9 | 0.0 | 60.1 | | | | 0.0 | 112.8 | 113.0 | 90.7 | 33.7 | 0.0 |
| LnGrp LOS | C | | E | | | | | F | F | F | C | |
| Approach Vol, veh/h | | 1044 | | | | | | 1481 | | | 969 | |
| Approach Delay, s/veh | | 50.2 | | | | | | 112.9 | | | 35.5 | |
| Approach LOS | | D | | | | | | F | | | D | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 59.1 | | 79.0 | | 66.7 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 5.9 | 54.2 | | 76.1 | | 64.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 4.6 | 56.2 | | 72.5 | | 32.4 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 1.6 | | 6.7 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 72.7 | | | | | | | | | |
| HCM 7th LOS | | | E | | | | | | | | | |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 264 | 976 | 1490 | 32 | 937 |
| v/c Ratio | 0.29 | 1.20 | 1.15 | 0.46 | 0.65 |
| Control Delay (s/veh) | 21.4 | 131.0 | 117.5 | 91.5 | 36.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 |
| Total Delay (s/veh) | 21.4 | 131.0 | 117.5 | 91.5 | 38.4 |
| Queue Length 50th (ft) | 147 | ~1149 | ~919 | 31 | 373 |
| Queue Length 95th (ft) | 211 | #1414 | #1061 | #71 | 447 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 913 | 816 | 1298 | 70 | 1539 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 384 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.29 | 1.20 | 1.15 | 0.46 | 0.81 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 34.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 18 | 258 | 36 | 9 | 348 | 35 | 64 | 8 | 23 | 102 | 63 | 77 |
| Future Vol, veh/h | 18 | 258 | 36 | 9 | 348 | 35 | 64 | 8 | 23 | 102 | 63 | 77 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 245 | - | - | 100 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 24 | 344 | 48 | 12 | 464 | 47 | 85 | 11 | 31 | 136 | 84 | 103 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 521 | 0 | 0 | 402 | 0 | 0 | 966 | 971 | 216 | 757 | 971 | 507 |
| Stage 1 | - | - | - | - | - | - | 426 | 426 | - | 521 | 521 | - |
| Stage 2 | - | - | - | - | - | - | 540 | 545 | - | 235 | 450 | - |
| Critical Hdwy | 4.175 | - | - | 4.175 | - | - | 7.375 | 6.575 | 6.975 | 7.375 | 6.575 | 6.275 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.575 | 5.575 | - | 6.175 | 5.575 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.175 | 5.575 | - | 6.575 | 5.575 | - |
| Follow-up Hdwy | 2.2475 | - | - | 2.2475 | - | - | 3.5475 | 4.0475 | 3.3475 | 3.5475 | 4.0475 | 3.3475 |
| Pot Cap-1 Maneuver | 1026 | - | - | 1136 | - | - | 217 | 248 | 781 | 306 | 248 | 557 |
| Stage 1 | - | - | - | - | - | - | 571 | 579 | - | 531 | 524 | - |
| Stage 2 | - | - | - | - | - | - | 518 | 512 | - | 740 | 565 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1016 | - | - | 1125 | - | - | 109 | 235 | 766 | 266 | 235 | 547 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 109 | 235 | - | 266 | 235 | - |
| Stage 1 | - | - | - | - | - | - | 552 | 560 | - | 520 | 514 | - |
| Stage 2 | - | - | - | - | - | - | 345 | 501 | - | 674 | 546 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.5 | 0.19 | 102.89 | 105.6 |
| HCM LOS | | | F | F |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 146 | 1016 | - | - | 1125 | - | - | 305 |
| HCM Lane V/C Ratio | 0.869 | 0.024 | - | - | 0.011 | - | - | 1.057 |
| HCM Ctrl Dly (s/v) | 102.9 | 8.6 | - | - | 8.2 | - | - | 105.6 |
| HCM Lane LOS | F | A | - | - | A | - | - | F |
| HCM 95th %tile Q(veh) | 5.8 | 0.1 | - | - | 0 | - | - | 12.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 12 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 137 | 2 | 2 | 1 | 4 | 1 | 7 | 4 | 1 | 1 | 5 | 443 |
| Future Vol, veh/h | 137 | 2 | 2 | 1 | 4 | 1 | 7 | 4 | 1 | 1 | 5 | 443 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 169 | 2 | 2 | 1 | 5 | 1 | 9 | 5 | 1 | 1 | 6 | 547 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 10.3 | 8.5 | 8.3 | 12.7 |
| HCM LOS | B | A | A | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 58% | 97% | 17% | 0% |
| Vol Thru, % | 33% | 1% | 67% | 1% |
| Vol Right, % | 8% | 1% | 17% | 99% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 12 | 141 | 6 | 449 |
| LT Vol | 7 | 137 | 1 | 1 |
| Through Vol | 4 | 2 | 4 | 5 |
| RT Vol | 1 | 2 | 1 | 443 |
| Lane Flow Rate | 15 | 174 | 7 | 554 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.021 | 0.258 | 0.011 | 0.603 |
| Departure Headway (Hd) | 5.105 | 5.339 | 5.349 | 3.918 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 699 | 668 | 664 | 926 |
| Service Time | 3.153 | 3.4 | 3.421 | 1.936 |
| HCM Lane V/C Ratio | 0.021 | 0.26 | 0.011 | 0.598 |
| HCM Control Delay, s/veh | 8.3 | 10.3 | 8.5 | 12.7 |
| HCM Lane LOS | A | B | A | B |
| HCM 95th-tile Q | 0.1 | 1 | 0 | 4.2 |



| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Traffic Volume (veh/h) | 1 | 241 | 144 | 5 | 231 | 162 | 11 |
| Future Volume (veh/h) | 1 | 241 | 144 | 5 | 231 | 162 | 11 |
| Initial Q (Qb), veh | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | 0.98 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | | 330 | 197 | 7 | 316 | 222 | 15 |
| Peak Hour Factor | | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Percent Heavy Veh, % | | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | | 1025 | 450 | 17 | 838 | 373 | 332 |
| Arrive On Green | | 0.29 | 0.29 | 0.01 | 0.45 | 0.21 | 0.21 |
| Sat Flow, veh/h | | 3618 | 1545 | 1767 | 1856 | 1767 | 1572 |
| Grp Volume(v), veh/h | | 330 | 197 | 7 | 316 | 222 | 15 |
| Grp Sat Flow(s),veh/h/ln | | 1763 | 1545 | 1767 | 1856 | 1767 | 1572 |
| Q Serve(g_s), s | | 1.9 | 2.7 | 0.1 | 3.0 | 3.0 | 0.2 |
| Cycle Q Clear(g_c), s | | 1.9 | 2.7 | 0.1 | 3.0 | 3.0 | 0.2 |
| Prop In Lane | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | | 1025 | 450 | 17 | 838 | 373 | 332 |
| V/C Ratio(X) | | 0.32 | 0.44 | 0.42 | 0.38 | 0.59 | 0.05 |
| Avail Cap(c_a), veh/h | | 2550 | 1118 | 401 | 1342 | 1472 | 1310 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | 7.3 | 7.6 | 13.0 | 4.8 | 9.4 | 8.3 |
| Incr Delay (d2), s/veh | | 0.2 | 0.7 | 15.7 | 0.3 | 1.5 | 0.1 |
| Initial Q Delay(d3), s/veh | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | 0.3 | 0.4 | 0.1 | 0.1 | 0.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | |
| LnGrp Delay(d), s/veh | | 7.5 | 8.3 | 28.7 | 5.1 | 10.9 | 8.4 |
| LnGrp LOS | | A | A | C | A | B | A |
| Approach Vol, veh/h | | 527 | | | 323 | 237 | |
| Approach Delay, s/veh | | 7.8 | | | 5.6 | 10.8 | |
| Approach LOS | | A | | | A | B | |

| Timer - Assigned Phs | 2 | 3 | 4 | | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.6 | 4.3 | 12.6 | | | 16.8 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.9 | | | 4.9 |
| Max Green Setting (Gmax), s | 22.0 | 6.0 | 19.1 | | | 19.1 |
| Max Q Clear Time (g_c+I1), s | 5.0 | 2.1 | 4.7 | | | 5.0 |
| Green Ext Time (p_c), s | 0.6 | 0.0 | 2.2 | | | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 7.8 |
| HCM 7th LOS | A |

| Notes |
|---|
| User approved ignoring U-Turning movement. |

| Lane Group | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1 | 330 | 197 | 7 | 316 | 222 | 15 |
| v/c Ratio | 0.00 | 0.27 | 0.30 | 0.02 | 0.49 | 0.41 | 0.03 |
| Control Delay (s/veh) | 17.0 | 9.2 | 3.6 | 16.8 | 12.4 | 13.0 | 6.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 17.0 | 9.2 | 3.6 | 16.8 | 12.4 | 13.0 | 6.6 |
| Queue Length 50th (ft) | 0 | 16 | 0 | 1 | 32 | 23 | 0 |
| Queue Length 95th (ft) | 3 | 50 | 18 | 9 | 104 | 82 | 8 |
| Internal Link Dist (ft) | | 2566 | | | 4832 | 3848 | |
| Turn Bay Length (ft) | 240 | | 115 | 255 | | 250 | |
| Base Capacity (vph) | 357 | 2276 | 1050 | 357 | 1198 | 1310 | 1151 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.00 | 0.14 | 0.19 | 0.02 | 0.26 | 0.17 | 0.01 |

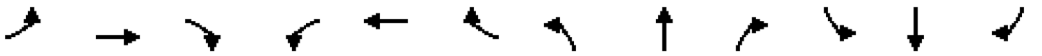
Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 31.6 |
| Intersection LOS | F |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 12 | 51 | 11 | 158 | 652 | 8 |
| Future Vol, veh/h | 12 | 51 | 11 | 158 | 652 | 8 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 15 | 63 | 14 | 195 | 805 | 10 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 1 |

| Approach | EB | WB | SB |
|---|---|---|---|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 2 | 0 |
| Conflicting Approach Left | SB | | WB |
| Conflicting Lanes Left | 2 | 0 | 1 |
| Conflicting Approach Right | | SB | EB |
| Conflicting Lanes Right | 0 | 2 | 2 |
| HCM Control Delay, s/veh | 11.4 | 13 | 173.5 |
| HCM LOS | B | B | F |

| Lane | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 7% | 0% | 0% |
| Vol Right, % | 0% | 0% | 93% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 12 | 51 | 169 | 652 | 8 |
| LT Vol | 12 | 0 | 0 | 652 | 0 |
| Through Vol | 0 | 51 | 11 | 0 | 0 |
| RT Vol | 0 | 0 | 158 | 0 | 8 |
| Lane Flow Rate | 15 | 63 | 209 | 805 | 10 |
| Geometry Grp | 5 | 5 | 3b | 5 | 5 |
| Degree of Util (X) | 0.03 | 0.12 | 0.34 | 1.323 | 0.013 |
| Departure Headway (Hd) | 8.213 | 7.699 | 6.618 | 5.917 | 4.711 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 439 | 468 | 547 | 612 | 751 |
| Service Time | 5.913 | 5.399 | 4.618 | 3.7 | 2.493 |
| HCM Lane V/C Ratio | 0.034 | 0.135 | 0.382 | 1.315 | 0.013 |
| HCM Control Delay, s/veh | 11.2 | 11.4 | 13 | 175.5 | 7.6 |
| HCM Lane LOS | B | B | B | F | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 1.5 | 33.2 | 0 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 158 | 216 | 51 | 35 | 591 | 18 | 124 | 25 | 12 | 7 | 81 | 654 |
| Future Volume (veh/h) | 158 | 216 | 51 | 35 | 591 | 18 | 124 | 25 | 12 | 7 | 81 | 654 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 203 | 277 | 52 | 45 | 758 | 18 | 159 | 32 | 12 | 9 | 104 | 670 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 229 | 946 | 414 | 57 | 825 | 360 | 177 | 1873 | 831 | 19 | 820 | 690 |
| Arrive On Green | 0.07 | 0.27 | 0.27 | 0.03 | 0.24 | 0.24 | 0.10 | 0.54 | 0.54 | 0.01 | 0.45 | 0.45 |
| Sat Flow, veh/h | 3374 | 3469 | 1519 | 1739 | 3469 | 1515 | 1739 | 3469 | 1539 | 1739 | 1826 | 1537 |
| Grp Volume(v), veh/h | 203 | 277 | 52 | 45 | 758 | 18 | 159 | 32 | 12 | 9 | 104 | 670 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1735 | 1519 | 1739 | 1735 | 1515 | 1739 | 1735 | 1539 | 1739 | 1826 | 1537 |
| Q Serve(g_s), s | 7.0 | 7.4 | 3.0 | 3.0 | 25.1 | 1.1 | 10.6 | 0.5 | 0.4 | 0.6 | 3.9 | 50.2 |
| Cycle Q Clear(g_c), s | 7.0 | 7.4 | 3.0 | 3.0 | 25.1 | 1.1 | 10.6 | 0.5 | 0.4 | 0.6 | 3.9 | 50.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 229 | 946 | 414 | 57 | 825 | 360 | 177 | 1873 | 831 | 19 | 820 | 690 |
| V/C Ratio(X) | 0.89 | 0.29 | 0.13 | 0.78 | 0.92 | 0.05 | 0.90 | 0.02 | 0.01 | 0.48 | 0.13 | 0.97 |
| Avail Cap(c_a), veh/h | 229 | 946 | 414 | 130 | 857 | 374 | 177 | 1873 | 831 | 87 | 837 | 705 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 54.5 | 33.9 | 32.3 | 56.5 | 43.8 | 34.6 | 52.3 | 12.6 | 12.6 | 57.9 | 19.0 | 31.7 |
| Incr Delay (d2), s/veh | 31.2 | 0.2 | 0.1 | 20.4 | 14.5 | 0.1 | 40.0 | 0.0 | 0.0 | 17.6 | 0.1 | 26.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.9 | 3.0 | 1.1 | 1.6 | 11.8 | 0.4 | 6.6 | 0.2 | 0.1 | 0.4 | 1.7 | 23.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 85.7 | 34.0 | 32.4 | 76.9 | 58.2 | 34.7 | 92.3 | 12.6 | 12.6 | 75.5 | 19.0 | 58.3 |
| LnGrp LOS | F | C | C | E | E | C | F | B | B | E | B | E |
| Approach Vol, veh/h | | 532 | | | 821 | | | 203 | | | 783 | |
| Approach Delay, s/veh | | 53.6 | | | 58.7 | | | 75.0 | | | 53.3 | |
| Approach LOS | | D | | | E | | | E | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.9 | 37.0 | 16.0 | 56.9 | 12.0 | 32.9 | 5.3 | 67.6 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.8 | 28.3 | 12.0 | 54.0 | 8.0 | 29.1 | 5.9 | 60.1 |
| Max Q Clear Time (g_c+I1), s | 5.0 | 9.4 | 12.6 | 52.2 | 9.0 | 27.1 | 2.6 | 2.5 |
| Green Ext Time (p_c), s | 0.0 | 1.5 | 0.0 | 0.7 | 0.0 | 0.9 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 57.1 |
| HCM 7th LOS | E |

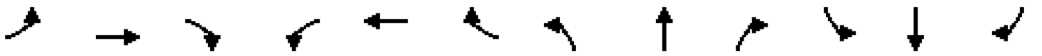


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 203 | 277 | 65 | 45 | 758 | 23 | 159 | 32 | 15 | 9 | 104 | 838 |
| v/c Ratio | 0.91 | 0.31 | 0.14 | 0.41 | 0.93 | 0.05 | 0.92 | 0.02 | 0.02 | 0.11 | 0.13 | 1.05 |
| Control Delay (s/veh) | 96.2 | 38.1 | 1.1 | 64.4 | 62.9 | 0.2 | 104.8 | 12.6 | 0.0 | 57.7 | 19.8 | 70.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 96.2 | 38.1 | 1.1 | 64.4 | 62.9 | 0.2 | 104.8 | 12.6 | 0.0 | 57.7 | 19.8 | 70.9 |
| Queue Length 50th (ft) | 81 | 94 | 0 | 34 | 302 | 0 | 124 | 5 | 0 | 7 | 46 | ~609 |
| Queue Length 95th (ft) | #122 | 115 | 0 | 63 | 315 | 0 | #205 | 13 | 0 | 21 | 70 | #640 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 223 | 880 | 461 | 127 | 838 | 444 | 172 | 1961 | 888 | 85 | 819 | 797 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.91 | 0.31 | 0.14 | 0.35 | 0.90 | 0.05 | 0.92 | 0.02 | 0.02 | 0.11 | 0.13 | 1.05 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 52 | 181 | 13 | 1 | 338 | 96 | 30 | 58 | 2 | 98 | 106 | 207 |
| Future Volume (veh/h) | 52 | 181 | 13 | 1 | 338 | 96 | 30 | 58 | 2 | 98 | 106 | 207 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 62 | 215 | 11 | 1 | 402 | 91 | 36 | 69 | 2 | 117 | 126 | 197 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 208 | 993 | 435 | 4 | 783 | 601 | 71 | 276 | 8 | 411 | 434 | 363 |
| Arrive On Green | 0.06 | 0.29 | 0.29 | 0.00 | 0.23 | 0.23 | 0.04 | 0.16 | 0.16 | 0.12 | 0.24 | 0.24 |
| Sat Flow, veh/h | 3374 | 3469 | 1520 | 1739 | 3469 | 2663 | 1739 | 1764 | 51 | 3374 | 1826 | 1528 |
| Grp Volume(v), veh/h | 62 | 215 | 11 | 1 | 402 | 91 | 36 | 0 | 71 | 117 | 126 | 197 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1735 | 1520 | 1739 | 1735 | 1332 | 1739 | 0 | 1816 | 1687 | 1826 | 1528 |
| Q Serve(g_s), s | 0.7 | 1.9 | 0.2 | 0.0 | 4.2 | 1.1 | 0.8 | 0.0 | 1.4 | 1.3 | 2.3 | 4.6 |
| Cycle Q Clear(g_c), s | 0.7 | 1.9 | 0.2 | 0.0 | 4.2 | 1.1 | 0.8 | 0.0 | 1.4 | 1.3 | 2.3 | 4.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.03 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 208 | 993 | 435 | 4 | 783 | 601 | 71 | 0 | 284 | 411 | 434 | 363 |
| V/C Ratio(X) | 0.30 | 0.22 | 0.03 | 0.24 | 0.51 | 0.15 | 0.50 | 0.00 | 0.25 | 0.28 | 0.29 | 0.54 |
| Avail Cap(c_a), veh/h | 493 | 1531 | 671 | 254 | 1531 | 1175 | 254 | 0 | 845 | 1563 | 1429 | 1196 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 18.4 | 11.1 | 10.5 | 20.4 | 13.9 | 12.7 | 19.3 | 0.0 | 15.2 | 16.4 | 12.8 | 13.7 |
| Incr Delay (d2), s/veh | 0.8 | 0.1 | 0.0 | 26.3 | 0.5 | 0.1 | 5.4 | 0.0 | 0.5 | 0.4 | 0.4 | 1.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.5 | 0.0 | 0.0 | 1.1 | 0.2 | 0.4 | 0.0 | 0.5 | 0.4 | 0.7 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 19.2 | 11.3 | 10.6 | 46.7 | 14.4 | 12.8 | 24.7 | 0.0 | 15.6 | 16.8 | 13.2 | 15.0 |
| LnGrp LOS | B | B | B | D | B | B | C | | B | B | B | B |
| Approach Vol, veh/h | | 288 | | | 494 | | | 107 | | | 440 | |
| Approach Delay, s/veh | | 12.9 | | | 14.2 | | | 18.7 | | | 14.9 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 11.3 | 4.1 | 16.6 | 5.7 | 14.6 | 6.5 | 14.2 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 19.0 | 19.1 | 6.0 | 18.1 | 6.0 | 32.1 | 6.0 | 18.1 |
| Max Q Clear Time (g_c+I1), s | 3.3 | 3.4 | 2.0 | 3.9 | 2.8 | 6.6 | 2.7 | 6.2 |
| Green Ext Time (p_c), s | 0.3 | 0.2 | 0.0 | 0.9 | 0.0 | 1.2 | 0.0 | 2.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 14.5 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 62 | 215 | 15 | 1 | 402 | 114 | 36 | 71 | 117 | 126 | 246 |
| v/c Ratio | 0.14 | 0.19 | 0.02 | 0.00 | 0.47 | 0.15 | 0.16 | 0.24 | 0.22 | 0.20 | 0.36 |
| Control Delay (s/veh) | 22.7 | 12.6 | 0.1 | 23.0 | 18.2 | 1.3 | 24.3 | 21.5 | 21.0 | 16.9 | 5.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.7 | 12.6 | 0.1 | 23.0 | 18.2 | 1.3 | 24.3 | 21.5 | 21.0 | 16.9 | 5.2 |
| Queue Length 50th (ft) | 8 | 18 | 0 | 0 | 53 | 0 | 10 | 18 | 15 | 23 | 0 |
| Queue Length 95th (ft) | 24 | 51 | 0 | 4 | 90 | 3 | 33 | 48 | 36 | 71 | 39 |
| Internal Link Dist (ft) | | 3221 | | | 2598 | | | 468 | | 389 | |
| Turn Bay Length (ft) | 935 | | 470 | 450 | | 550 | 100 | | 635 | | |
| Base Capacity (vph) | 456 | 1527 | 760 | 235 | 1418 | 1181 | 235 | 785 | 1444 | 1324 | 1163 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.14 | 0.14 | 0.02 | 0.00 | 0.28 | 0.10 | 0.15 | 0.09 | 0.08 | 0.10 | 0.21 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 32 | 318 | 686 | 12 | 0 | 123 |
| Future Vol, veh/h | 32 | 318 | 686 | 12 | 0 | 123 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 35 | 346 | 746 | 13 | 0 | 134 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 769 | 0 | - | 0 | 1015 | 772 |
| Stage 1 | - | - | - | - | 762 | - |
| Stage 2 | - | - | - | - | 252 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | 2.219 | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 843 | - | - | - | 249 | 398 |
| Stage 1 | - | - | - | - | 460 | - |
| Stage 2 | - | - | - | - | 767 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 835 | - | - | - | 233 | 391 |
| Mov Cap-2 Maneuver | - | - | - | - | 233 | - |
| Stage 1 | - | - | - | - | 434 | - |
| Stage 2 | - | - | - | - | 760 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 1.2 | 0 | 18.92 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 329 | - | - | - | 391 |
| HCM Lane V/C Ratio | 0.042 | - | - | - | 0.342 |
| HCM Ctrl Dly (s/v) | 9.5 | 0.4 | - | - | 18.9 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 1.5 |

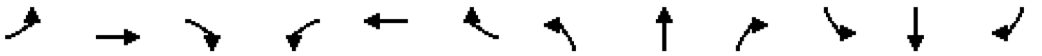
| Intersection | |
|---|---|
| Int Delay, s/veh | 7.3 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 71 | 0 | 0 | 197 | 0 |
| Future Vol, veh/h | 0 | 71 | 0 | 0 | 197 | 0 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 77 | 0 | 0 | 214 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 87 | 0 | 60 | 59 |
| Stage 1 | - | - | - | - | 49 | - |
| Stage 2 | - | - | - | - | 11 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1509 | - | 947 | 1007 |
| Stage 1 | - | - | - | - | 974 | - |
| Stage 2 | - | - | - | - | 1012 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1494 | - | 929 | 988 |
| Mov Cap-2 Maneuver | - | - | - | - | 929 | - |
| Stage 1 | - | - | - | - | 965 | - |
| Stage 2 | - | - | - | - | 1002 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0 | 10.03 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 929 | - | - | 1494 | - |
| HCM Lane V/C Ratio | 0.23 | - | - | - | - |
| HCM Ctrl Dly (s/v) | 10 | - | - | 0 | - |
| HCM Lane LOS | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.9 | - | - | 0 | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 97 | 322 | 22 | 96 | 71 | 322 | 593 | 24 | 104 | 432 | 94 |
| Future Volume (veh/h) | 15 | 97 | 322 | 22 | 96 | 71 | 322 | 593 | 24 | 104 | 432 | 94 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 19 | 126 | 335 | 29 | 125 | 75 | 418 | 770 | 26 | 135 | 561 | 90 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 40 | 495 | 415 | 57 | 513 | 430 | 571 | 1072 | 470 | 175 | 1199 | 367 |
| Arrive On Green | 0.02 | 0.26 | 0.26 | 0.03 | 0.27 | 0.27 | 0.17 | 0.30 | 0.30 | 0.10 | 0.23 | 0.23 |
| Sat Flow, veh/h | 1781 | 1870 | 1567 | 1781 | 1870 | 1568 | 3456 | 3554 | 1559 | 1781 | 5106 | 1565 |
| Grp Volume(v), veh/h | 19 | 126 | 335 | 29 | 125 | 75 | 418 | 770 | 26 | 135 | 561 | 90 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1567 | 1781 | 1870 | 1568 | 1728 | 1777 | 1559 | 1781 | 1702 | 1565 |
| Q Serve(g_s), s | 0.6 | 3.1 | 11.7 | 0.9 | 3.1 | 2.1 | 6.7 | 11.3 | 0.7 | 4.3 | 5.5 | 2.7 |
| Cycle Q Clear(g_c), s | 0.6 | 3.1 | 11.7 | 0.9 | 3.1 | 2.1 | 6.7 | 11.3 | 0.7 | 4.3 | 5.5 | 2.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 40 | 495 | 415 | 57 | 513 | 430 | 571 | 1072 | 470 | 175 | 1199 | 367 |
| V/C Ratio(X) | 0.47 | 0.25 | 0.81 | 0.51 | 0.24 | 0.17 | 0.73 | 0.72 | 0.06 | 0.77 | 0.47 | 0.25 |
| Avail Cap(c_a), veh/h | 182 | 749 | 627 | 182 | 749 | 627 | 1024 | 1773 | 778 | 406 | 2200 | 674 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.3 | 17.0 | 20.2 | 28.0 | 16.6 | 16.2 | 23.3 | 18.3 | 14.6 | 25.8 | 19.3 | 18.2 |
| Incr Delay (d2), s/veh | 8.2 | 0.3 | 4.7 | 6.8 | 0.2 | 0.2 | 1.8 | 0.9 | 0.0 | 6.9 | 0.3 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 1.2 | 4.1 | 0.5 | 1.1 | 0.7 | 2.5 | 3.9 | 0.2 | 1.9 | 1.9 | 0.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.6 | 17.3 | 24.8 | 34.8 | 16.8 | 16.4 | 25.1 | 19.2 | 14.6 | 32.8 | 19.6 | 18.6 |
| LnGrp LOS | D | B | C | C | B | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 480 | | | 229 | | | 1214 | | | 786 | |
| Approach Delay, s/veh | | 23.3 | | | 19.0 | | | 21.1 | | | 21.7 | |
| Approach LOS | | C | | | B | | | C | | | C | |

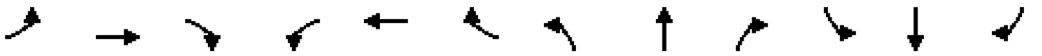
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.8 | 22.6 | 5.9 | 20.4 | 13.7 | 18.7 | 5.3 | 21.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 13.4 | 29.3 | 6.0 | 23.5 | 17.4 | 25.3 | 6.0 | 23.5 |
| Max Q Clear Time (g_c+I1), s | 6.3 | 13.3 | 2.9 | 13.7 | 8.7 | 7.5 | 2.6 | 5.1 |
| Green Ext Time (p_c), s | 0.2 | 4.3 | 0.0 | 1.4 | 1.0 | 3.4 | 0.0 | 0.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 21.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 19 | 126 | 418 | 29 | 125 | 92 | 418 | 770 | 31 | 135 | 561 | 122 |
| v/c Ratio | 0.10 | 0.36 | 0.66 | 0.15 | 0.31 | 0.22 | 0.55 | 0.57 | 0.05 | 0.44 | 0.40 | 0.24 |
| Control Delay (s/veh) | 34.2 | 27.5 | 9.1 | 34.4 | 24.3 | 4.6 | 26.2 | 19.3 | 0.1 | 31.5 | 19.3 | 6.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.2 | 27.5 | 9.1 | 34.4 | 24.3 | 4.6 | 26.2 | 19.3 | 0.1 | 31.5 | 19.3 | 6.1 |
| Queue Length 50th (ft) | 5 | 34 | 0 | 8 | 34 | 0 | 58 | 100 | 0 | 37 | 48 | 0 |
| Queue Length 95th (ft) | 26 | 88 | 32 | 35 | 88 | 12 | 127 | 197 | 0 | 104 | 99 | 25 |
| Internal Link Dist (ft) | | 2502 | | | 5399 | | | 2584 | | | 1653 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 25 | 255 | | | 255 | | 205 |
| Base Capacity (vph) | 199 | 824 | 915 | 199 | 824 | 749 | 1125 | 1953 | 888 | 446 | 2423 | 798 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.15 | 0.46 | 0.15 | 0.15 | 0.12 | 0.37 | 0.39 | 0.03 | 0.30 | 0.23 | 0.15 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 23 | 125 | 156 | 112 | 163 | 103 | 119 | 902 | 171 | 107 | 652 | 48 |
| Future Volume (veh/h) | 23 | 125 | 156 | 112 | 163 | 103 | 119 | 902 | 171 | 107 | 652 | 48 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 26 | 140 | 117 | 126 | 183 | 76 | 134 | 1013 | 177 | 120 | 733 | 47 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 54 | 292 | 243 | 162 | 271 | 113 | 173 | 1569 | 479 | 155 | 1516 | 463 |
| Arrive On Green | 0.03 | 0.16 | 0.16 | 0.09 | 0.22 | 0.22 | 0.10 | 0.31 | 0.31 | 0.09 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1781 | 1870 | 1555 | 1781 | 1249 | 519 | 1781 | 5106 | 1559 | 1781 | 5106 | 1558 |
| Grp Volume(v), veh/h | 26 | 140 | 117 | 126 | 0 | 259 | 134 | 1013 | 177 | 120 | 733 | 47 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1555 | 1781 | 0 | 1768 | 1781 | 1702 | 1559 | 1781 | 1702 | 1558 |
| Q Serve(g_s), s | 0.7 | 3.4 | 3.4 | 3.4 | 0.0 | 6.7 | 3.6 | 8.5 | 4.4 | 3.3 | 5.9 | 1.1 |
| Cycle Q Clear(g_c), s | 0.7 | 3.4 | 3.4 | 3.4 | 0.0 | 6.7 | 3.6 | 8.5 | 4.4 | 3.3 | 5.9 | 1.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.29 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 54 | 292 | 243 | 162 | 0 | 384 | 173 | 1569 | 479 | 155 | 1516 | 463 |
| V/C Ratio(X) | 0.48 | 0.48 | 0.48 | 0.78 | 0.00 | 0.67 | 0.78 | 0.65 | 0.37 | 0.78 | 0.48 | 0.10 |
| Avail Cap(c_a), veh/h | 212 | 678 | 564 | 276 | 0 | 705 | 301 | 1964 | 600 | 266 | 1862 | 568 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.7 | 19.1 | 19.1 | 22.1 | 0.0 | 17.8 | 21.9 | 14.9 | 13.4 | 22.2 | 14.3 | 12.7 |
| Incr Delay (d2), s/veh | 6.5 | 1.2 | 1.5 | 7.7 | 0.0 | 2.1 | 7.2 | 0.5 | 0.5 | 8.1 | 0.2 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 1.3 | 1.1 | 1.6 | 0.0 | 2.4 | 1.6 | 2.5 | 1.3 | 1.5 | 1.7 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 30.2 | 20.3 | 20.6 | 29.8 | 0.0 | 19.9 | 29.1 | 15.4 | 13.9 | 30.3 | 14.6 | 12.7 |
| LnGrp LOS | C | C | C | C | | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 283 | | | 385 | | | 1324 | | | 900 | |
| Approach Delay, s/veh | | 21.3 | | | 23.1 | | | 16.6 | | | 16.6 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.3 | 20.2 | 8.5 | 12.7 | 8.8 | 19.6 | 5.5 | 15.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 7.4 | 19.1 | 7.7 | 18.0 | 8.4 | 18.1 | 5.9 | 19.8 |
| Max Q Clear Time (g_c+I1), s | 5.3 | 10.5 | 5.4 | 5.4 | 5.6 | 7.9 | 2.7 | 8.7 |
| Green Ext Time (p_c), s | 0.0 | 4.3 | 0.1 | 0.8 | 0.1 | 3.3 | 0.0 | 1.0 |

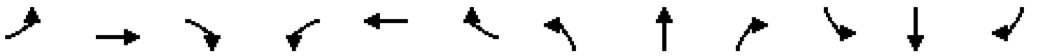
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 17.9 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 26 | 140 | 175 | 126 | 299 | 134 | 1013 | 192 | 120 | 733 | 54 |
| v/c Ratio | 0.13 | 0.36 | 0.38 | 0.51 | 0.54 | 0.51 | 0.64 | 0.32 | 0.50 | 0.48 | 0.10 |
| Control Delay (s/veh) | 30.4 | 25.1 | 6.7 | 37.4 | 20.6 | 36.1 | 21.3 | 5.4 | 37.6 | 20.1 | 0.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 30.4 | 25.1 | 6.7 | 37.4 | 20.6 | 36.1 | 21.3 | 5.4 | 37.6 | 20.1 | 0.3 |
| Queue Length 50th (ft) | 9 | 48 | 0 | 45 | 71 | 48 | 118 | 1 | 43 | 82 | 0 |
| Queue Length 95th (ft) | 32 | 92 | 42 | #122 | 164 | #124 | 186 | 43 | #118 | 134 | 0 |
| Internal Link Dist (ft) | | 2539 | | | 5389 | | 2581 | | | 2584 | |
| Turn Bay Length (ft) | 230 | | | 75 | | 250 | | 105 | 250 | | 205 |
| Base Capacity (vph) | 204 | 657 | 658 | 267 | 714 | 291 | 1904 | 688 | 256 | 1804 | 639 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.13 | 0.21 | 0.27 | 0.47 | 0.42 | 0.46 | 0.53 | 0.28 | 0.47 | 0.41 | 0.08 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 238 | 330 | 142 | 238 | 308 | 233 | 201 | 1072 | 376 | 251 | 938 | 175 |
| Future Volume (veh/h) | 238 | 330 | 142 | 238 | 308 | 233 | 201 | 1072 | 376 | 251 | 938 | 175 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 264 | 367 | 130 | 264 | 342 | 220 | 223 | 1191 | 385 | 279 | 1042 | 144 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 369 | 692 | 304 | 369 | 692 | 304 | 323 | 1722 | 530 | 385 | 1814 | 558 |
| Arrive On Green | 0.11 | 0.19 | 0.19 | 0.11 | 0.19 | 0.19 | 0.09 | 0.34 | 0.34 | 0.11 | 0.36 | 0.36 |
| Sat Flow, veh/h | 3456 | 3554 | 1561 | 3456 | 3554 | 1561 | 3456 | 5106 | 1571 | 3456 | 5106 | 1572 |
| Grp Volume(v), veh/h | 264 | 367 | 130 | 264 | 342 | 220 | 223 | 1191 | 385 | 279 | 1042 | 144 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1561 | 1728 | 1777 | 1561 | 1728 | 1702 | 1571 | 1728 | 1702 | 1572 |
| Q Serve(g_s), s | 5.3 | 6.6 | 5.2 | 5.3 | 6.1 | 9.4 | 4.5 | 14.4 | 15.3 | 5.6 | 11.8 | 4.6 |
| Cycle Q Clear(g_c), s | 5.3 | 6.6 | 5.2 | 5.3 | 6.1 | 9.4 | 4.5 | 14.4 | 15.3 | 5.6 | 11.8 | 4.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 369 | 692 | 304 | 369 | 692 | 304 | 323 | 1722 | 530 | 385 | 1814 | 558 |
| V/C Ratio(X) | 0.72 | 0.53 | 0.43 | 0.72 | 0.49 | 0.72 | 0.69 | 0.69 | 0.73 | 0.72 | 0.57 | 0.26 |
| Avail Cap(c_a), veh/h | 597 | 903 | 397 | 597 | 903 | 397 | 534 | 2087 | 642 | 616 | 2209 | 680 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.8 | 25.8 | 25.2 | 30.8 | 25.6 | 26.9 | 31.3 | 20.4 | 20.7 | 30.6 | 18.6 | 16.3 |
| Incr Delay (d2), s/veh | 2.6 | 0.6 | 1.0 | 2.6 | 0.5 | 4.5 | 2.6 | 0.8 | 3.3 | 2.6 | 0.3 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.1 | 2.5 | 1.8 | 2.1 | 2.3 | 3.5 | 1.8 | 4.9 | 5.2 | 2.2 | 4.0 | 1.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.4 | 26.4 | 26.1 | 33.4 | 26.1 | 31.4 | 33.9 | 21.2 | 24.0 | 33.2 | 18.9 | 16.5 |
| LnGrp LOS | C | C | C | C | C | C | C | C | C | C | B | B |
| Approach Vol, veh/h | | 761 | | | 826 | | | 1799 | | | 1465 | |
| Approach Delay, s/veh | | 28.8 | | | 29.8 | | | 23.4 | | | 21.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.9 | 28.9 | 11.6 | 18.8 | 10.6 | 30.2 | 11.6 | 18.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 12.7 | 29.1 | 12.3 | 18.1 | 11.0 | 30.8 | 12.3 | 18.1 |
| Max Q Clear Time (g_c+I1), s | 7.6 | 17.3 | 7.3 | 8.6 | 6.5 | 13.8 | 7.3 | 11.4 |
| Green Ext Time (p_c), s | 0.4 | 6.7 | 0.4 | 1.7 | 0.3 | 6.6 | 0.4 | 1.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 24.7 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 264 | 367 | 158 | 264 | 342 | 259 | 223 | 1191 | 418 | 279 | 1042 | 194 |
| v/c Ratio | 0.57 | 0.60 | 0.40 | 0.57 | 0.56 | 0.55 | 0.53 | 0.71 | 0.55 | 0.59 | 0.59 | 0.29 |
| Control Delay (s/veh) | 39.6 | 36.1 | 8.7 | 39.6 | 35.2 | 10.0 | 40.0 | 27.1 | 6.9 | 39.5 | 23.9 | 4.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 39.6 | 36.1 | 8.7 | 39.6 | 35.2 | 10.0 | 40.0 | 27.1 | 6.9 | 39.5 | 23.9 | 4.6 |
| Queue Length 50th (ft) | 69 | 97 | 0 | 69 | 90 | 5 | 58 | 198 | 14 | 73 | 163 | 0 |
| Queue Length 95th (ft) | 112 | 143 | 50 | 112 | 134 | 69 | 98 | 268 | 90 | 118 | 221 | 44 |
| Internal Link Dist (ft) | | 2544 | | | 5360 | | | 2600 | | | 2626 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 100 | 250 | | 160 | 250 | | 150 |
| Base Capacity (vph) | 532 | 806 | 473 | 532 | 806 | 542 | 475 | 1863 | 804 | 549 | 1972 | 716 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.46 | 0.33 | 0.50 | 0.42 | 0.48 | 0.47 | 0.64 | 0.52 | 0.51 | 0.53 | 0.27 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 11 | 0 | 189 | 2 | 0 | 0 | 205 | 301 | 2 | 1 | 323 | 5 |
| Future Vol, veh/h | 11 | 0 | 189 | 2 | 0 | 0 | 205 | 301 | 2 | 1 | 323 | 5 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 0 | 230 | 2 | 0 | 0 | 250 | 367 | 2 | 1 | 394 | 6 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1286 | 1289 | 417 | 1285 | 1291 | 388 | 410 | 0 | 0 | 380 | 0 | 0 |
| Stage 1 | 409 | 409 | - | 878 | 878 | - | - | - | - | - | - | - |
| Stage 2 | 877 | 880 | - | 406 | 412 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 141 | 164 | 636 | 142 | 163 | 660 | 1149 | - | - | 1179 | - | - |
| Stage 1 | 619 | 596 | - | 343 | 366 | - | - | - | - | - | - | - |
| Stage 2 | 343 | 365 | - | 621 | 594 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 100 | 116 | 624 | 63 | 116 | 647 | 1138 | - | - | 1168 | - | - |
| Mov Cap-2 Maneuver | 100 | 116 | - | 63 | 116 | - | - | - | - | - | - | - |
| Stage 1 | 612 | 589 | - | 245 | 262 | - | - | - | - | - | - | - |
| Stage 2 | 246 | 262 | - | 388 | 588 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 19.73 | 64.16 | 3.65 | 0.02 |
| HCM LOS | C | F | | |

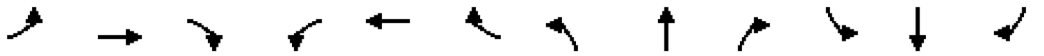
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 725 | - | - | 484 | 63 | 5 | - | - |
| HCM Lane V/C Ratio | 0.22 | - | - | 0.504 | 0.039 | 0.001 | - | - |
| HCM Ctrl Dly (s/v) | 9.1 | 0 | - | 19.7 | 64.2 | 8.1 | 0 | - |
| HCM Lane LOS | A | A | - | C | F | A | A | - |
| HCM 95th %tile Q(veh) | 0.8 | - | - | 2.8 | 0.1 | 0 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 301.9 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 294 | 85 | 44 | 349 | 361 | 94 | 285 | 47 | 249 | 221 | 3 |
| Future Vol, veh/h | 2 | 294 | 85 | 44 | 349 | 361 | 94 | 285 | 47 | 249 | 221 | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 313 | 90 | 47 | 371 | 384 | 100 | 303 | 50 | 265 | 235 | 3 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 120 | 522.5 | 164.8 | 220.3 |
| HCM LOS | F | F | F | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 22% | 1% | 6% | 53% |
| Vol Thru, % | 67% | 77% | 46% | 47% |
| Vol Right, % | 11% | 22% | 48% | 1% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 426 | 381 | 754 | 473 |
| LT Vol | 94 | 2 | 44 | 249 |
| Through Vol | 285 | 294 | 349 | 221 |
| RT Vol | 47 | 85 | 361 | 3 |
| Lane Flow Rate | 453 | 405 | 802 | 503 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.209 | 1.069 | 2.083 | 1.359 |
| Departure Headway (Hd) | 14.446 | 15.032 | 11.311 | 13.927 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 254 | 247 | 329 | 267 |
| Service Time | 12.446 | 13.032 | 9.311 | 11.927 |
| HCM Lane V/C Ratio | 1.783 | 1.64 | 2.438 | 1.884 |
| HCM Control Delay, s/veh | 164.8 | 120 | 522.5 | 220.3 |
| HCM Lane LOS | F | F | F | F |
| HCM 95th-tile Q | 14.4 | 10.9 | 48.2 | 18.7 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 33 | 538 | 114 | 64 | 456 | 110 | 182 | 388 | 102 | 144 | 337 | 27 |
| Future Volume (veh/h) | 33 | 538 | 114 | 64 | 456 | 110 | 182 | 388 | 102 | 144 | 337 | 27 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 38 | 611 | 60 | 73 | 518 | 97 | 207 | 441 | 99 | 164 | 383 | 21 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 66 | 1075 | 472 | 96 | 597 | 498 | 251 | 518 | 434 | 204 | 469 | 393 |
| Arrive On Green | 0.04 | 0.30 | 0.30 | 0.05 | 0.32 | 0.32 | 0.14 | 0.28 | 0.28 | 0.11 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1781 | 3554 | 1559 | 1781 | 1870 | 1560 | 1781 | 1870 | 1568 | 1781 | 1870 | 1566 |
| Grp Volume(v), veh/h | 38 | 611 | 60 | 73 | 518 | 97 | 207 | 441 | 99 | 164 | 383 | 21 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1559 | 1781 | 1870 | 1560 | 1781 | 1870 | 1568 | 1781 | 1870 | 1566 |
| Q Serve(g_s), s | 1.5 | 10.2 | 2.0 | 2.9 | 18.4 | 3.2 | 8.0 | 15.8 | 3.4 | 6.3 | 13.6 | 0.7 |
| Cycle Q Clear(g_c), s | 1.5 | 10.2 | 2.0 | 2.9 | 18.4 | 3.2 | 8.0 | 15.8 | 3.4 | 6.3 | 13.6 | 0.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 66 | 1075 | 472 | 96 | 597 | 498 | 251 | 518 | 434 | 204 | 469 | 393 |
| V/C Ratio(X) | 0.57 | 0.57 | 0.13 | 0.76 | 0.87 | 0.19 | 0.82 | 0.85 | 0.23 | 0.80 | 0.82 | 0.05 |
| Avail Cap(c_a), veh/h | 149 | 1292 | 567 | 234 | 770 | 642 | 328 | 693 | 581 | 277 | 640 | 536 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 33.5 | 20.8 | 17.9 | 33.0 | 22.7 | 17.5 | 29.5 | 24.2 | 19.7 | 30.5 | 24.9 | 20.1 |
| Incr Delay (d2), s/veh | 7.6 | 0.5 | 0.1 | 11.6 | 8.4 | 0.2 | 12.3 | 7.6 | 0.3 | 11.4 | 5.9 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 3.7 | 0.6 | 1.4 | 8.3 | 1.0 | 4.0 | 7.2 | 1.1 | 3.1 | 6.1 | 0.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 41.1 | 21.2 | 18.0 | 44.6 | 31.1 | 17.7 | 41.8 | 31.8 | 20.0 | 41.9 | 30.8 | 20.2 |
| LnGrp LOS | D | C | B | D | C | B | D | C | B | D | C | C |
| Approach Vol, veh/h | | 709 | | | 688 | | | 747 | | | 568 | |
| Approach Delay, s/veh | | 22.0 | | | 30.6 | | | 33.0 | | | 33.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.1 | 24.5 | 7.8 | 26.3 | 14.0 | 22.6 | 6.6 | 27.5 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 11.0 | 26.2 | 9.3 | 25.7 | 13.0 | 24.2 | 5.9 | 29.1 |
| Max Q Clear Time (g_c+I1), s | 8.3 | 17.8 | 4.9 | 12.2 | 10.0 | 15.6 | 3.5 | 20.4 |
| Green Ext Time (p_c), s | 0.1 | 1.8 | 0.0 | 3.2 | 0.2 | 1.4 | 0.0 | 2.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 29.7 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 38 | 611 | 130 | 73 | 518 | 125 | 207 | 441 | 116 | 164 | 383 | 31 |
| v/c Ratio | 0.28 | 0.61 | 0.25 | 0.41 | 0.83 | 0.21 | 0.74 | 0.83 | 0.22 | 0.69 | 0.79 | 0.06 |
| Control Delay (s/veh) | 45.4 | 29.2 | 7.5 | 44.4 | 39.6 | 6.1 | 53.3 | 43.4 | 5.9 | 53.7 | 42.1 | 0.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 45.4 | 29.2 | 7.5 | 44.4 | 39.6 | 6.1 | 53.3 | 43.4 | 5.9 | 53.7 | 42.1 | 0.3 |
| Queue Length 50th (ft) | 21 | 156 | 4 | 40 | 274 | 2 | 116 | 232 | 0 | 92 | 200 | 0 |
| Queue Length 95th (ft) | 51 | 207 | 43 | 81 | #434 | 37 | #222 | #369 | 34 | #183 | #319 | 0 |
| Internal Link Dist (ft) | | 5360 | | | 2582 | | | 1302 | | | 2564 | |
| Turn Bay Length (ft) | 230 | | 75 | 215 | | 55 | 225 | | | 255 | | 25 |
| Base Capacity (vph) | 137 | 1198 | 591 | 216 | 712 | 653 | 302 | 641 | 609 | 256 | 592 | 572 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.51 | 0.22 | 0.34 | 0.73 | 0.19 | 0.69 | 0.69 | 0.19 | 0.64 | 0.65 | 0.05 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 39 | 625 | 201 | 273 | 487 | 7 | 387 | 44 | 200 | 10 | 24 | 26 |
| Future Volume (veh/h) | 39 | 625 | 201 | 273 | 487 | 7 | 387 | 44 | 200 | 10 | 24 | 26 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 48 | 762 | 143 | 333 | 594 | -3 | 472 | 54 | 207 | 12 | 29 | 16 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 146 | 880 | 388 | 419 | 1160 | 517 | 516 | 1336 | 588 | 51 | 358 | 152 |
| Arrive On Green | 0.04 | 0.25 | 0.25 | 0.12 | 0.33 | 0.00 | 0.29 | 0.38 | 0.38 | 0.01 | 0.10 | 0.10 |
| Sat Flow, veh/h | 3456 | 3554 | 1566 | 3456 | 3554 | 1585 | 1781 | 3554 | 1564 | 3456 | 3554 | 1506 |
| Grp Volume(v), veh/h | 48 | 762 | 143 | 333 | 594 | -3 | 472 | 54 | 207 | 12 | 29 | 16 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1566 | 1728 | 1777 | 1585 | 1781 | 1777 | 1564 | 1728 | 1777 | 1506 |
| Q Serve(g_s), s | 1.0 | 15.2 | 5.6 | 6.9 | 10.0 | 0.0 | 18.9 | 0.7 | 7.0 | 0.3 | 0.5 | 0.7 |
| Cycle Q Clear(g_c), s | 1.0 | 15.2 | 5.6 | 6.9 | 10.0 | 0.0 | 18.9 | 0.7 | 7.0 | 0.3 | 0.5 | 0.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 146 | 880 | 388 | 419 | 1160 | 517 | 516 | 1336 | 588 | 51 | 358 | 152 |
| V/C Ratio(X) | 0.33 | 0.87 | 0.37 | 0.79 | 0.51 | -0.01 | 0.91 | 0.04 | 0.35 | 0.24 | 0.08 | 0.11 |
| Avail Cap(c_a), veh/h | 276 | 932 | 411 | 434 | 1160 | 517 | 578 | 1806 | 795 | 276 | 936 | 397 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.4 | 26.7 | 23.1 | 31.6 | 20.2 | 0.0 | 25.4 | 14.6 | 16.6 | 36.0 | 30.2 | 30.2 |
| Incr Delay (d2), s/veh | 1.3 | 8.3 | 0.6 | 9.6 | 0.4 | 0.0 | 18.1 | 0.0 | 0.4 | 2.3 | 0.1 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 6.7 | 1.9 | 3.2 | 3.7 | 0.0 | 9.7 | 0.3 | 2.2 | 0.1 | 0.2 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 35.7 | 35.0 | 23.6 | 41.2 | 20.5 | 0.0 | 43.4 | 14.6 | 17.0 | 38.4 | 30.3 | 30.5 |
| LnGrp LOS | D | C | C | D | C | | D | B | B | D | C | C |
| Approach Vol, veh/h | | 953 | | | 924 | | | 733 | | | 57 | |
| Approach Delay, s/veh | | 33.3 | | | 28.0 | | | 33.8 | | | 32.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.1 | 32.7 | 13.0 | 23.2 | 25.4 | 12.4 | 7.1 | 29.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 37.6 | 9.3 | 19.4 | 24.0 | 19.5 | 5.9 | 22.8 |
| Max Q Clear Time (g_c+I1), s | 2.3 | 9.0 | 8.9 | 17.2 | 20.9 | 2.7 | 3.0 | 12.0 |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 1.1 | 0.5 | 0.1 | 0.0 | 2.6 |

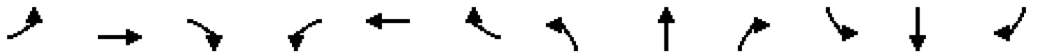
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.6 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 48 | 762 | 245 | 333 | 594 | 9 | 472 | 54 | 244 | 12 | 29 | 32 |
| v/c Ratio | 0.18 | 0.85 | 0.48 | 0.80 | 0.48 | 0.01 | 0.85 | 0.04 | 0.31 | 0.05 | 0.10 | 0.12 |
| Control Delay (s/veh) | 35.2 | 38.3 | 12.0 | 49.1 | 22.3 | 0.0 | 41.8 | 14.7 | 3.8 | 33.6 | 33.5 | 0.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 35.2 | 38.3 | 12.0 | 49.1 | 22.3 | 0.0 | 41.8 | 14.7 | 3.8 | 33.6 | 33.5 | 0.8 |
| Queue Length 50th (ft) | 11 | 181 | 29 | 80 | 124 | 0 | 209 | 7 | 0 | 2 | 6 | 0 |
| Queue Length 95th (ft) | 24 | 222 | 73 | #123 | 158 | 0 | #320 | 19 | 35 | 9 | 17 | 0 |
| Internal Link Dist (ft) | | 2582 | | | 2532 | | | 2598 | | | 898 | |
| Turn Bay Length (ft) | 240 | | 50 | 245 | | 175 | 235 | | | 250 | | 100 |
| Base Capacity (vph) | 264 | 895 | 515 | 416 | 1237 | 647 | 554 | 1736 | 866 | 264 | 900 | 510 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.85 | 0.48 | 0.80 | 0.48 | 0.01 | 0.85 | 0.03 | 0.28 | 0.05 | 0.03 | 0.06 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 44 | 608 | 258 | 34 | 592 | 174 | 131 | 703 | 56 | 57 | 420 | 36 |
| Future Volume (veh/h) | 44 | 608 | 258 | 34 | 592 | 174 | 131 | 703 | 56 | 57 | 420 | 36 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 47 | 654 | 235 | 37 | 637 | 147 | 141 | 756 | 55 | 61 | 452 | 28 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 74 | 740 | 622 | 64 | 729 | 613 | 177 | 932 | 411 | 85 | 749 | 326 |
| Arrive On Green | 0.04 | 0.40 | 0.40 | 0.04 | 0.39 | 0.39 | 0.10 | 0.26 | 0.26 | 0.05 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1781 | 1870 | 1573 | 1781 | 1870 | 1573 | 1781 | 3554 | 1567 | 1781 | 3554 | 1547 |
| Grp Volume(v), veh/h | 47 | 654 | 235 | 37 | 637 | 147 | 141 | 756 | 55 | 61 | 452 | 28 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1573 | 1781 | 1870 | 1573 | 1781 | 1777 | 1567 | 1781 | 1777 | 1547 |
| Q Serve(g_s), s | 2.0 | 24.6 | 8.0 | 1.6 | 23.9 | 4.8 | 5.9 | 15.1 | 2.0 | 2.6 | 8.7 | 1.1 |
| Cycle Q Clear(g_c), s | 2.0 | 24.6 | 8.0 | 1.6 | 23.9 | 4.8 | 5.9 | 15.1 | 2.0 | 2.6 | 8.7 | 1.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 74 | 740 | 622 | 64 | 729 | 613 | 177 | 932 | 411 | 85 | 749 | 326 |
| V/C Ratio(X) | 0.64 | 0.88 | 0.38 | 0.58 | 0.87 | 0.24 | 0.80 | 0.81 | 0.13 | 0.72 | 0.60 | 0.09 |
| Avail Cap(c_a), veh/h | 117 | 891 | 749 | 117 | 891 | 749 | 237 | 1135 | 500 | 120 | 900 | 392 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 35.8 | 21.3 | 16.3 | 36.0 | 21.4 | 15.6 | 33.4 | 26.2 | 21.4 | 35.6 | 27.0 | 24.0 |
| Incr Delay (d2), s/veh | 8.8 | 9.2 | 0.4 | 8.2 | 8.2 | 0.2 | 12.7 | 3.8 | 0.1 | 11.4 | 0.8 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.0 | 11.1 | 2.6 | 0.8 | 10.6 | 1.5 | 3.0 | 6.2 | 0.7 | 1.3 | 3.5 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 44.5 | 30.5 | 16.7 | 44.1 | 29.6 | 15.8 | 46.1 | 30.0 | 21.5 | 47.0 | 27.8 | 24.2 |
| LnGrp LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 936 | | | 821 | | | 952 | | | 541 | |
| Approach Delay, s/veh | | 27.7 | | | 27.8 | | | 31.9 | | | 29.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.5 | 24.8 | 7.6 | 34.9 | 12.4 | 20.9 | 8.0 | 34.5 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 24.2 | 5.0 | 36.1 | 10.1 | 19.2 | 5.0 | 36.1 |
| Max Q Clear Time (g_c+I1), s | 4.6 | 17.1 | 3.6 | 26.6 | 7.9 | 10.7 | 4.0 | 25.9 |
| Green Ext Time (p_c), s | 0.0 | 2.8 | 0.0 | 3.4 | 0.1 | 1.8 | 0.0 | 3.2 |

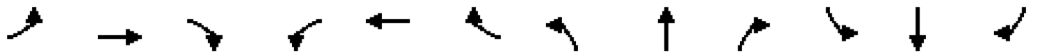
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 29.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 47 | 654 | 277 | 37 | 637 | 187 | 141 | 756 | 60 | 61 | 452 | 39 |
| v/c Ratio | 0.40 | 0.87 | 0.35 | 0.31 | 0.85 | 0.25 | 0.64 | 0.70 | 0.11 | 0.51 | 0.61 | 0.08 |
| Control Delay (s/veh) | 51.1 | 37.1 | 3.8 | 47.7 | 35.0 | 3.3 | 51.8 | 31.3 | 0.4 | 56.7 | 33.6 | 0.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.1 | 37.1 | 3.8 | 47.7 | 35.0 | 3.3 | 51.8 | 31.3 | 0.4 | 56.7 | 33.6 | 0.3 |
| Queue Length 50th (ft) | 27 | 335 | 0 | 21 | 322 | 0 | 79 | 210 | 0 | 35 | 122 | 0 |
| Queue Length 95th (ft) | #68 | #543 | 46 | 52 | #522 | 34 | #167 | 279 | 0 | #93 | 173 | 0 |
| Internal Link Dist (ft) | | 2056 | | | 3072 | | | 1478 | | | 985 | |
| Turn Bay Length (ft) | 230 | | | 55 | | 60 | 330 | | 95 | 265 | | 145 |
| Base Capacity (vph) | 118 | 899 | 887 | 118 | 899 | 847 | 238 | 1144 | 594 | 120 | 908 | 537 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.40 | 0.73 | 0.31 | 0.31 | 0.71 | 0.22 | 0.59 | 0.66 | 0.10 | 0.51 | 0.50 | 0.07 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 27 | 523 | 250 | 40 | 328 | 92 | 186 | 849 | 76 | 82 | 585 | 22 |
| Future Volume (veh/h) | 27 | 523 | 250 | 40 | 328 | 92 | 186 | 849 | 76 | 82 | 585 | 22 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 31 | 594 | 232 | 45 | 373 | 83 | 211 | 965 | 71 | 93 | 665 | 15 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 55 | 662 | 556 | 70 | 678 | 570 | 250 | 1128 | 495 | 119 | 866 | 378 |
| Arrive On Green | 0.03 | 0.35 | 0.35 | 0.04 | 0.36 | 0.36 | 0.14 | 0.32 | 0.32 | 0.07 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1572 | 1781 | 1870 | 1572 | 1781 | 3554 | 1560 | 1781 | 3554 | 1553 |
| Grp Volume(v), veh/h | 31 | 594 | 232 | 45 | 373 | 83 | 211 | 965 | 71 | 93 | 665 | 15 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1572 | 1781 | 1870 | 1572 | 1781 | 1777 | 1560 | 1781 | 1777 | 1553 |
| Q Serve(g_s), s | 1.4 | 24.1 | 9.0 | 2.0 | 12.7 | 2.8 | 9.2 | 20.4 | 2.6 | 4.1 | 13.9 | 0.6 |
| Cycle Q Clear(g_c), s | 1.4 | 24.1 | 9.0 | 2.0 | 12.7 | 2.8 | 9.2 | 20.4 | 2.6 | 4.1 | 13.9 | 0.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 55 | 662 | 556 | 70 | 678 | 570 | 250 | 1128 | 495 | 119 | 866 | 378 |
| V/C Ratio(X) | 0.56 | 0.90 | 0.42 | 0.64 | 0.55 | 0.15 | 0.84 | 0.86 | 0.14 | 0.78 | 0.77 | 0.04 |
| Avail Cap(c_a), veh/h | 131 | 750 | 630 | 131 | 750 | 630 | 289 | 1252 | 550 | 134 | 941 | 411 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 38.2 | 24.5 | 19.6 | 37.9 | 20.3 | 17.2 | 33.5 | 25.6 | 19.5 | 36.8 | 28.2 | 23.1 |
| Incr Delay (d2), s/veh | 8.5 | 12.6 | 0.5 | 9.3 | 0.7 | 0.1 | 17.8 | 5.6 | 0.1 | 23.1 | 3.6 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 11.7 | 3.0 | 1.0 | 5.1 | 0.9 | 5.0 | 8.6 | 0.9 | 2.4 | 5.9 | 0.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 46.8 | 37.1 | 20.1 | 47.2 | 21.0 | 17.3 | 51.4 | 31.2 | 19.7 | 59.9 | 31.7 | 23.2 |
| LnGrp LOS | D | D | C | D | C | B | D | C | B | E | C | C |
| Approach Vol, veh/h | | 857 | | | 501 | | | 1247 | | | 773 | |
| Approach Delay, s/veh | | 32.8 | | | 22.8 | | | 33.9 | | | 35.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.3 | 30.3 | 7.2 | 33.2 | 15.2 | 24.4 | 6.5 | 33.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 28.2 | 5.9 | 32.1 | 13.0 | 21.2 | 5.9 | 32.1 |
| Max Q Clear Time (g_c+I1), s | 6.1 | 22.4 | 4.0 | 26.1 | 11.2 | 15.9 | 3.4 | 14.7 |
| Green Ext Time (p_c), s | 0.0 | 3.0 | 0.0 | 2.3 | 0.1 | 1.9 | 0.0 | 2.1 |

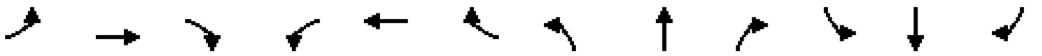
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 32.2 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 31 | 594 | 284 | 45 | 373 | 105 | 211 | 965 | 86 | 93 | 665 | 25 |
| v/c Ratio | 0.24 | 0.89 | 0.43 | 0.35 | 0.56 | 0.16 | 0.77 | 0.85 | 0.15 | 0.69 | 0.77 | 0.05 |
| Control Delay (s/veh) | 44.3 | 42.6 | 11.1 | 47.4 | 25.6 | 1.3 | 55.6 | 35.2 | 2.7 | 68.3 | 37.2 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 44.3 | 42.6 | 11.1 | 47.4 | 25.6 | 1.3 | 55.6 | 35.2 | 2.7 | 68.3 | 37.2 | 0.2 |
| Queue Length 50th (ft) | 17 | 315 | 45 | 25 | 168 | 0 | 118 | 270 | 0 | 53 | 187 | 0 |
| Queue Length 95th (ft) | 44 | #495 | 106 | 58 | 250 | 7 | #228 | #351 | 16 | #133 | 245 | 0 |
| Internal Link Dist (ft) | | 2744 | | | 2456 | | | 1336 | | | 1121 | |
| Turn Bay Length (ft) | 150 | | 100 | 165 | | 105 | 230 | | 85 | 240 | | 85 |
| Base Capacity (vph) | 132 | 759 | 727 | 132 | 759 | 727 | 292 | 1267 | 619 | 135 | 953 | 530 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.23 | 0.78 | 0.39 | 0.34 | 0.49 | 0.14 | 0.72 | 0.76 | 0.14 | 0.69 | 0.70 | 0.05 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 653 | 1665 | 388 | 355 | 1463 | 189 | 491 | 546 | 327 | 333 | 355 | 352 |
| Future Volume (veh/h) | 653 | 1665 | 388 | 355 | 1463 | 189 | 491 | 546 | 327 | 333 | 355 | 352 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 702 | 1790 | 360 | 382 | 1573 | 147 | 528 | 587 | 320 | 358 | 382 | 235 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 734 | 2057 | 634 | 439 | 1621 | 498 | 562 | 704 | 323 | 397 | 813 | 436 |
| Arrive On Green | 0.21 | 0.40 | 0.40 | 0.13 | 0.32 | 0.32 | 0.16 | 0.21 | 0.21 | 0.11 | 0.16 | 0.16 |
| Sat Flow, veh/h | 3456 | 5106 | 1573 | 3456 | 5106 | 1570 | 3456 | 3404 | 1562 | 3456 | 5106 | 2737 |
| Grp Volume(v), veh/h | 702 | 1790 | 360 | 382 | 1573 | 147 | 528 | 587 | 320 | 358 | 382 | 235 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1702 | 1573 | 1728 | 1702 | 1570 | 1728 | 1702 | 1562 | 1728 | 1702 | 1369 |
| Q Serve(g_s), s | 24.1 | 38.7 | 21.3 | 13.0 | 36.5 | 8.5 | 18.1 | 19.8 | 24.5 | 12.3 | 8.2 | 9.5 |
| Cycle Q Clear(g_c), s | 24.1 | 38.7 | 21.3 | 13.0 | 36.5 | 8.5 | 18.1 | 19.8 | 24.5 | 12.3 | 8.2 | 9.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 734 | 2057 | 634 | 439 | 1621 | 498 | 562 | 704 | 323 | 397 | 813 | 436 |
| V/C Ratio(X) | 0.96 | 0.87 | 0.57 | 0.87 | 0.97 | 0.29 | 0.94 | 0.83 | 0.99 | 0.90 | 0.47 | 0.54 |
| Avail Cap(c_a), veh/h | 734 | 2057 | 634 | 478 | 1621 | 498 | 562 | 704 | 323 | 397 | 813 | 436 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 46.7 | 32.9 | 27.7 | 51.4 | 40.4 | 30.8 | 49.7 | 45.6 | 47.5 | 52.4 | 45.9 | 46.4 |
| Incr Delay (d2), s/veh | 23.0 | 4.3 | 1.2 | 14.9 | 15.8 | 0.3 | 24.1 | 8.6 | 47.6 | 22.9 | 0.4 | 1.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 12.3 | 15.8 | 7.8 | 6.4 | 16.9 | 3.2 | 9.5 | 8.9 | 13.5 | 6.4 | 3.4 | 3.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 69.6 | 37.3 | 28.9 | 66.3 | 56.2 | 31.2 | 73.8 | 54.2 | 95.1 | 75.4 | 46.3 | 47.7 |
| LnGrp LOS | E | D | C | E | E | C | E | D | F | E | D | D |
| Approach Vol, veh/h | | 2852 | | | 2102 | | | 1435 | | | 975 | |
| Approach Delay, s/veh | | 44.2 | | | 56.3 | | | 70.5 | | | 57.3 | |
| Approach LOS | | D | | | E | | | E | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 17.8 | 29.7 | 19.3 | 53.2 | 23.5 | 24.0 | 29.5 | 43.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 13.8 | 24.8 | 16.6 | 47.0 | 19.5 | 19.1 | 25.5 | 38.1 |
| Max Q Clear Time (g_c+I1), s | 14.3 | 26.5 | 15.0 | 40.7 | 20.1 | 11.5 | 26.1 | 38.5 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.2 | 5.3 | 0.0 | 2.0 | 0.0 | 0.0 |

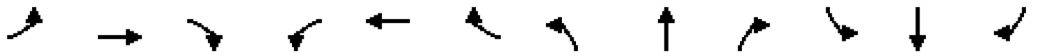
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 54.5 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 702 | 1790 | 417 | 382 | 1573 | 203 | 528 | 939 | 358 | 382 | 378 |
| v/c Ratio | 0.96 | 0.88 | 0.51 | 0.83 | 0.97 | 0.34 | 0.94 | 0.89 | 0.90 | 0.48 | 0.51 |
| Control Delay (s/veh) | 71.3 | 40.1 | 8.3 | 66.3 | 56.6 | 9.3 | 76.1 | 52.3 | 79.1 | 48.4 | 7.1 |
| Queue Delay | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 71.3 | 40.8 | 8.3 | 66.3 | 56.6 | 9.3 | 76.1 | 52.3 | 79.1 | 48.4 | 7.1 |
| Queue Length 50th (ft) | 279 | 471 | 42 | 150 | 439 | 22 | 210 | 231 | 143 | 99 | 0 |
| Queue Length 95th (ft) | #400 | 541 | 129 | #219 | #549 | 80 | #318 | #302 | #230 | 134 | 47 |
| Internal Link Dist (ft) | | 542 | | | 2532 | | | 2220 | | 1300 | |
| Turn Bay Length (ft) | 240 | | 240 | 250 | | 150 | 200 | | 230 | | 185 |
| Base Capacity (vph) | 733 | 2023 | 810 | 476 | 1622 | 599 | 560 | 1075 | 396 | 813 | 749 |
| Starvation Cap Reductn | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.96 | 0.91 | 0.51 | 0.80 | 0.97 | 0.34 | 0.94 | 0.87 | 0.90 | 0.47 | 0.50 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | | ↑↑↑↑↑ | ↱ | ↰↰↰ | | ↱↱ | | | |
| Traffic Volume (veh/h) | 0 | 1460 | 509 | 0 | 1949 | 237 | 618 | 0 | 1245 | 0 | 0 | 0 |
| Future Volume (veh/h) | 0 | 1460 | 509 | 0 | 1949 | 237 | 618 | 0 | 1245 | 0 | 0 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Work Zone On Approach | | No | | | No | | | No | | | | |
| Adj Sat Flow, veh/h/ln | 0 | 1870 | 1870 | 0 | 1870 | 1870 | 1870 | 0 | 1870 | | | |
| Adj Flow Rate, veh/h | 0 | 1553 | 256 | 0 | 2073 | 237 | 657 | 0 | 1211 | | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | |
| Percent Heavy Veh, % | 0 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | | | |
| Cap, veh/h | 0 | 1888 | 578 | 0 | 2801 | 578 | 2547 | 0 | 1415 | | | |
| Arrive On Green | 0.00 | 0.37 | 0.37 | 0.00 | 0.37 | 0.37 | 0.51 | 0.00 | 0.51 | | | |
| Sat Flow, veh/h | 0 | 5274 | 1564 | 0 | 7930 | 1564 | 5023 | 0 | 2790 | | | |
| Grp Volume(v), veh/h | 0 | 1553 | 256 | 0 | 2073 | 237 | 657 | 0 | 1211 | | | |
| Grp Sat Flow(s),veh/h/ln | 0 | 1702 | 1564 | 0 | 1515 | 1564 | 1674 | 0 | 1395 | | | |
| Q Serve(g_s), s | 0.0 | 21.9 | 9.8 | 0.0 | 18.9 | 9.0 | 5.9 | 0.0 | 30.1 | | | |
| Cycle Q Clear(g_c), s | 0.0 | 21.9 | 9.8 | 0.0 | 18.9 | 9.0 | 5.9 | 0.0 | 30.1 | | | |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 0 | 1888 | 578 | 0 | 2801 | 578 | 2547 | 0 | 1415 | | | |
| V/C Ratio(X) | 0.00 | 0.82 | 0.44 | 0.00 | 0.74 | 0.41 | 0.26 | 0.00 | 0.86 | | | |
| Avail Cap(c_a), veh/h | 0 | 1995 | 611 | 0 | 2960 | 611 | 3099 | 0 | 1721 | | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 0.0 | 22.7 | 18.9 | 0.0 | 21.8 | 18.6 | 11.1 | 0.0 | 17.1 | | | |
| Incr Delay (d2), s/veh | 0.0 | 2.8 | 0.5 | 0.0 | 1.0 | 0.5 | 0.1 | 0.0 | 3.8 | | | |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 0.0 | 8.2 | 9.3 | 0.0 | 6.1 | 3.0 | 2.0 | 0.0 | 9.3 | | | |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 25.5 | 19.4 | 0.0 | 22.7 | 19.1 | 11.2 | 0.0 | 20.9 | | | |
| LnGrp LOS | | C | B | | C | B | B | | C | | | |
| Approach Vol, veh/h | | 1809 | | | 2310 | | | 1868 | | | | |
| Approach Delay, s/veh | | 24.6 | | | 22.4 | | | 17.5 | | | | |
| Approach LOS | | C | | | C | | | B | | | | |

| Timer - Assigned Phs | | 2 | | 4 | | | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 45.3 | | 34.3 | | | | 34.3 | | | | |
| Change Period (Y+Rc), s | | 4.9 | | 4.9 | | | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 49.1 | | 31.1 | | | | 31.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 32.1 | | 23.9 | | | | 20.9 | | | | |
| Green Ext Time (p_c), s | | 8.3 | | 5.4 | | | | 8.5 | | | | |

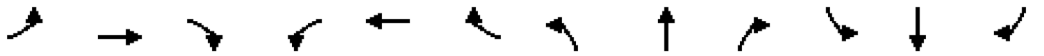
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 21.5 | | | | | | | | | |
| HCM 7th LOS | | | C | | | | | | | | | |



| Lane Group | EBT | EBR | WBT | WBR | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1553 | 541 | 2073 | 252 | 657 | 1324 |
| v/c Ratio | 0.84 | 0.61 | 0.76 | 0.35 | 0.25 | 0.93 |
| Control Delay (s/veh) | 31.2 | 5.3 | 26.9 | 4.4 | 11.4 | 31.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 31.2 | 5.3 | 26.9 | 4.4 | 11.4 | 31.1 |
| Queue Length 50th (ft) | 300 | 0 | 259 | 0 | 65 | 349 |
| Queue Length 95th (ft) | #368 | 71 | 298 | 49 | 85 | #531 |
| Internal Link Dist (ft) | 739 | | 542 | | | |
| Turn Bay Length (ft) | | | | 450 | | |
| Base Capacity (vph) | 1846 | 893 | 2738 | 720 | 2860 | 1564 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.84 | 0.61 | 0.76 | 0.35 | 0.23 | 0.85 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



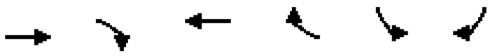
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑↑ | ↱ | | ↑↑↑↑ | ↱ | | | | ↰↰ | | ↱↱ |
| Traffic Volume (veh/h) | 0 | 1977 | 570 | 0 | 1941 | 724 | 0 | 0 | 0 | 79 | 0 | 445 |
| Future Volume (veh/h) | 0 | 1977 | 570 | 0 | 1941 | 724 | 0 | 0 | 0 | 79 | 0 | 445 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | | | | No | |
| Adj Sat Flow, veh/h/ln | 0 | 1870 | 1870 | 0 | 1870 | 1870 | | | | 1870 | 0 | 1870 |
| Adj Flow Rate, veh/h | 0 | 2059 | 480 | 0 | 2022 | -168 | | | | 82 | 0 | 281 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | | | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 0 | 2 | 2 | 0 | 2 | 2 | | | | 2 | 0 | 2 |
| Cap, veh/h | 0 | 4259 | 1041 | 0 | 4952 | 1297 | | | | 541 | 0 | 437 |
| Arrive On Green | 0.00 | 0.66 | 0.66 | 0.00 | 0.66 | 0.00 | | | | 0.16 | 0.00 | 0.16 |
| Sat Flow, veh/h | 0 | 6696 | 1573 | 0 | 7481 | 1585 | | | | 3456 | 0 | 2790 |
| Grp Volume(v), veh/h | 0 | 2059 | 480 | 0 | 2022 | -168 | | | | 82 | 0 | 281 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1609 | 1573 | 0 | 1870 | 1585 | | | | 1728 | 0 | 1395 |
| Q Serve(g_s), s | 0.0 | 8.6 | 8.0 | 0.0 | 6.8 | 0.0 | | | | 1.1 | 0.0 | 5.1 |
| Cycle Q Clear(g_c), s | 0.0 | 8.6 | 8.0 | 0.0 | 6.8 | 0.0 | | | | 1.1 | 0.0 | 5.1 |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 4259 | 1041 | 0 | 4952 | 1297 | | | | 541 | 0 | 437 |
| V/C Ratio(X) | 0.00 | 0.48 | 0.46 | 0.00 | 0.41 | -0.13 | | | | 0.15 | 0.00 | 0.64 |
| Avail Cap(c_a), veh/h | 0 | 5852 | 1431 | 0 | 6804 | 1690 | | | | 1991 | 0 | 1607 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 4.5 | 4.4 | 0.0 | 4.2 | 0.0 | | | | 19.7 | 0.0 | 21.4 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.3 | 0.0 | 0.1 | 0.0 | | | | 0.1 | 0.0 | 1.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.2 | 1.1 | 0.0 | 1.1 | 0.0 | | | | 0.4 | 0.0 | 1.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 4.6 | 4.8 | 0.0 | 4.3 | 0.0 | | | | 19.8 | 0.0 | 22.9 |
| LnGrp LOS | | A | A | | A | | | | | B | | C |
| Approach Vol, veh/h | | 2539 | | | 1854 | | | | | | 363 | |
| Approach Delay, s/veh | | 4.6 | | | 4.7 | | | | | | 22.2 | |
| Approach LOS | | A | | | A | | | | | | C | |

| Timer - Assigned Phs | | | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | | | 40.6 | | 13.4 | | 40.6 | | | | |
| Change Period (Y+Rc), s | | | | 4.9 | | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | | | 49.1 | | 31.1 | | 49.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | | | 10.6 | | 7.1 | | 8.8 | | | | |
| Green Ext Time (p_c), s | | | | 25.1 | | 1.4 | | 21.8 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 6.0 | | | | | | | | | |
| HCM 7th LOS | | | A | | | | | | | | | |

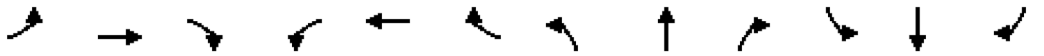
**Notes**

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.



| Lane Group | EBT | EBR | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 2059 | 594 | 2278 | 498 | 82 | 464 |
| v/c Ratio | 0.52 | 0.50 | 0.62 | 0.46 | 0.10 | 0.70 |
| Control Delay (s/veh) | 8.4 | 2.3 | 9.3 | 2.0 | 22.7 | 30.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 8.4 | 2.3 | 9.3 | 2.0 | 22.7 | 30.7 |
| Queue Length 50th (ft) | 130 | 0 | 164 | 0 | 15 | 110 |
| Queue Length 95th (ft) | 199 | 39 | 252 | 0 | 31 | 163 |
| Internal Link Dist (ft) | 1332 | | 739 | | | |
| Turn Bay Length (ft) | | 360 | | 100 | | |
| Base Capacity (vph) | 4454 | 1252 | 4126 | 1177 | 1511 | 1206 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.46 | 0.47 | 0.55 | 0.42 | 0.05 | 0.38 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 31 | 728 | 70 | 52 | 574 | 7 | 80 | 153 | 83 | 4 | 68 | 50 |
| Future Volume (veh/h) | 31 | 728 | 70 | 52 | 574 | 7 | 80 | 153 | 83 | 4 | 68 | 50 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 34 | 791 | 61 | 57 | 624 | 7 | 87 | 166 | 72 | 4 | 74 | 43 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 64 | 908 | 761 | 90 | 935 | 784 | 112 | 321 | 267 | 10 | 214 | 177 |
| Arrive On Green | 0.04 | 0.49 | 0.49 | 0.05 | 0.50 | 0.50 | 0.06 | 0.17 | 0.17 | 0.01 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1781 | 1870 | 1569 | 1781 | 1870 | 1569 | 1781 | 1870 | 1557 | 1781 | 1870 | 1544 |
| Grp Volume(v), veh/h | 34 | 791 | 61 | 57 | 624 | 7 | 87 | 166 | 72 | 4 | 74 | 43 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1569 | 1781 | 1870 | 1569 | 1781 | 1870 | 1557 | 1781 | 1870 | 1544 |
| Q Serve(g_s), s | 1.2 | 23.4 | 1.3 | 1.9 | 15.5 | 0.1 | 3.0 | 5.0 | 2.5 | 0.1 | 2.3 | 1.6 |
| Cycle Q Clear(g_c), s | 1.2 | 23.4 | 1.3 | 1.9 | 15.5 | 0.1 | 3.0 | 5.0 | 2.5 | 0.1 | 2.3 | 1.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 64 | 908 | 761 | 90 | 935 | 784 | 112 | 321 | 267 | 10 | 214 | 177 |
| V/C Ratio(X) | 0.53 | 0.87 | 0.08 | 0.63 | 0.67 | 0.01 | 0.78 | 0.52 | 0.27 | 0.42 | 0.35 | 0.24 |
| Avail Cap(c_a), veh/h | 170 | 1240 | 1040 | 170 | 1240 | 1041 | 172 | 583 | 485 | 170 | 579 | 478 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.4 | 14.2 | 8.5 | 28.9 | 11.6 | 7.8 | 28.6 | 23.3 | 22.3 | 30.7 | 25.3 | 25.0 |
| Incr Delay (d2), s/veh | 6.8 | 5.3 | 0.0 | 7.2 | 0.8 | 0.0 | 11.4 | 1.3 | 0.5 | 26.5 | 1.0 | 0.7 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 8.3 | 0.3 | 0.9 | 4.7 | 0.0 | 1.5 | 2.1 | 0.8 | 0.1 | 1.0 | 0.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.1 | 19.6 | 8.6 | 36.1 | 12.5 | 7.8 | 40.0 | 24.6 | 22.8 | 57.3 | 26.3 | 25.7 |
| LnGrp LOS | D | B | A | D | B | A | D | C | C | E | C | C |
| Approach Vol, veh/h | | 886 | | | 688 | | | 325 | | | 121 | |
| Approach Delay, s/veh | | 19.4 | | | 14.4 | | | 28.3 | | | 27.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.3 | 15.5 | 7.1 | 35.0 | 7.9 | 12.0 | 6.2 | 35.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 19.3 | 5.9 | 41.1 | 6.0 | 19.2 | 5.9 | 41.1 |
| Max Q Clear Time (g_c+I1), s | 2.1 | 7.0 | 3.9 | 25.4 | 5.0 | 4.3 | 3.2 | 17.5 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 4.7 | 0.0 | 0.3 | 0.0 | 3.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 19.6 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 34 | 791 | 76 | 57 | 624 | 8 | 87 | 166 | 90 | 4 | 74 | 54 |
| v/c Ratio | 0.21 | 0.81 | 0.09 | 0.35 | 0.64 | 0.01 | 0.52 | 0.39 | 0.20 | 0.03 | 0.27 | 0.16 |
| Control Delay (s/veh) | 40.0 | 25.1 | 1.2 | 43.3 | 18.0 | 0.0 | 50.1 | 29.6 | 4.4 | 37.5 | 33.6 | 1.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.0 | 25.1 | 1.2 | 43.3 | 18.0 | 0.0 | 50.1 | 29.6 | 4.4 | 37.5 | 33.6 | 1.1 |
| Queue Length 50th (ft) | 16 | 307 | 0 | 28 | 210 | 0 | 43 | 69 | 0 | 2 | 35 | 0 |
| Queue Length 95th (ft) | 48 | #641 | 9 | #74 | 402 | 0 | #126 | 143 | 23 | 12 | 72 | 0 |
| Internal Link Dist (ft) | | 2532 | | | 910 | | | 5241 | | | 1172 | |
| Turn Bay Length (ft) | 265 | | 265 | 155 | | 25 | 100 | | 50 | 175 | | 105 |
| Base Capacity (vph) | 165 | 1172 | 996 | 165 | 1172 | 996 | 168 | 571 | 556 | 165 | 567 | 552 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.21 | 0.67 | 0.08 | 0.35 | 0.53 | 0.01 | 0.52 | 0.29 | 0.16 | 0.02 | 0.13 | 0.10 |

Intersection Summary

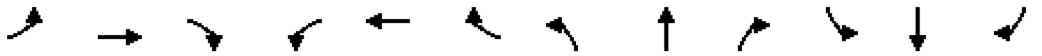
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 236 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 76 | 479 | 128 | 48 | 572 | 15 | 194 | 335 | 67 | 17 | 180 | 30 |
| Future Vol, veh/h | 76 | 479 | 128 | 48 | 572 | 15 | 194 | 335 | 67 | 17 | 180 | 30 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 83 | 521 | 139 | 52 | 622 | 16 | 211 | 364 | 73 | 18 | 196 | 33 |
| Number of Lanes | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 3 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 3 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 2 | 3 |
| HCM Control Delay, s/veh | 64.6 | 401.3 | 325.8 | 53.1 |
| HCM LOS | F | F | F | F |

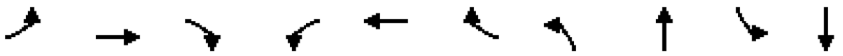
| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 37% | 0% | 100% | 0% | 0% | 100% | 0% | 7% |
| Vol Thru, % | 63% | 0% | 0% | 100% | 56% | 0% | 97% | 79% |
| Vol Right, % | 0% | 100% | 0% | 0% | 44% | 0% | 3% | 13% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 529 | 67 | 76 | 319 | 288 | 48 | 587 | 227 |
| LT Vol | 194 | 0 | 76 | 0 | 0 | 48 | 0 | 17 |
| Through Vol | 335 | 0 | 0 | 319 | 160 | 0 | 572 | 180 |
| RT Vol | 0 | 67 | 0 | 0 | 128 | 0 | 15 | 30 |
| Lane Flow Rate | 575 | 73 | 83 | 347 | 313 | 52 | 638 | 247 |
| Geometry Grp | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Degree of Util (X) | 1.714 | 0.199 | 0.238 | 0.953 | 0.832 | 0.161 | 1.872 | 0.762 |
| Departure Headway (Hd) | 12.754 | 11.811 | 13.835 | 13.293 | 12.956 | 12.97 | 12.409 | 14.819 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 293 | 306 | 261 | 278 | 281 | 278 | 300 | 247 |
| Service Time | 10.454 | 9.511 | 11.535 | 10.993 | 10.656 | 10.67 | 10.109 | 12.519 |
| HCM Lane V/C Ratio | 1.962 | 0.239 | 0.318 | 1.248 | 1.114 | 0.187 | 2.127 | 1 |
| HCM Control Delay, s/veh | 364.9 | 17.4 | 20.8 | 81.7 | 57.1 | 18.1 | 432.6 | 53.1 |
| HCM Lane LOS | F | C | C | F | F | C | F | F |
| HCM 95th-tile Q | 31 | 0.7 | 0.9 | 9.1 | 6.8 | 0.6 | 37.1 | 5.5 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 73 | 432 | 228 | 56 | 387 | 39 | 116 | 557 | 107 | 60 | 257 | 40 |
| Future Volume (veh/h) | 73 | 432 | 228 | 56 | 387 | 39 | 116 | 557 | 107 | 60 | 257 | 40 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 77 | 455 | 192 | 59 | 407 | 33 | 122 | 586 | 91 | 63 | 271 | 34 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 110 | 578 | 485 | 95 | 562 | 471 | 159 | 838 | 130 | 98 | 757 | 94 |
| Arrive On Green | 0.06 | 0.31 | 0.31 | 0.05 | 0.30 | 0.30 | 0.09 | 0.27 | 0.27 | 0.06 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1570 | 1781 | 1870 | 1569 | 1781 | 3075 | 476 | 1781 | 3173 | 394 |
| Grp Volume(v), veh/h | 77 | 455 | 192 | 59 | 407 | 33 | 122 | 338 | 339 | 63 | 150 | 155 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1570 | 1781 | 1870 | 1569 | 1781 | 1777 | 1774 | 1781 | 1777 | 1790 |
| Q Serve(g_s), s | 2.4 | 12.8 | 5.5 | 1.9 | 11.2 | 0.9 | 3.8 | 9.8 | 9.9 | 2.0 | 4.0 | 4.1 |
| Cycle Q Clear(g_c), s | 2.4 | 12.8 | 5.5 | 1.9 | 11.2 | 0.9 | 3.8 | 9.8 | 9.9 | 2.0 | 4.0 | 4.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.27 | 1.00 | | 0.22 |
| Lane Grp Cap(c), veh/h | 110 | 578 | 485 | 95 | 562 | 471 | 159 | 485 | 484 | 98 | 424 | 427 |
| V/C Ratio(X) | 0.70 | 0.79 | 0.40 | 0.62 | 0.72 | 0.07 | 0.77 | 0.70 | 0.70 | 0.64 | 0.35 | 0.36 |
| Avail Cap(c_a), veh/h | 248 | 1014 | 851 | 217 | 981 | 823 | 391 | 808 | 807 | 248 | 666 | 671 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.4 | 18.1 | 15.6 | 26.6 | 18.0 | 14.3 | 25.5 | 18.7 | 18.8 | 26.5 | 18.2 | 18.2 |
| Incr Delay (d2), s/veh | 7.9 | 2.4 | 0.5 | 6.6 | 1.8 | 0.1 | 7.5 | 1.8 | 1.9 | 6.8 | 0.5 | 0.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 4.9 | 1.7 | 0.9 | 4.2 | 0.3 | 1.8 | 3.7 | 3.7 | 1.0 | 1.5 | 1.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 34.3 | 20.6 | 16.1 | 33.2 | 19.7 | 14.4 | 33.0 | 20.6 | 20.6 | 33.3 | 18.7 | 18.7 |
| LnGrp LOS | C | C | B | C | B | B | C | C | C | C | B | B |
| Approach Vol, veh/h | | 724 | | | 499 | | | 799 | | | 368 | |
| Approach Delay, s/veh | | 20.8 | | | 21.0 | | | 22.5 | | | 21.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

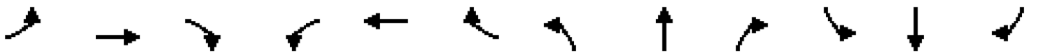
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.2 | 20.5 | 7.0 | 22.6 | 9.1 | 18.6 | 7.5 | 22.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 8.0 | 26.1 | 7.0 | 31.1 | 12.6 | 21.5 | 8.0 | 30.1 |
| Max Q Clear Time (g_c+I1), s | 4.0 | 11.9 | 3.9 | 14.8 | 5.8 | 6.1 | 4.4 | 13.2 |
| Green Ext Time (p_c), s | 0.0 | 3.4 | 0.0 | 2.9 | 0.1 | 1.4 | 0.0 | 2.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 21.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 77 | 455 | 240 | 59 | 407 | 41 | 122 | 699 | 63 | 313 |
| v/c Ratio | 0.38 | 0.68 | 0.36 | 0.32 | 0.69 | 0.07 | 0.46 | 0.69 | 0.32 | 0.35 |
| Control Delay (s/veh) | 43.0 | 28.5 | 9.2 | 42.7 | 30.8 | 0.2 | 40.4 | 28.4 | 41.6 | 25.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 43.0 | 28.5 | 9.2 | 42.7 | 30.8 | 0.2 | 40.4 | 28.4 | 41.6 | 25.5 |
| Queue Length 50th (ft) | 37 | 203 | 26 | 28 | 179 | 0 | 57 | 160 | 30 | 64 |
| Queue Length 95th (ft) | 87 | 333 | 84 | 72 | 296 | 0 | 120 | 241 | 75 | 112 |
| Internal Link Dist (ft) | | 2456 | | | 2474 | | | 1532 | | 255 |
| Turn Bay Length (ft) | 100 | | 100 | 140 | | 50 | 115 | | 140 | |
| Base Capacity (vph) | 231 | 945 | 864 | 202 | 918 | 844 | 365 | 1479 | 231 | 1225 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.33 | 0.48 | 0.28 | 0.29 | 0.44 | 0.05 | 0.33 | 0.47 | 0.27 | 0.26 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 277 | 1441 | 554 | 147 | 1157 | 110 | 320 | 357 | 171 | 272 | 253 | 168 |
| Future Volume (veh/h) | 277 | 1441 | 554 | 147 | 1157 | 110 | 320 | 357 | 171 | 272 | 253 | 168 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 289 | 1501 | 461 | 153 | 1205 | 92 | 333 | 372 | 143 | 283 | 264 | 140 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 372 | 1771 | 545 | 230 | 1561 | 480 | 375 | 887 | 391 | 379 | 529 | 231 |
| Arrive On Green | 0.11 | 0.35 | 0.35 | 0.07 | 0.31 | 0.31 | 0.21 | 0.25 | 0.25 | 0.11 | 0.15 | 0.15 |
| Sat Flow, veh/h | 3456 | 5106 | 1571 | 3456 | 5106 | 1569 | 1781 | 3554 | 1566 | 3456 | 3554 | 1553 |
| Grp Volume(v), veh/h | 289 | 1501 | 461 | 153 | 1205 | 92 | 333 | 372 | 143 | 283 | 264 | 140 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1702 | 1571 | 1728 | 1702 | 1569 | 1781 | 1777 | 1566 | 1728 | 1777 | 1553 |
| Q Serve(g_s), s | 6.4 | 21.3 | 21.2 | 3.4 | 16.8 | 3.4 | 14.2 | 6.9 | 5.9 | 6.2 | 5.4 | 6.6 |
| Cycle Q Clear(g_c), s | 6.4 | 21.3 | 21.2 | 3.4 | 16.8 | 3.4 | 14.2 | 6.9 | 5.9 | 6.2 | 5.4 | 6.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 372 | 1771 | 545 | 230 | 1561 | 480 | 375 | 887 | 391 | 379 | 529 | 231 |
| V/C Ratio(X) | 0.78 | 0.85 | 0.85 | 0.66 | 0.77 | 0.19 | 0.89 | 0.42 | 0.37 | 0.75 | 0.50 | 0.61 |
| Avail Cap(c_a), veh/h | 397 | 1831 | 564 | 265 | 1636 | 503 | 432 | 1148 | 506 | 565 | 866 | 379 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.0 | 23.7 | 23.7 | 35.7 | 24.7 | 20.1 | 30.0 | 24.6 | 24.3 | 33.8 | 30.7 | 31.2 |
| Incr Delay (d2), s/veh | 8.9 | 3.8 | 11.2 | 5.1 | 2.2 | 0.2 | 17.9 | 0.3 | 0.6 | 3.0 | 0.7 | 2.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.0 | 8.2 | 8.6 | 1.5 | 6.4 | 1.2 | 7.5 | 2.7 | 2.1 | 2.6 | 2.2 | 2.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 42.9 | 27.5 | 34.8 | 40.8 | 26.9 | 20.2 | 47.9 | 25.0 | 24.8 | 36.8 | 31.4 | 33.7 |
| LnGrp LOS | D | C | C | D | C | C | D | C | C | D | C | C |
| Approach Vol, veh/h | | 2251 | | | 1450 | | | 848 | | | 687 | |
| Approach Delay, s/veh | | 31.0 | | | 28.0 | | | 34.0 | | | 34.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.6 | 24.5 | 9.2 | 32.1 | 20.5 | 16.6 | 12.4 | 28.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 12.8 | 25.3 | 6.0 | 28.1 | 19.0 | 19.1 | 9.0 | 25.1 |
| Max Q Clear Time (g_c+I1), s | 8.2 | 8.9 | 5.4 | 23.3 | 16.2 | 8.6 | 8.4 | 18.8 |
| Green Ext Time (p_c), s | 0.4 | 2.5 | 0.0 | 3.9 | 0.3 | 1.5 | 0.1 | 3.9 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 289 | 1501 | 577 | 153 | 1205 | 115 | 333 | 372 | 178 | 283 | 264 | 175 |
| v/c Ratio | 0.77 | 0.86 | 0.79 | 0.61 | 0.77 | 0.20 | 0.85 | 0.46 | 0.37 | 0.60 | 0.52 | 0.47 |
| Control Delay (s/veh) | 51.2 | 32.0 | 21.2 | 49.1 | 30.4 | 2.2 | 52.2 | 29.5 | 7.7 | 39.3 | 36.4 | 9.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.2 | 32.0 | 21.2 | 49.1 | 30.4 | 2.2 | 52.2 | 29.5 | 7.7 | 39.3 | 36.4 | 9.9 |
| Queue Length 50th (ft) | 76 | 260 | 125 | 40 | 205 | 0 | 163 | 87 | 4 | 71 | 67 | 0 |
| Queue Length 95th (ft) | #144 | #376 | #332 | #80 | 277 | 15 | #321 | 130 | 53 | 114 | 104 | 53 |
| Internal Link Dist (ft) | | 2532 | | | 4548 | | | 2495 | | | 509 | |
| Turn Bay Length (ft) | 200 | | 100 | 300 | | 100 | 150 | | 60 | 180 | | 75 |
| Base Capacity (vph) | 377 | 1746 | 729 | 251 | 1560 | 589 | 411 | 1094 | 592 | 537 | 826 | 494 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.77 | 0.86 | 0.79 | 0.61 | 0.77 | 0.20 | 0.81 | 0.34 | 0.30 | 0.53 | 0.32 | 0.35 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 203.4 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 19 | 179 | 366 | 45 | 105 | 1 | 643 | 83 | 46 | 0 | 62 | 21 |
| Future Vol, veh/h | 19 | 179 | 366 | 45 | 105 | 1 | 643 | 83 | 46 | 0 | 62 | 21 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 208 | 426 | 52 | 122 | 1 | 748 | 97 | 53 | 0 | 72 | 24 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 111.2 | 18.3 | 327.2 | 15.1 |
| HCM LOS | F | C | F | C |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 83% | 3% | 30% | 0% |
| Vol Thru, % | 11% | 32% | 70% | 75% |
| Vol Right, % | 6% | 65% | 1% | 25% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 772 | 564 | 151 | 83 |
| LT Vol | 643 | 19 | 45 | 0 |
| Through Vol | 83 | 179 | 105 | 62 |
| RT Vol | 46 | 366 | 1 | 21 |
| Lane Flow Rate | 898 | 656 | 176 | 97 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.667 | 1.136 | 0.372 | 0.21 |
| Departure Headway (Hd) | 7.132 | 7.715 | 9.69 | 9.6 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 521 | 479 | 374 | 376 |
| Service Time | 5.132 | 5.715 | 7.69 | 7.6 |
| HCM Lane V/C Ratio | 1.724 | 1.37 | 0.471 | 0.258 |
| HCM Control Delay, s/veh | 327.2 | 111.2 | 18.3 | 15.1 |
| HCM Lane LOS | F | F | C | C |
| HCM 95th-tile Q | 48.6 | 18.6 | 1.7 | 0.8 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 80.2 |

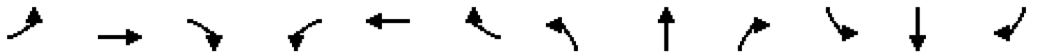
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 220 | 62 | 520 | 341 | 49 | 466 |
| Future Vol, veh/h | 220 | 62 | 520 | 341 | 49 | 466 |
| Conflicting Peds, #/hr | 10 | 10 | 0 | 10 | 10 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 239 | 67 | 565 | 371 | 53 | 507 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1384 | 771 | 0 | 0 | 946 | 0 |
| Stage 1 | 761 | - | - | - | - | - |
| Stage 2 | 623 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | ~ 158 | 400 | - | - | 725 | - |
| Stage 1 | 461 | - | - | - | - | - |
| Stage 2 | 535 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | ~ 139 | 393 | - | - | 719 | - |
| Mov Cap-2 Maneuver | ~ 139 | - | - | - | - | - |
| Stage 1 | 457 | - | - | - | - | - |
| Stage 2 | 475 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | $ 469.69 | 0 | 0.99 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 162 | 171 | - |
| HCM Lane V/C Ratio | - | - | 1.889 | 0.074 | - |
| HCM Ctrl Dly (s/v) | - | - | $ 469.7 | 10.4 | 0 |
| HCM Lane LOS | - | - | F | B | A |
| HCM 95th %tile Q(veh) | - | - | 23 | 0.2 | - |

| Notes | |
|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s |
| +: Computation Not Defined | *: All major volume in platoon |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 157 | 539 | 75 | 80 | 377 | 290 | 127 | 405 | 86 | 160 | 209 | 164 |
| Future Volume (veh/h) | 157 | 539 | 75 | 80 | 377 | 290 | 127 | 405 | 86 | 160 | 209 | 164 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 167 | 573 | 64 | 85 | 401 | 247 | 135 | 431 | 73 | 170 | 222 | 139 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 207 | 991 | 110 | 110 | 474 | 394 | 170 | 505 | 423 | 210 | 312 | 195 |
| Arrive On Green | 0.12 | 0.31 | 0.31 | 0.06 | 0.25 | 0.25 | 0.10 | 0.27 | 0.27 | 0.12 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1781 | 3220 | 359 | 1781 | 1870 | 1554 | 1781 | 1870 | 1567 | 1781 | 1068 | 669 |
| Grp Volume(v), veh/h | 167 | 316 | 321 | 85 | 401 | 247 | 135 | 431 | 73 | 170 | 0 | 361 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1802 | 1781 | 1870 | 1554 | 1781 | 1870 | 1567 | 1781 | 0 | 1736 |
| Q Serve(g_s), s | 6.7 | 11.0 | 11.0 | 3.4 | 14.9 | 10.3 | 5.4 | 16.0 | 2.6 | 6.8 | 0.0 | 13.6 |
| Cycle Q Clear(g_c), s | 6.7 | 11.0 | 11.0 | 3.4 | 14.9 | 10.3 | 5.4 | 16.0 | 2.6 | 6.8 | 0.0 | 13.6 |
| Prop In Lane | 1.00 | | 0.20 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.39 |
| Lane Grp Cap(c), veh/h | 207 | 547 | 554 | 110 | 474 | 394 | 170 | 505 | 423 | 210 | 0 | 508 |
| V/C Ratio(X) | 0.81 | 0.58 | 0.58 | 0.78 | 0.85 | 0.63 | 0.79 | 0.85 | 0.17 | 0.81 | 0.00 | 0.71 |
| Avail Cap(c_a), veh/h | 267 | 633 | 641 | 194 | 589 | 490 | 219 | 691 | 579 | 267 | 0 | 689 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 31.6 | 21.4 | 21.4 | 33.9 | 26.0 | 24.3 | 32.4 | 25.4 | 20.5 | 31.5 | 0.0 | 23.2 |
| Incr Delay (d2), s/veh | 13.2 | 1.0 | 1.0 | 11.1 | 9.2 | 1.7 | 14.1 | 7.6 | 0.2 | 13.6 | 0.0 | 2.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.4 | 4.1 | 4.2 | 1.7 | 7.0 | 3.5 | 2.8 | 7.4 | 0.9 | 3.5 | 0.0 | 5.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 44.8 | 22.3 | 22.3 | 45.0 | 35.2 | 26.0 | 46.5 | 33.0 | 20.7 | 45.1 | 0.0 | 25.3 |
| LnGrp LOS | D | C | C | D | D | C | D | C | C | D | | C |
| Approach Vol, veh/h | | 804 | | | 733 | | | 639 | | | 531 | |
| Approach Delay, s/veh | | 27.0 | | | 33.2 | | | 34.4 | | | 31.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.6 | 24.7 | 8.5 | 27.5 | 11.0 | 26.3 | 12.5 | 23.5 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 11.0 | 27.1 | 8.0 | 26.1 | 9.0 | 29.1 | 11.0 | 23.1 |
| Max Q Clear Time (g_c+I1), s | 8.8 | 18.0 | 5.4 | 13.0 | 7.4 | 15.6 | 8.7 | 16.9 |
| Green Ext Time (p_c), s | 0.1 | 1.8 | 0.0 | 2.8 | 0.0 | 1.7 | 0.1 | 1.6 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 167 | 653 | 85 | 401 | 309 | 135 | 431 | 91 | 170 | 396 |
| v/c Ratio | 0.75 | 0.59 | 0.53 | 0.85 | 0.64 | 0.72 | 0.84 | 0.18 | 0.76 | 0.73 |
| Control Delay (s/veh) | 59.2 | 27.5 | 51.6 | 49.0 | 23.0 | 61.8 | 44.4 | 3.4 | 60.0 | 32.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 59.2 | 27.5 | 51.6 | 49.0 | 23.0 | 61.8 | 44.4 | 3.4 | 60.0 | 32.3 |
| Queue Length 50th (ft) | 92 | 161 | 46 | 211 | 84 | 75 | 222 | 0 | 94 | 171 |
| Queue Length 95th (ft) | #195 | 224 | #101 | #369 | 178 | #169 | #360 | 21 | #199 | 275 |
| Internal Link Dist (ft) | | 1 | | 1257 | | | 2574 | | | 2558 |
| Turn Bay Length (ft) | 115 | | 260 | | 55 | 155 | | | 205 | |
| Base Capacity (vph) | 236 | 1126 | 172 | 523 | 520 | 193 | 613 | 587 | 236 | 632 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.71 | 0.58 | 0.49 | 0.77 | 0.59 | 0.70 | 0.70 | 0.16 | 0.72 | 0.63 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

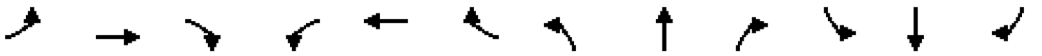
| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 4 | 3 | 5 | 5 | 7 | 42 | 9 | 605 | 13 | 9 | 366 | 7 |
| Future Vol, veh/h | 4 | 3 | 5 | 5 | 7 | 42 | 9 | 605 | 13 | 9 | 366 | 7 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 100 | - | - | 255 | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 3 | 5 | 5 | 8 | 46 | 10 | 658 | 14 | 10 | 398 | 8 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1118 | 1129 | 418 | 1123 | 1129 | 685 | 415 | 0 | 0 | 682 | 0 | 0 |
| Stage 1 | 427 | 427 | - | 694 | 694 | - | - | - | - | - | - | - |
| Stage 2 | 691 | 701 | - | 429 | 435 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 184 | 204 | 635 | 183 | 204 | 448 | 1144 | - | - | 911 | - | - |
| Stage 1 | 605 | 585 | - | 433 | 444 | - | - | - | - | - | - | - |
| Stage 2 | 435 | 441 | - | 604 | 580 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 153 | 196 | 623 | 171 | 196 | 440 | 1133 | - | - | 902 | - | - |
| Mov Cap-2 Maneuver | 153 | 196 | - | 171 | 196 | - | - | - | - | - | - | - |
| Stage 1 | 593 | 573 | - | 425 | 436 | - | - | - | - | - | - | - |
| Stage 2 | 376 | 433 | - | 583 | 569 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 20.69 | 17.93 | 0.12 | 0.21 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1133 | - | - | 242 | 337 | 902 | - | - |
| HCM Lane V/C Ratio | 0.009 | - | - | 0.054 | 0.174 | 0.011 | - | - |
| HCM Ctrl Dly (s/v) | 8.2 | - | - | 20.7 | 17.9 | 9 | - | - |
| HCM Lane LOS | A | - | - | C | C | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.6 | 0 | - | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 66 | 360 | 114 | 86 | 348 | 50 | 262 | 491 | 86 | 43 | 312 | 56 |
| Future Volume (veh/h) | 66 | 360 | 114 | 86 | 348 | 50 | 262 | 491 | 86 | 43 | 312 | 56 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 71 | 387 | 98 | 92 | 374 | 43 | 282 | 528 | 74 | 46 | 335 | 48 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 92 | 684 | 171 | 118 | 425 | 49 | 327 | 724 | 605 | 73 | 390 | 56 |
| Arrive On Green | 0.05 | 0.24 | 0.24 | 0.07 | 0.26 | 0.26 | 0.18 | 0.39 | 0.39 | 0.04 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 2808 | 703 | 1781 | 1643 | 189 | 1781 | 1870 | 1565 | 1781 | 1595 | 229 |
| Grp Volume(v), veh/h | 71 | 243 | 242 | 92 | 0 | 417 | 282 | 528 | 74 | 46 | 0 | 383 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1734 | 1781 | 0 | 1832 | 1781 | 1870 | 1565 | 1781 | 0 | 1824 |
| Q Serve(g_s), s | 2.9 | 9.0 | 9.2 | 3.8 | 0.0 | 16.4 | 11.5 | 18.0 | 2.3 | 1.9 | 0.0 | 15.0 |
| Cycle Q Clear(g_c), s | 2.9 | 9.0 | 9.2 | 3.8 | 0.0 | 16.4 | 11.5 | 18.0 | 2.3 | 1.9 | 0.0 | 15.0 |
| Prop In Lane | 1.00 | | 0.41 | 1.00 | | 0.10 | 1.00 | | 1.00 | 1.00 | | 0.13 |
| Lane Grp Cap(c), veh/h | 92 | 433 | 422 | 118 | 0 | 473 | 327 | 724 | 605 | 73 | 0 | 446 |
| V/C Ratio(X) | 0.77 | 0.56 | 0.57 | 0.78 | 0.00 | 0.88 | 0.86 | 0.73 | 0.12 | 0.63 | 0.00 | 0.86 |
| Avail Cap(c_a), veh/h | 126 | 496 | 484 | 179 | 0 | 566 | 407 | 922 | 772 | 121 | 0 | 607 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 35.1 | 24.8 | 24.9 | 34.4 | 0.0 | 26.6 | 29.6 | 19.6 | 14.8 | 35.3 | 0.0 | 27.0 |
| Incr Delay (d2), s/veh | 17.9 | 1.1 | 1.2 | 11.5 | 0.0 | 13.3 | 14.5 | 2.2 | 0.1 | 8.5 | 0.0 | 9.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 3.6 | 3.6 | 1.9 | 0.0 | 8.1 | 5.8 | 7.2 | 0.7 | 0.9 | 0.0 | 7.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 52.9 | 26.0 | 26.1 | 45.8 | 0.0 | 39.9 | 44.1 | 21.8 | 14.8 | 43.8 | 0.0 | 36.1 |
| LnGrp LOS | D | C | C | D | | D | D | C | B | D | | D |
| Approach Vol, veh/h | | 556 | | | 509 | | | 884 | | | 429 | |
| Approach Delay, s/veh | | 29.5 | | | 41.0 | | | 28.3 | | | 36.9 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.0 | 33.9 | 9.9 | 23.1 | 18.6 | 23.2 | 8.8 | 24.2 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 36.9 | 7.5 | 20.9 | 17.1 | 24.9 | 5.3 | 23.1 |
| Max Q Clear Time (g_c+I1), s | 3.9 | 20.0 | 5.8 | 11.2 | 13.5 | 17.0 | 4.9 | 18.4 |
| Green Ext Time (p_c), s | 0.0 | 3.0 | 0.0 | 1.8 | 0.3 | 1.3 | 0.0 | 1.0 |

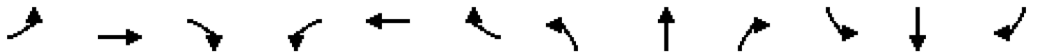
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 32.8 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 71 | 510 | 92 | 428 | 282 | 528 | 92 | 46 | 395 |
| v/c Ratio | 0.60 | 0.59 | 0.58 | 0.88 | 0.82 | 0.63 | 0.12 | 0.41 | 0.82 |
| Control Delay (s/veh) | 64.3 | 29.8 | 55.8 | 51.3 | 54.0 | 23.7 | 1.3 | 52.1 | 44.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 64.3 | 29.8 | 55.8 | 51.3 | 54.0 | 23.7 | 1.3 | 52.1 | 44.4 |
| Queue Length 50th (ft) | 40 | 124 | 51 | 231 | 155 | 241 | 0 | 26 | 202 |
| Queue Length 95th (ft) | #109 | 178 | #119 | #409 | #290 | 359 | 10 | #66 | #341 |
| Internal Link Dist (ft) | | 2553 | | 2529 | | 2558 | | | 2587 |
| Turn Bay Length (ft) | 235 | | 145 | | 200 | | | 85 | |
| Base Capacity (vph) | 118 | 924 | 166 | 533 | 380 | 890 | 797 | 113 | 573 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.60 | 0.55 | 0.55 | 0.80 | 0.74 | 0.59 | 0.12 | 0.41 | 0.69 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 105 | 301 | 167 | 65 | 261 | 28 | 195 | 837 | 135 | 28 | 484 | 64 |
| Future Volume (veh/h) | 105 | 301 | 167 | 65 | 261 | 28 | 195 | 837 | 135 | 28 | 484 | 64 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 109 | 314 | 140 | 68 | 272 | 23 | 203 | 872 | 113 | 29 | 504 | 53 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 142 | 442 | 370 | 104 | 764 | 336 | 259 | 1256 | 555 | 58 | 778 | 82 |
| Arrive On Green | 0.08 | 0.24 | 0.24 | 0.06 | 0.22 | 0.22 | 0.15 | 0.35 | 0.35 | 0.03 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1565 | 1781 | 3554 | 1563 | 1781 | 3554 | 1572 | 1781 | 3238 | 339 |
| Grp Volume(v), veh/h | 109 | 314 | 140 | 68 | 272 | 23 | 203 | 872 | 113 | 29 | 276 | 281 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1565 | 1781 | 1777 | 1563 | 1781 | 1777 | 1572 | 1781 | 1777 | 1801 |
| Q Serve(g_s), s | 3.3 | 8.6 | 4.2 | 2.1 | 3.6 | 0.7 | 6.1 | 11.7 | 2.8 | 0.9 | 7.8 | 7.8 |
| Cycle Q Clear(g_c), s | 3.3 | 8.6 | 4.2 | 2.1 | 3.6 | 0.7 | 6.1 | 11.7 | 2.8 | 0.9 | 7.8 | 7.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.19 |
| Lane Grp Cap(c), veh/h | 142 | 442 | 370 | 104 | 764 | 336 | 259 | 1256 | 555 | 58 | 427 | 433 |
| V/C Ratio(X) | 0.77 | 0.71 | 0.38 | 0.65 | 0.36 | 0.07 | 0.78 | 0.69 | 0.20 | 0.50 | 0.65 | 0.65 |
| Avail Cap(c_a), veh/h | 387 | 809 | 677 | 256 | 1275 | 561 | 543 | 2174 | 962 | 192 | 737 | 746 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.1 | 19.5 | 17.8 | 25.7 | 18.6 | 17.4 | 23.0 | 15.4 | 12.6 | 26.5 | 19.0 | 19.1 |
| Incr Delay (d2), s/veh | 8.3 | 2.1 | 0.6 | 6.8 | 0.3 | 0.1 | 5.2 | 0.7 | 0.2 | 6.6 | 1.6 | 1.7 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 3.4 | 1.3 | 1.0 | 1.3 | 0.2 | 2.6 | 3.8 | 0.8 | 0.4 | 2.9 | 2.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.5 | 21.6 | 18.5 | 32.4 | 18.9 | 17.5 | 28.1 | 16.1 | 12.7 | 33.1 | 20.7 | 20.7 |
| LnGrp LOS | C | C | B | C | B | B | C | B | B | C | C | C |
| Approach Vol, veh/h | | 563 | | | 363 | | | 1188 | | | 586 | |
| Approach Delay, s/veh | | 23.1 | | | 21.3 | | | 17.9 | | | 21.3 | |
| Approach LOS | | C | | | C | | | B | | | C | |

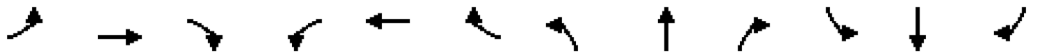
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.8 | 24.6 | 7.3 | 18.1 | 12.1 | 18.3 | 8.4 | 16.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 34.1 | 8.0 | 24.1 | 17.0 | 23.1 | 12.1 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 13.7 | 4.1 | 10.6 | 8.1 | 9.8 | 5.3 | 5.6 |
| Green Ext Time (p_c), s | 0.0 | 6.0 | 0.0 | 1.8 | 0.3 | 2.5 | 0.1 | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.2 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 109 | 314 | 174 | 68 | 272 | 29 | 203 | 872 | 141 | 29 | 571 |
| v/c Ratio | 0.45 | 0.69 | 0.34 | 0.37 | 0.36 | 0.06 | 0.62 | 0.56 | 0.18 | 0.19 | 0.67 |
| Control Delay (s/veh) | 40.2 | 35.8 | 6.6 | 42.1 | 28.3 | 0.2 | 39.8 | 19.2 | 2.8 | 40.9 | 30.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.2 | 35.8 | 6.6 | 42.1 | 28.3 | 0.2 | 39.8 | 19.2 | 2.8 | 40.9 | 30.3 |
| Queue Length 50th (ft) | 49 | 138 | 0 | 31 | 58 | 0 | 90 | 144 | 0 | 13 | 126 |
| Queue Length 95th (ft) | 110 | 245 | 47 | 80 | 105 | 0 | 179 | 276 | 26 | 44 | 204 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | |
| Base Capacity (vph) | 322 | 676 | 670 | 213 | 1067 | 616 | 453 | 1843 | 883 | 160 | 1213 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.34 | 0.46 | 0.26 | 0.32 | 0.25 | 0.05 | 0.45 | 0.47 | 0.16 | 0.18 | 0.47 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 157 | 0 | 17 | 529 | 1208 | 0 | 0 | 470 | 255 |
| Future Volume (veh/h) | 0 | 0 | 0 | 157 | 0 | 17 | 529 | 1208 | 0 | 0 | 470 | 255 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.98 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 1870 | 1870 | 0 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 167 | 0 | 14 | 563 | 1285 | 0 | 0 | 500 | 217 |
| Peak Hour Factor | | | | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 228 | 0 | 203 | 809 | 2317 | 0 | 0 | 789 | 341 |
| Arrive On Green | | | | 0.13 | 0.00 | 0.13 | 0.23 | 0.65 | 0.00 | 0.00 | 0.33 | 0.33 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 3456 | 3647 | 0 | 0 | 2498 | 1037 |
| Grp Volume(v), veh/h | | | | 167 | 0 | 14 | 563 | 1285 | 0 | 0 | 369 | 348 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 1728 | 1777 | 0 | 0 | 1777 | 1665 |
| Q Serve(g_s), s | | | | 4.0 | 0.0 | 0.3 | 6.6 | 8.8 | 0.0 | 0.0 | 7.8 | 7.9 |
| Cycle Q Clear(g_c), s | | | | 4.0 | 0.0 | 0.3 | 6.6 | 8.8 | 0.0 | 0.0 | 7.8 | 7.9 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 0.62 |
| Lane Grp Cap(c), veh/h | | | | 228 | 0 | 203 | 809 | 2317 | 0 | 0 | 583 | 546 |
| V/C Ratio(X) | | | | 0.73 | 0.00 | 0.07 | 0.70 | 0.55 | 0.00 | 0.00 | 0.63 | 0.64 |
| Avail Cap(c_a), veh/h | | | | 731 | 0 | 651 | 1860 | 4934 | 0 | 0 | 1351 | 1266 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 18.7 | 0.0 | 17.1 | 15.6 | 4.2 | 0.0 | 0.0 | 12.7 | 12.7 |
| Incr Delay (d2), s/veh | | | | 4.5 | 0.0 | 0.1 | 1.1 | 0.2 | 0.0 | 0.0 | 1.1 | 1.2 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 1.7 | 0.0 | 0.1 | 2.1 | 0.8 | 0.0 | 0.0 | 2.4 | 2.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 23.2 | 0.0 | 17.2 | 16.7 | 4.4 | 0.0 | 0.0 | 13.8 | 14.0 |
| LnGrp LOS | | | | C | | B | B | A | | | B | B |
| Approach Vol, veh/h | | | | | 181 | | | 1848 | | | 717 | |
| Approach Delay, s/veh | | | | | 22.7 | | | 8.2 | | | 13.9 | |
| Approach LOS | | | | | C | | | A | | | B | |

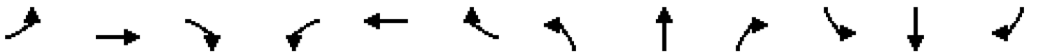
| Timer - Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 34.0 | | | 14.4 | 19.5 | | 10.6 | | | | |
| Change Period (Y+Rc), s | | 4.9 | | | 4.0 | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 61.9 | | | 24.0 | 33.9 | | 18.3 | | | | |
| Max Q Clear Time (g_c+I1), s | | 10.8 | | | 8.6 | 9.9 | | 6.0 | | | | |
| Green Ext Time (p_c), s | | 11.9 | | | 1.8 | 4.3 | | 0.4 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 10.6 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |



| Lane Group | WBL | WBR | NBL | NBT | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 167 | 18 | 563 | 1285 | 771 |
| v/c Ratio | 0.50 | 0.05 | 0.63 | 0.57 | 0.68 |
| Control Delay (s/veh) | 30.9 | 0.3 | 25.4 | 7.4 | 19.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 30.9 | 0.3 | 25.4 | 7.4 | 19.2 |
| Queue Length 50th (ft) | 55 | 0 | 93 | 112 | 102 |
| Queue Length 95th (ft) | 140 | 0 | 188 | 210 | 210 |
| Internal Link Dist (ft) | | | | 535 | 971 |
| Turn Bay Length (ft) | | | 260 | | |
| Base Capacity (vph) | 554 | 532 | 1409 | 3261 | 1980 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.30 | 0.03 | 0.40 | 0.39 | 0.39 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 566 | 0 | 635 | 0 | 0 | 0 | 0 | 1178 | 366 | 25 | 605 | 0 |
| Future Volume (veh/h) | 566 | 0 | 635 | 0 | 0 | 0 | 0 | 1178 | 366 | 25 | 605 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 590 | 0 | 529 | | | | 0 | 1227 | 305 | 26 | 630 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | | | | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 1195 | 0 | 548 | | | | 0 | 1341 | 328 | 46 | 1962 | 0 |
| Arrive On Green | 0.35 | 0.00 | 0.35 | | | | 0.00 | 0.48 | 0.48 | 0.03 | 0.55 | 0.00 |
| Sat Flow, veh/h | 3456 | 0 | 1585 | | | | 0 | 2916 | 691 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 590 | 0 | 529 | | | | 0 | 766 | 766 | 26 | 630 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 0 | 1585 | | | | 0 | 1777 | 1737 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 12.9 | 0.0 | 31.5 | | | | 0.0 | 38.2 | 39.8 | 1.4 | 9.3 | 0.0 |
| Cycle Q Clear(g_c), s | 12.9 | 0.0 | 31.5 | | | | 0.0 | 38.2 | 39.8 | 1.4 | 9.3 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.40 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 1195 | 0 | 548 | | | | 0 | 844 | 825 | 46 | 1962 | 0 |
| V/C Ratio(X) | 0.49 | 0.00 | 0.97 | | | | 0.00 | 0.91 | 0.93 | 0.56 | 0.32 | 0.00 |
| Avail Cap(c_a), veh/h | 1195 | 0 | 548 | | | | 0 | 870 | 850 | 95 | 2110 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 24.8 | 0.0 | 30.8 | | | | 0.0 | 23.2 | 23.7 | 46.2 | 11.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.3 | 0.0 | 29.7 | | | | 0.0 | 12.9 | 16.0 | 10.2 | 0.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.2 | 0.0 | 16.1 | | | | 0.0 | 17.1 | 18.0 | 0.7 | 3.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 25.1 | 0.0 | 60.5 | | | | 0.0 | 36.1 | 39.7 | 56.4 | 11.8 | 0.0 |
| LnGrp LOS | C | | E | | | | | D | D | E | B | |
| Approach Vol, veh/h | | 1119 | | | | | | 1532 | | | 656 | |
| Approach Delay, s/veh | | 41.8 | | | | | | 37.9 | | | 13.6 | |
| Approach LOS | | D | | | | | | D | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.4 | 50.5 | | 38.1 | | 57.9 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 47.0 | | 33.2 | | 57.0 |
| Max Q Clear Time (g_c+I1), s | 3.4 | 41.8 | | 33.5 | | 11.3 |
| Green Ext Time (p_c), s | 0.0 | 3.8 | | 0.0 | | 4.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 34.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 590 | 661 | 1608 | 26 | 630 |
| v/c Ratio | 0.49 | 0.95 | 0.93 | 0.27 | 0.33 |
| Control Delay (s/veh) | 26.1 | 43.5 | 32.5 | 51.8 | 12.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 26.1 | 43.5 | 32.5 | 51.8 | 12.3 |
| Queue Length 50th (ft) | 129 | 238 | 396 | 14 | 103 |
| Queue Length 95th (ft) | 207 | #538 | #688 | 44 | 137 |
| Internal Link Dist (ft) | | | 824 | | 535 |
| Turn Bay Length (ft) | | | | 90 | |
| Base Capacity (vph) | 1223 | 707 | 1737 | 97 | 2165 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.93 | 0.93 | 0.27 | 0.29 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 370 | 4 | 32 | 268 | 5 | 45 |
| Future Vol, veh/h | 370 | 4 | 32 | 268 | 5 | 45 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 88 | 88 | 88 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 420 | 5 | 36 | 305 | 6 | 51 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 435 | 0 | 820 | 443 |
| Stage 1 | - | - | - | - | 433 | - |
| Stage 2 | - | - | - | - | 387 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1125 | - | 345 | 615 |
| Stage 1 | - | - | - | - | 654 | - |
| Stage 2 | - | - | - | - | 686 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1114 | - | 325 | 603 |
| Mov Cap-2 Maneuver | - | - | - | - | 325 | - |
| Stage 1 | - | - | - | - | 648 | - |
| Stage 2 | - | - | - | - | 653 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.89 | 12.22 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 556 | - | - | 192 | - |
| HCM Lane V/C Ratio | 0.102 | - | - | 0.033 | - |
| HCM Ctrl Dly (s/v) | 12.2 | - | - | 8.3 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 50 | 608 | 693 | 6 | 0 | 41 |
| Future Vol, veh/h | 50 | 608 | 693 | 6 | 0 | 41 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 100 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 55 | 668 | 762 | 7 | 0 | 45 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 778 | 0 | - | 0 | 1229 | 785 |
| Stage 1 | - | - | - | - | 775 | - |
| Stage 2 | - | - | - | - | 454 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | 2.219 | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 836 | - | - | - | 183 | 392 |
| Stage 1 | - | - | - | - | 453 | - |
| Stage 2 | - | - | - | - | 607 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 829 | - | - | - | 167 | 384 |
| Mov Cap-2 Maneuver | - | - | - | - | 167 | - |
| Stage 1 | - | - | - | - | 419 | - |
| Stage 2 | - | - | - | - | 602 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.73 | 0 | 15.6 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 829 | - | - | - | 384 |
| HCM Lane V/C Ratio | 0.066 | - | - | - | 0.117 |
| HCM Ctrl Dly (s/v) | 9.7 | - | - | - | 15.6 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.4 |

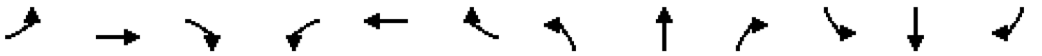
| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 555 | 62 | 12 | 629 | 47 | 12 |
| Future Vol, veh/h | 555 | 62 | 12 | 629 | 47 | 12 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | 110 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 584 | 65 | 13 | 662 | 49 | 13 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 659 | 0 | 1324 | 345 |
| Stage 1 | - | - | - | - | 627 | - |
| Stage 2 | - | - | - | - | 697 | - |
| Critical Hdwy | - | - | 4.13 | - | 6.63 | 6.93 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.83 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.43 | - |
| Follow-up Hdwy | - | - | 2.219 | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | - | - | 927 | - | 159 | 652 |
| Stage 1 | - | - | - | - | 496 | - |
| Stage 2 | - | - | - | - | 493 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 918 | - | 154 | 640 |
| Mov Cap-2 Maneuver | - | - | - | - | 154 | - |
| Stage 1 | - | - | - | - | 491 | - |
| Stage 2 | - | - | - | - | 481 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.17 | 34.66 |
| HCM LOS | | | D |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 182 | - | - | 918 | - |
| HCM Lane V/C Ratio | 0.341 | - | - | 0.014 | - |
| HCM Ctrl Dly (s/v) | 34.7 | - | - | 9 | - |
| HCM Lane LOS | D | - | - | A | - |
| HCM 95th %tile Q(veh) | 1.4 | - | - | 0 | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 88 | 216 | 144 | 54 | 273 | 12 | 291 | 406 | 63 | 16 | 194 | 61 |
| Future Volume (veh/h) | 88 | 216 | 144 | 54 | 273 | 12 | 291 | 406 | 63 | 16 | 194 | 61 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 93 | 227 | 121 | 57 | 287 | 11 | 306 | 427 | 52 | 17 | 204 | 51 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 118 | 748 | 329 | 76 | 334 | 13 | 157 | 139 | 931 | 43 | 406 | 94 |
| Arrive On Green | 0.07 | 0.21 | 0.21 | 0.04 | 0.19 | 0.19 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 |
| Sat Flow, veh/h | 1781 | 3554 | 1562 | 1781 | 1787 | 69 | 168 | 235 | 1577 | 0 | 687 | 159 |
| Grp Volume(v), veh/h | 93 | 227 | 121 | 57 | 0 | 298 | 733 | 0 | 52 | 272 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1562 | 1781 | 0 | 1856 | 403 | 0 | 1577 | 845 | 0 | 0 |
| Q Serve(g_s), s | 4.5 | 4.8 | 5.9 | 2.8 | 0.0 | 13.7 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 4.5 | 4.8 | 5.9 | 2.8 | 0.0 | 13.7 | 52.2 | 0.0 | 1.2 | 52.2 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.04 | 0.42 | | 1.00 | 0.06 | | 0.19 |
| Lane Grp Cap(c), veh/h | 118 | 748 | 329 | 76 | 0 | 346 | 296 | 0 | 931 | 543 | 0 | 0 |
| V/C Ratio(X) | 0.79 | 0.30 | 0.37 | 0.75 | 0.00 | 0.86 | 2.48 | 0.00 | 0.06 | 0.50 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 121 | 748 | 329 | 119 | 0 | 378 | 296 | 0 | 931 | 543 | 0 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 40.6 | 29.4 | 29.8 | 41.8 | 0.0 | 34.8 | 23.2 | 0.0 | 7.7 | 19.9 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 27.6 | 0.2 | 0.7 | 13.8 | 0.0 | 16.8 | 675.4 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.8 | 1.9 | 2.1 | 1.5 | 0.0 | 7.4 | 61.6 | 0.0 | 0.3 | 3.3 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 68.2 | 29.6 | 30.5 | 55.6 | 0.0 | 51.7 | 698.6 | 0.0 | 7.7 | 20.6 | 0.0 | 0.0 |
| LnGrp LOS | E | C | C | E | | D | F | | A | C | | |
| Approach Vol, veh/h | | 441 | | | 355 | | | 785 | | | 272 | |
| Approach Delay, s/veh | | 38.0 | | | 52.3 | | | 652.8 | | | 20.6 | |
| Approach LOS | | D | | | D | | | F | | | C | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 57.1 | 7.8 | 23.5 | | 57.1 | 9.9 | 21.4 | | | | |
| Change Period (Y+Rc), s | | 4.9 | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 52.2 | 5.9 | 18.1 | | 52.2 | 6.0 | 18.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 54.2 | 4.8 | 7.9 | | 54.2 | 6.5 | 15.7 | | | | |
| Green Ext Time (p_c), s | | 0.0 | 0.0 | 1.1 | | 0.0 | 0.0 | 0.3 | | | | |

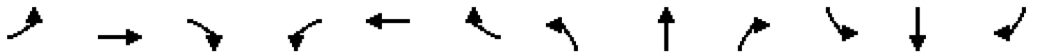
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 298.7 | | | | | | | | | |
| HCM 7th LOS | | | F | | | | | | | | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBT | NBR | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 93 | 227 | 152 | 57 | 300 | 733 | 66 | 285 |
| v/c Ratio | 0.73 | 0.28 | 0.32 | 0.46 | 0.83 | 0.95 | 0.07 | 0.29 |
| Control Delay (s/veh) | 74.9 | 30.7 | 7.6 | 53.4 | 53.7 | 41.5 | 2.2 | 9.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 74.9 | 30.7 | 7.6 | 53.4 | 53.7 | 41.5 | 2.2 | 9.4 |
| Queue Length 50th (ft) | 53 | 58 | 0 | 32 | 163 | 351 | 0 | 67 |
| Queue Length 95th (ft) | #138 | 92 | 49 | #76 | #295 | #620 | 15 | 112 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | 2587 | | 894 |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | |
| Base Capacity (vph) | 127 | 808 | 469 | 125 | 399 | 850 | 990 | 1073 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.73 | 0.28 | 0.32 | 0.46 | 0.75 | 0.86 | 0.07 | 0.27 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 227 | 185 | 120 | 108 | 114 | 6 | 139 | 841 | 176 | 10 | 525 | 116 |
| Future Volume (veh/h) | 227 | 185 | 120 | 108 | 114 | 6 | 139 | 841 | 176 | 10 | 525 | 116 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 252 | 206 | 106 | 120 | 127 | 6 | 154 | 934 | 157 | 11 | 583 | 103 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 312 | 419 | 350 | 157 | 255 | 212 | 198 | 1286 | 566 | 25 | 941 | 412 |
| Arrive On Green | 0.18 | 0.22 | 0.22 | 0.09 | 0.14 | 0.14 | 0.11 | 0.36 | 0.36 | 0.01 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1781 | 1870 | 1564 | 1781 | 1870 | 1550 | 1781 | 3554 | 1563 | 1781 | 3554 | 1555 |
| Grp Volume(v), veh/h | 252 | 206 | 106 | 120 | 127 | 6 | 154 | 934 | 157 | 11 | 583 | 103 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1564 | 1781 | 1870 | 1550 | 1781 | 1777 | 1563 | 1781 | 1777 | 1555 |
| Q Serve(g_s), s | 7.7 | 5.5 | 3.2 | 3.8 | 3.6 | 0.2 | 4.8 | 13.0 | 4.1 | 0.3 | 8.2 | 3.0 |
| Cycle Q Clear(g_c), s | 7.7 | 5.5 | 3.2 | 3.8 | 3.6 | 0.2 | 4.8 | 13.0 | 4.1 | 0.3 | 8.2 | 3.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 312 | 419 | 350 | 157 | 255 | 212 | 198 | 1286 | 566 | 25 | 941 | 412 |
| V/C Ratio(X) | 0.81 | 0.49 | 0.30 | 0.77 | 0.50 | 0.03 | 0.78 | 0.73 | 0.28 | 0.44 | 0.62 | 0.25 |
| Avail Cap(c_a), veh/h | 562 | 768 | 642 | 394 | 590 | 489 | 375 | 1888 | 831 | 184 | 1508 | 660 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.6 | 19.3 | 18.4 | 25.4 | 22.8 | 21.3 | 24.7 | 15.7 | 12.9 | 27.9 | 18.4 | 16.5 |
| Incr Delay (d2), s/veh | 4.9 | 0.9 | 0.5 | 7.6 | 1.5 | 0.1 | 6.4 | 0.8 | 0.3 | 11.7 | 0.7 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.2 | 2.1 | 1.0 | 1.7 | 1.5 | 0.1 | 2.1 | 4.1 | 1.2 | 0.2 | 2.8 | 0.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 27.5 | 20.2 | 18.9 | 33.0 | 24.3 | 21.4 | 31.1 | 16.5 | 13.2 | 39.6 | 19.1 | 16.8 |
| LnGrp LOS | C | C | B | C | C | C | C | B | B | D | B | B |
| Approach Vol, veh/h | | 564 | | | 253 | | | 1245 | | | 697 | |
| Approach Delay, s/veh | | 23.2 | | | 28.4 | | | 17.9 | | | 19.1 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.8 | 25.5 | 9.0 | 17.7 | 10.3 | 20.0 | 14.0 | 12.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 30.3 | 12.6 | 23.4 | 12.0 | 24.2 | 18.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.3 | 15.0 | 5.8 | 7.5 | 6.8 | 10.2 | 9.7 | 5.6 |
| Green Ext Time (p_c), s | 0.0 | 5.7 | 0.1 | 1.2 | 0.2 | 3.2 | 0.4 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 252 | 206 | 133 | 120 | 127 | 7 | 154 | 934 | 196 | 11 | 583 | 129 |
| v/c Ratio | 0.66 | 0.51 | 0.29 | 0.47 | 0.45 | 0.02 | 0.56 | 0.58 | 0.25 | 0.07 | 0.63 | 0.23 |
| Control Delay (s/veh) | 38.1 | 32.0 | 4.3 | 38.4 | 36.5 | 0.0 | 41.2 | 18.7 | 5.4 | 37.7 | 28.2 | 1.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 38.1 | 32.0 | 4.3 | 38.4 | 36.5 | 0.0 | 41.2 | 18.7 | 5.4 | 37.7 | 28.2 | 1.2 |
| Queue Length 50th (ft) | 108 | 85 | 0 | 53 | 56 | 0 | 67 | 161 | 7 | 5 | 129 | 0 |
| Queue Length 95th (ft) | #226 | 164 | 27 | 115 | 115 | 0 | #157 | 310 | 56 | 22 | 200 | 3 |
| Internal Link Dist (ft) | | 2578 | | | 2549 | | | 1811 | | | 2540 | |
| Turn Bay Length (ft) | 240 | | 80 | 100 | | 25 | 240 | | 120 | 250 | | 95 |
| Base Capacity (vph) | 488 | 668 | 660 | 341 | 513 | 582 | 325 | 1749 | 833 | 159 | 1312 | 697 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.52 | 0.31 | 0.20 | 0.35 | 0.25 | 0.01 | 0.47 | 0.53 | 0.24 | 0.07 | 0.44 | 0.19 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# MOVEMENT SUMMARY

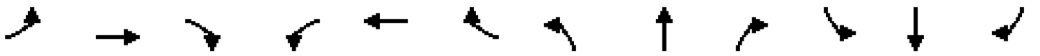
**Site: [1 (2)] Temperance - Alluvial NT+Dev PM** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Temperance - Alluvial
Near-Term With Development
PM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] ft | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Temperance Ave | | | | | | | | | | | | | | | |
| 3 | L2 | All MCs | 153 | 3.0 | 153 | 3.0 | 0.616 | 11.6 | LOS B | 6.8 | 173.8 | 0.74 | 0.55 | 0.87 | 28.8 |
| 8 | T1 | All MCs | 1025 | 3.0 | 1025 | 3.0 | 0.616 | 11.0 | LOS B | 6.8 | 173.8 | 0.72 | 0.52 | 0.82 | 30.6 |
| 18 | R2 | All MCs | 223 | 3.0 | 223 | 3.0 | 0.616 | 10.4 | LOS B | 6.3 | 162.5 | 0.71 | 0.49 | 0.78 | 30.8 |
| Approach | | | 1400 | 3.0 | 1400 | 3.0 | 0.616 | 11.0 | LOS B | 6.8 | 173.8 | 0.72 | 0.52 | 0.82 | 30.4 |
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 182 | 3.0 | 182 | 3.0 | 0.317 | 12.4 | LOS B | 1.6 | 41.9 | 0.79 | 0.76 | 0.84 | 25.7 |
| 6 | T1 | All MCs | 52 | 3.0 | 52 | 3.0 | 0.317 | 10.5 | LOS B | 1.6 | 41.9 | 0.80 | 0.74 | 0.82 | 32.8 |
| 16 | R2 | All MCs | 99 | 3.0 | 99 | 3.0 | 0.317 | 10.5 | LOS B | 1.6 | 41.9 | 0.80 | 0.74 | 0.82 | 32.6 |
| Approach | | | 332 | 3.0 | 332 | 3.0 | 0.317 | 11.6 | LOS B | 1.6 | 41.9 | 0.79 | 0.75 | 0.83 | 29.1 |
| North: Temperance Ave | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 75 | 3.0 | 75 | 3.0 | 0.449 | 9.0 | LOS A | 2.5 | 64.5 | 0.58 | 0.44 | 0.60 | 34.8 |
| 4 | T1 | All MCs | 703 | 3.0 | 703 | 3.0 | 0.449 | 8.8 | LOS A | 2.5 | 64.5 | 0.58 | 0.43 | 0.59 | 31.5 |
| 14 | R2 | All MCs | 98 | 3.0 | 98 | 3.0 | 0.449 | 8.7 | LOS A | 2.5 | 63.3 | 0.57 | 0.42 | 0.58 | 35.8 |
| Approach | | | 876 | 3.0 | 876 | 3.0 | 0.449 | 8.8 | LOS A | 2.5 | 64.5 | 0.57 | 0.43 | 0.59 | 32.5 |
| West: Alluvial Ave | | | | | | | | | | | | | | | |
| 5 | L2 | All MCs | 142 | 3.0 | 142 | 3.0 | 0.276 | 7.8 | LOS A | 1.3 | 32.6 | 0.67 | 0.59 | 0.67 | 32.4 |
| 2 | T1 | All MCs | 72 | 3.0 | 72 | 3.0 | 0.276 | 7.8 | LOS A | 1.3 | 32.6 | 0.67 | 0.59 | 0.67 | 33.1 |
| 12 | R2 | All MCs | 178 | 3.0 | 178 | 3.0 | 0.274 | 8.9 | LOS A | 1.2 | 30.7 | 0.67 | 0.61 | 0.67 | 30.0 |
| Approach | | | 392 | 3.0 | 392 | 3.0 | 0.276 | 8.3 | LOS A | 1.3 | 32.6 | 0.67 | 0.60 | 0.67 | 31.7 |
| All Vehicles | | | 3001 | 3.0 | 3001 | 3.0 | 0.616 | 10.1 | LOS B | 6.8 | 173.8 | 0.68 | 0.53 | 0.73 | 31.0 |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 61 | 0 | 39 | 0 | 1189 | 878 | 0 | 583 | 364 |
| Future Volume (veh/h) | 0 | 0 | 0 | 61 | 0 | 39 | 0 | 1189 | 878 | 0 | 583 | 364 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 0 | 1870 | 1870 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 69 | 0 | 44 | 0 | 1336 | 0 | 0 | 655 | 327 |
| Peak Hour Factor | | | | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Cap, veh/h | | | | 169 | 0 | 150 | 0 | 2229 | 994 | 0 | 2229 | 986 |
| Arrive On Green | | | | 0.09 | 0.00 | 0.09 | 0.00 | 0.63 | 0.00 | 0.00 | 0.63 | 0.63 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 0 | 3647 | 1585 | 0 | 3647 | 1572 |
| Grp Volume(v), veh/h | | | | 69 | 0 | 44 | 0 | 1336 | 0 | 0 | 655 | 327 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 0 | 1777 | 1585 | 0 | 1777 | 1572 |
| Q Serve(g_s), s | | | | 1.3 | 0.0 | 0.9 | 0.0 | 7.9 | 0.0 | 0.0 | 3.0 | 3.5 |
| Cycle Q Clear(g_c), s | | | | 1.3 | 0.0 | 0.9 | 0.0 | 7.9 | 0.0 | 0.0 | 3.0 | 3.5 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 169 | 0 | 150 | 0 | 2229 | 994 | 0 | 2229 | 986 |
| V/C Ratio(X) | | | | 0.41 | 0.00 | 0.29 | 0.00 | 0.60 | 0.00 | 0.00 | 0.29 | 0.33 |
| Avail Cap(c_a), veh/h | | | | 914 | 0 | 813 | 0 | 6254 | 2790 | 0 | 6254 | 2767 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 15.0 | 0.0 | 14.9 | 0.0 | 3.9 | 0.0 | 0.0 | 3.0 | 3.1 |
| Incr Delay (d2), s/veh | | | | 1.6 | 0.0 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.2 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 0.5 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 16.6 | 0.0 | 15.9 | 0.0 | 4.2 | 0.0 | 0.0 | 3.1 | 3.3 |
| LnGrp LOS | | | | B | | B | | A | | | A | A |
| Approach Vol, veh/h | | | | | 113 | | | 1336 | | | 982 | |
| Approach Delay, s/veh | | | | | 16.3 | | | 4.2 | | | 3.1 | |
| Approach LOS | | | | | B | | | A | | | A | |

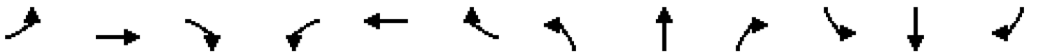
| Timer - Assigned Phs | 2 | | | 6 | | 8 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 27.0 | | | 27.0 | | 8.2 | | | | | | |
| Change Period (Y+Rc), s | 4.9 | | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 62.1 | | | 62.1 | | 18.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 9.9 | | | 5.5 | | 3.3 | | | | | | |
| Green Ext Time (p_c), s | 12.2 | | | 5.8 | | 0.2 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | 4.3 | | | | | | | | | | |
| HCM 7th LOS | | A | | | | | | | | | | |



| Lane Group | WBL | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 69 | 44 | 1336 | 987 | 655 | 409 |
| v/c Ratio | 0.31 | 0.19 | 0.47 | 0.70 | 0.23 | 0.31 |
| Control Delay (s/veh) | 34.8 | 12.8 | 4.2 | 3.3 | 3.0 | 1.0 |
| Queue Delay | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.8 | 12.8 | 4.3 | 3.4 | 3.0 | 1.0 |
| Queue Length 50th (ft) | 29 | 0 | 95 | 0 | 36 | 0 |
| Queue Length 95th (ft) | 71 | 28 | 154 | 24 | 61 | 18 |
| Internal Link Dist (ft) | | | 518 | | 438 | |
| Turn Bay Length (ft) | | | | | | 160 |
| Base Capacity (vph) | 509 | 474 | 3097 | 1447 | 3097 | 1399 |
| Starvation Cap Reductn | 0 | 0 | 426 | 44 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.14 | 0.09 | 0.50 | 0.70 | 0.21 | 0.29 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 513 | 0 | 963 | 0 | 0 | 0 | 0 | 1556 | 97 | 28 | 640 | 0 |
| Future Volume (veh/h) | 513 | 0 | 963 | 0 | 0 | 0 | 0 | 1556 | 97 | 28 | 640 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 570 | 0 | 856 | | | | 0 | 1729 | 87 | 31 | 711 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | | | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 845 | 0 | 752 | | | | 0 | 1404 | 70 | 43 | 1631 | 0 |
| Arrive On Green | 0.47 | 0.00 | 0.47 | | | | 0.00 | 0.41 | 0.41 | 0.02 | 0.46 | 0.00 |
| Sat Flow, veh/h | 1781 | 0 | 1585 | | | | 0 | 3538 | 172 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 570 | 0 | 856 | | | | 0 | 887 | 929 | 31 | 711 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1585 | | | | 0 | 1777 | 1839 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 36.5 | 0.0 | 70.1 | | | | 0.0 | 60.2 | 60.2 | 2.6 | 20.0 | 0.0 |
| Cycle Q Clear(g_c), s | 36.5 | 0.0 | 70.1 | | | | 0.0 | 60.2 | 60.2 | 2.6 | 20.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.09 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 845 | 0 | 752 | | | | 0 | 724 | 750 | 43 | 1631 | 0 |
| V/C Ratio(X) | 0.67 | 0.00 | 1.14 | | | | 0.00 | 1.22 | 1.24 | 0.71 | 0.44 | 0.00 |
| Avail Cap(c_a), veh/h | 845 | 0 | 752 | | | | 0 | 724 | 750 | 71 | 1687 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 30.0 | 0.0 | 38.8 | | | | 0.0 | 43.7 | 43.7 | 71.5 | 27.0 | 0.0 |
| Incr Delay (d2), s/veh | 2.1 | 0.0 | 77.8 | | | | 0.0 | 113.0 | 119.1 | 19.5 | 0.2 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 16.1 | 0.0 | 43.0 | | | | 0.0 | 47.8 | 50.7 | 1.4 | 8.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 32.1 | 0.0 | 116.6 | | | | 0.0 | 156.8 | 162.8 | 91.0 | 27.2 | 0.0 |
| LnGrp LOS | C | | F | | | | | F | F | F | C | |
| Approach Vol, veh/h | | 1426 | | | | | | 1816 | | | 742 | |
| Approach Delay, s/veh | | 82.8 | | | | | | 159.9 | | | 29.9 | |
| Approach LOS | | F | | | | | | F | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 65.1 | | 75.0 | | 72.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 60.2 | | 70.1 | | 70.1 |
| Max Q Clear Time (g_c+I1), s | 4.6 | 62.2 | | 72.1 | | 22.0 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 0.0 | | 4.9 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 108.1 |
| HCM 7th LOS | F |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 570 | 1070 | 1837 | 31 | 711 |
| v/c Ratio | 0.67 | 1.32 | 1.27 | 0.44 | 0.44 |
| Control Delay (s/veh) | 34.6 | 182.5 | 162.4 | 89.6 | 28.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.6 | 182.5 | 162.4 | 89.6 | 28.3 |
| Queue Length 50th (ft) | 432 | ~1294 | ~1212 | 30 | 240 |
| Queue Length 95th (ft) | 575 | #1563 | #1350 | 68 | 294 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 850 | 809 | 1450 | 71 | 1700 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 1.32 | 1.27 | 0.44 | 0.42 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 12.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 42 | 245 | 33 | 16 | 232 | 74 | 43 | 79 | 13 | 83 | 36 | 73 |
| Future Vol, veh/h | 42 | 245 | 33 | 16 | 232 | 74 | 43 | 79 | 13 | 83 | 36 | 73 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 245 | - | - | 100 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 49 | 285 | 38 | 19 | 270 | 86 | 50 | 92 | 15 | 97 | 42 | 85 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 366 | 0 | 0 | 333 | 0 | 0 | 750 | 815 | 182 | 656 | 791 | 333 |
| Stage 1 | - | - | - | - | - | - | 412 | 412 | - | 360 | 360 | - |
| Stage 2 | - | - | - | - | - | - | 338 | 403 | - | 296 | 431 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.33 | 6.53 | 6.93 | 7.33 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.53 | 5.53 | - |
| Follow-up Hdwy | 2.219 | - | - | 2.219 | - | - | 3.519 | 4.019 | 3.319 | 3.519 | 4.019 | 3.319 |
| Pot Cap-1 Maneuver | 1191 | - | - | 1224 | - | - | 314 | 311 | 830 | 364 | 321 | 708 |
| Stage 1 | - | - | - | - | - | - | 589 | 594 | - | 657 | 626 | - |
| Stage 2 | - | - | - | - | - | - | 676 | 599 | - | 689 | 582 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1180 | - | - | 1213 | - | - | 221 | 288 | 815 | 230 | 297 | 695 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 221 | 288 | - | 230 | 297 | - |
| Stage 1 | - | - | - | - | - | - | 559 | 564 | - | 641 | 610 | - |
| Stage 2 | - | - | - | - | - | - | 539 | 584 | - | 537 | 553 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 1.07 | 0.4 | 33.42 | 36.74 |
| HCM LOS | | | D | E |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 278 | 1180 | - | - | 1213 | - | - | 327 |
| HCM Lane V/C Ratio | 0.564 | 0.041 | - | - | 0.015 | - | - | 0.683 |
| HCM Ctrl Dly (s/v) | 33.4 | 8.2 | - | - | 8 | - | - | 36.7 |
| HCM Lane LOS | D | A | - | - | A | - | - | E |
| HCM 95th %tile Q(veh) | 3.2 | 0.1 | - | - | 0 | - | - | 4.7 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 11.4 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 348 | 9 | 4 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 6 | 188 |
| Future Vol, veh/h | 348 | 9 | 4 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 6 | 188 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 395 | 10 | 5 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 7 | 214 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 12.8 | 7.9 | 8.3 | 9 |
| HCM LOS | B | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 40% | 96% | 25% | 1% |
| Vol Thru, % | 40% | 2% | 50% | 3% |
| Vol Right, % | 20% | 1% | 25% | 96% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 5 | 361 | 4 | 195 |
| LT Vol | 2 | 348 | 1 | 1 |
| Through Vol | 2 | 9 | 2 | 6 |
| RT Vol | 1 | 4 | 1 | 188 |
| Lane Flow Rate | 6 | 410 | 5 | 222 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.008 | 0.528 | 0.006 | 0.27 |
| Departure Headway (Hd) | 5.18 | 4.633 | 4.828 | 4.379 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 689 | 775 | 738 | 820 |
| Service Time | 3.227 | 2.67 | 2.881 | 2.404 |
| HCM Lane V/C Ratio | 0.009 | 0.529 | 0.007 | 0.271 |
| HCM Control Delay, s/veh | 8.3 | 12.8 | 7.9 | 9 |
| HCM Lane LOS | A | B | A | A |
| HCM 95th-tile Q | 0 | 3.1 | 0 | 1.1 |



| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Traffic Volume (veh/h) | 0 | 153 | 152 | 6 | 216 | 159 | 6 |
| Future Volume (veh/h) | 0 | 153 | 152 | 6 | 216 | 159 | 6 |
| Initial Q (Qb), veh | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | 0.98 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | 194 | 154 | 8 | 273 | 201 | 7 |
| Peak Hour Factor | | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Percent Heavy Veh, % | | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | | 895 | 391 | 19 | 799 | 367 | 326 |
| Arrive On Green | | 0.25 | 0.25 | 0.01 | 0.43 | 0.21 | 0.21 |
| Sat Flow, veh/h | | 3647 | 1554 | 1781 | 1870 | 1781 | 1585 |
| Grp Volume(v), veh/h | | 194 | 154 | 8 | 273 | 201 | 7 |
| Grp Sat Flow(s),veh/h/ln | | 1777 | 1554 | 1781 | 1870 | 1781 | 1585 |
| Q Serve(g_s), s | | 1.0 | 2.0 | 0.1 | 2.4 | 2.5 | 0.1 |
| Cycle Q Clear(g_c), s | | 1.0 | 2.0 | 0.1 | 2.4 | 2.5 | 0.1 |
| Prop In Lane | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | | 895 | 391 | 19 | 799 | 367 | 326 |
| V/C Ratio(X) | | 0.22 | 0.39 | 0.42 | 0.34 | 0.55 | 0.02 |
| Avail Cap(c_a), veh/h | | 2928 | 1280 | 440 | 1549 | 1548 | 1378 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | 7.2 | 7.5 | 11.9 | 4.7 | 8.6 | 7.7 |
| Incr Delay (d2), s/veh | | 0.1 | 0.6 | 13.6 | 0.3 | 1.3 | 0.0 |
| Initial Q Delay(d3), s/veh | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | 0.1 | 0.3 | 0.1 | 0.1 | 0.6 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | |
| LnGrp Delay(d), s/veh | | 7.3 | 8.2 | 25.6 | 4.9 | 9.9 | 7.7 |
| LnGrp LOS | | A | A | C | A | A | A |
| Approach Vol, veh/h | | 348 | | | 281 | 208 | |
| Approach Delay, s/veh | | 7.7 | | | 5.5 | 9.8 | |
| Approach LOS | | A | | | A | A | |

| Timer - Assigned Phs | 2 | 3 | 4 | | | | 8 |
|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 4.3 | 11.0 | | | | 15.3 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.9 | | | | 4.9 |
| Max Green Setting (Gmax), s | 21.1 | 6.0 | 20.0 | | | | 20.1 |
| Max Q Clear Time (g_c+I1), s | 4.5 | 2.1 | 4.0 | | | | 4.4 |
| Green Ext Time (p_c), s | 0.5 | 0.0 | 1.4 | | | | 1.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 7.5 |
| HCM 7th LOS | A |

| Notes |
|---|
| User approved ignoring U-Turning movement. |



| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 194 | 192 | 8 | 273 | 201 | 8 |
| v/c Ratio | 0.16 | 0.30 | 0.02 | 0.38 | 0.25 | 0.01 |
| Control Delay (s/veh) | 9.1 | 4.0 | 13.3 | 8.4 | 9.8 | 6.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 9.1 | 4.0 | 13.3 | 8.4 | 9.8 | 6.2 |
| Queue Length 50th (ft) | 8 | 0 | 1 | 25 | 19 | 0 |
| Queue Length 95th (ft) | 33 | 25 | 9 | 60 | 66 | 5 |
| Internal Link Dist (ft) | 2566 | | | 4832 | 3848 | |
| Turn Bay Length (ft) | | 115 | 255 | | 250 | |
| Base Capacity (vph) | 2627 | 1182 | 426 | 1393 | 1366 | 1197 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.07 | 0.16 | 0.02 | 0.20 | 0.15 | 0.01 |

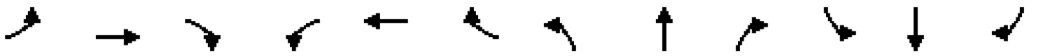
Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 28.6 |
| Intersection LOS | D |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 30 | 34 | 554 | 313 | 8 |
| Future Vol, veh/h | 11 | 30 | 34 | 554 | 313 | 8 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 32 | 36 | 589 | 333 | 9 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 1 |

| Approach | EB | WB | SB |
|---|---|---|---|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 2 | 0 |
| Conflicting Approach Left | SB | | WB |
| Conflicting Lanes Left | 2 | 0 | 1 |
| Conflicting Approach Right | | SB | EB |
| Conflicting Lanes Right | 0 | 2 | 2 |
| HCM Control Delay, s/veh | 9.9 | 34.5 | 20.3 |
| HCM LOS | A | D | C |

| Lane | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 6% | 0% | 0% |
| Vol Right, % | 0% | 0% | 94% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 30 | 588 | 313 | 8 |
| LT Vol | 11 | 0 | 0 | 313 | 0 |
| Through Vol | 0 | 30 | 34 | 0 | 0 |
| RT Vol | 0 | 0 | 554 | 0 | 8 |
| Lane Flow Rate | 12 | 32 | 626 | 333 | 9 |
| Geometry Grp | 5 | 5 | 3b | 5 | 5 |
| Degree of Util (X) | 0.023 | 0.059 | 0.887 | 0.631 | 0.013 |
| Departure Headway (Hd) | 7.125 | 6.614 | 5.104 | 6.819 | 5.606 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 500 | 539 | 713 | 529 | 637 |
| Service Time | 4.898 | 4.386 | 3.104 | 4.567 | 3.353 |
| HCM Lane V/C Ratio | 0.024 | 0.059 | 0.878 | 0.629 | 0.014 |
| HCM Control Delay, s/veh | 10.1 | 9.8 | 34.5 | 20.6 | 8.4 |
| HCM Lane LOS | B | A | D | C | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 11.1 | 4.3 | 0 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 519 | 534 | 94 | 15 | 299 | 9 | 49 | 55 | 26 | 3 | 30 | 301 |
| Future Volume (veh/h) | 519 | 534 | 94 | 15 | 299 | 9 | 49 | 55 | 26 | 3 | 30 | 301 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 552 | 568 | 80 | 16 | 318 | 8 | 52 | 59 | 23 | 3 | 32 | 256 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 768 | 1347 | 593 | 35 | 628 | 272 | 90 | 972 | 429 | 7 | 424 | 355 |
| Arrive On Green | 0.22 | 0.38 | 0.38 | 0.02 | 0.18 | 0.18 | 0.05 | 0.27 | 0.27 | 0.00 | 0.23 | 0.23 |
| Sat Flow, veh/h | 3456 | 3554 | 1564 | 1781 | 3554 | 1540 | 1781 | 3554 | 1568 | 1781 | 1870 | 1564 |
| Grp Volume(v), veh/h | 552 | 568 | 80 | 16 | 318 | 8 | 52 | 59 | 23 | 3 | 32 | 256 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1564 | 1781 | 1777 | 1540 | 1781 | 1777 | 1568 | 1781 | 1870 | 1564 |
| Q Serve(g_s), s | 7.7 | 6.2 | 1.7 | 0.5 | 4.2 | 0.2 | 1.5 | 0.6 | 0.6 | 0.1 | 0.7 | 7.9 |
| Cycle Q Clear(g_c), s | 7.7 | 6.2 | 1.7 | 0.5 | 4.2 | 0.2 | 1.5 | 0.6 | 0.6 | 0.1 | 0.7 | 7.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 768 | 1347 | 593 | 35 | 628 | 272 | 90 | 972 | 429 | 7 | 424 | 355 |
| V/C Ratio(X) | 0.72 | 0.42 | 0.13 | 0.45 | 0.51 | 0.03 | 0.58 | 0.06 | 0.05 | 0.41 | 0.08 | 0.72 |
| Avail Cap(c_a), veh/h | 2250 | 3477 | 1530 | 273 | 1708 | 740 | 409 | 2517 | 1111 | 239 | 1146 | 958 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 18.8 | 12.0 | 10.6 | 25.3 | 19.4 | 17.8 | 24.2 | 14.0 | 14.0 | 25.9 | 15.9 | 18.7 |
| Incr Delay (d2), s/veh | 1.3 | 0.2 | 0.1 | 8.8 | 0.6 | 0.0 | 5.7 | 0.0 | 0.1 | 33.4 | 0.1 | 2.8 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.5 | 1.7 | 0.5 | 0.3 | 1.4 | 0.1 | 0.7 | 0.2 | 0.2 | 0.1 | 0.3 | 2.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 20.1 | 12.2 | 10.7 | 34.1 | 20.1 | 17.8 | 29.9 | 14.0 | 14.0 | 59.4 | 16.0 | 21.4 |
| LnGrp LOS | C | B | B | C | C | B | C | B | B | E | B | C |
| Approach Vol, veh/h | | 1200 | | | 342 | | | 134 | | | 291 | |
| Approach Delay, s/veh | | 15.7 | | | 20.7 | | | 20.2 | | | 21.2 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.0 | 24.7 | 6.6 | 15.9 | 15.6 | 14.1 | 4.2 | 18.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.0 | 51.1 | 12.0 | 32.0 | 34.0 | 25.1 | 7.0 | 37.0 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 8.2 | 3.5 | 9.9 | 9.7 | 6.2 | 2.1 | 2.6 |
| Green Ext Time (p_c), s | 0.0 | 3.8 | 0.0 | 1.0 | 1.9 | 1.6 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 17.7 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 552 | 568 | 100 | 16 | 318 | 10 | 52 | 59 | 28 | 3 | 32 | 320 |
| v/c Ratio | 0.57 | 0.30 | 0.12 | 0.08 | 0.43 | 0.02 | 0.21 | 0.07 | 0.06 | 0.02 | 0.12 | 0.64 |
| Control Delay (s/veh) | 22.1 | 10.5 | 2.9 | 31.1 | 24.4 | 0.1 | 29.6 | 19.0 | 0.3 | 32.0 | 26.9 | 10.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.1 | 10.5 | 2.9 | 31.1 | 24.4 | 0.1 | 29.6 | 19.0 | 0.3 | 32.0 | 26.9 | 10.5 |
| Queue Length 50th (ft) | 85 | 51 | 0 | 5 | 51 | 0 | 16 | 7 | 0 | 1 | 10 | 0 |
| Queue Length 95th (ft) | 177 | 154 | 23 | 26 | 116 | 0 | 58 | 27 | 0 | 10 | 38 | 68 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 2267 | 3044 | 1306 | 274 | 1725 | 810 | 412 | 2513 | 1125 | 240 | 1158 | 1073 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.19 | 0.08 | 0.06 | 0.18 | 0.01 | 0.13 | 0.02 | 0.02 | 0.01 | 0.03 | 0.30 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 161 | 361 | 31 | 1 | 208 | 76 | 17 | 39 | 2 | 63 | 25 | 70 |
| Future Volume (veh/h) | 161 | 361 | 31 | 1 | 208 | 76 | 17 | 39 | 2 | 63 | 25 | 70 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.98 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 175 | 392 | 27 | 1 | 226 | 67 | 18 | 42 | 2 | 68 | 27 | 61 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 368 | 977 | 428 | 4 | 604 | 460 | 40 | 281 | 13 | 428 | 486 | 407 |
| Arrive On Green | 0.11 | 0.27 | 0.27 | 0.00 | 0.17 | 0.17 | 0.02 | 0.16 | 0.16 | 0.12 | 0.26 | 0.26 |
| Sat Flow, veh/h | 3456 | 3554 | 1556 | 1781 | 3554 | 2708 | 1781 | 1769 | 84 | 3456 | 1870 | 1567 |
| Grp Volume(v), veh/h | 175 | 392 | 27 | 1 | 226 | 67 | 18 | 0 | 44 | 68 | 27 | 61 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1556 | 1781 | 1777 | 1354 | 1781 | 0 | 1853 | 1728 | 1870 | 1567 |
| Q Serve(g_s), s | 1.9 | 3.6 | 0.5 | 0.0 | 2.3 | 0.9 | 0.4 | 0.0 | 0.8 | 0.7 | 0.4 | 1.2 |
| Cycle Q Clear(g_c), s | 1.9 | 3.6 | 0.5 | 0.0 | 2.3 | 0.9 | 0.4 | 0.0 | 0.8 | 0.7 | 0.4 | 1.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.05 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 368 | 977 | 428 | 4 | 604 | 460 | 40 | 0 | 294 | 428 | 486 | 407 |
| V/C Ratio(X) | 0.48 | 0.40 | 0.06 | 0.23 | 0.37 | 0.15 | 0.45 | 0.00 | 0.15 | 0.16 | 0.06 | 0.15 |
| Avail Cap(c_a), veh/h | 942 | 2210 | 968 | 265 | 1770 | 1348 | 309 | 0 | 1015 | 1627 | 1580 | 1324 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.0 | 11.9 | 10.8 | 20.1 | 14.8 | 14.3 | 19.5 | 0.0 | 14.6 | 15.8 | 11.2 | 11.5 |
| Incr Delay (d2), s/veh | 1.0 | 0.3 | 0.1 | 24.1 | 0.4 | 0.1 | 7.5 | 0.0 | 0.2 | 0.2 | 0.0 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.9 | 0.1 | 0.0 | 0.7 | 0.2 | 0.2 | 0.0 | 0.3 | 0.2 | 0.1 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 17.9 | 12.2 | 10.9 | 44.3 | 15.2 | 14.4 | 27.0 | 0.0 | 14.9 | 16.0 | 11.3 | 11.7 |
| LnGrp LOS | B | B | B | D | B | B | C | | B | B | B | B |
| Approach Vol, veh/h | | 594 | | | 294 | | | 62 | | | 156 | |
| Approach Delay, s/veh | | 13.8 | | | 15.1 | | | 18.4 | | | 13.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 11.3 | 4.1 | 16.0 | 4.9 | 15.4 | 8.3 | 11.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 19.0 | 22.1 | 6.0 | 25.1 | 7.0 | 34.1 | 11.0 | 20.1 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 2.8 | 2.0 | 5.6 | 2.4 | 3.2 | 3.9 | 4.3 |
| Green Ext Time (p_c), s | 0.1 | 0.1 | 0.0 | 2.1 | 0.0 | 0.3 | 0.3 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 14.4 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 175 | 392 | 34 | 1 | 226 | 83 | 18 | 44 | 68 | 27 | 76 |
| v/c Ratio | 0.31 | 0.28 | 0.05 | 0.00 | 0.36 | 0.13 | 0.08 | 0.17 | 0.15 | 0.05 | 0.12 |
| Control Delay (s/veh) | 19.8 | 11.7 | 0.1 | 21.0 | 19.5 | 0.4 | 21.1 | 20.3 | 20.3 | 15.2 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 19.8 | 11.7 | 0.1 | 21.0 | 19.5 | 0.4 | 21.1 | 20.3 | 20.3 | 15.2 | 0.4 |
| Queue Length 50th (ft) | 22 | 33 | 0 | 0 | 28 | 0 | 5 | 10 | 8 | 5 | 0 |
| Queue Length 95th (ft) | 48 | 86 | 0 | 4 | 59 | 0 | 21 | 35 | 24 | 25 | 1 |
| Internal Link Dist (ft) | | 3221 | | | 2598 | | | 468 | | 389 | |
| Turn Bay Length (ft) | 935 | | 470 | 450 | | 550 | 100 | | 635 | | |
| Base Capacity (vph) | 800 | 1882 | 883 | 225 | 1507 | 1258 | 262 | 866 | 1382 | 1346 | 1160 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.21 | 0.04 | 0.00 | 0.15 | 0.07 | 0.07 | 0.05 | 0.05 | 0.02 | 0.07 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 103 | 379 | 602 | 40 | 0 | 95 |
| Future Vol, veh/h | 103 | 379 | 602 | 40 | 0 | 95 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 112 | 412 | 654 | 43 | 0 | 103 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 708 | 0 | - | 0 | 1126 | 696 |
| Stage 1 | - | - | - | - | 686 | - |
| Stage 2 | - | - | - | - | 440 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | 2.219 | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 889 | - | - | - | 212 | 441 |
| Stage 1 | - | - | - | - | 499 | - |
| Stage 2 | - | - | - | - | 617 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 880 | - | - | - | 178 | 432 |
| Mov Cap-2 Maneuver | - | - | - | - | 178 | - |
| Stage 1 | - | - | - | - | 423 | - |
| Stage 2 | - | - | - | - | 611 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 2.78 | 0 | 15.92 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 769 | - | - | - | 432 |
| HCM Lane V/C Ratio | 0.127 | - | - | - | 0.239 |
| HCM Ctrl Dly (s/v) | 9.7 | 0.9 | - | - | 15.9 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 0.9 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 220 | 0 | 0 | 147 | 0 |
| Future Vol, veh/h | 0 | 220 | 0 | 0 | 147 | 0 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 239 | 0 | 0 | 160 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 249 | 0 | 141 | 140 |
| Stage 1 | - | - | - | - | 130 | - |
| Stage 2 | - | - | - | - | 11 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1316 | - | 852 | 909 |
| Stage 1 | - | - | - | - | 896 | - |
| Stage 2 | - | - | - | - | 1012 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1304 | - | 836 | 891 |
| Mov Cap-2 Maneuver | - | - | - | - | 836 | - |
| Stage 1 | - | - | - | - | 888 | - |
| Stage 2 | - | - | - | - | 1002 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0 | 10.32 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 836 | - | - | 1304 | - |
| HCM Lane V/C Ratio | 0.191 | - | - | - | - |
| HCM Ctrl Dly (s/v) | 10.3 | - | - | 0 | - |
| HCM Lane LOS | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.7 | - | - | 0 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 78 | 320 | 11 | 255 | 67 | 479 | 468 | 18 | 58 | 506 | 123 |
| Future Volume (veh/h) | 20 | 78 | 320 | 11 | 255 | 67 | 479 | 468 | 18 | 58 | 506 | 123 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 26 | 101 | 333 | 14 | 331 | 70 | 622 | 608 | 18 | 75 | 657 | 128 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 52 | 482 | 404 | 31 | 460 | 385 | 790 | 1361 | 599 | 104 | 1085 | 332 |
| Arrive On Green | 0.03 | 0.26 | 0.26 | 0.02 | 0.25 | 0.25 | 0.23 | 0.38 | 0.38 | 0.06 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1781 | 1870 | 1567 | 1781 | 1870 | 1566 | 3456 | 3554 | 1564 | 1781 | 5106 | 1563 |
| Grp Volume(v), veh/h | 26 | 101 | 333 | 14 | 331 | 70 | 622 | 608 | 18 | 75 | 657 | 128 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1567 | 1781 | 1870 | 1566 | 1728 | 1777 | 1564 | 1781 | 1702 | 1563 |
| Q Serve(g_s), s | 0.9 | 2.7 | 12.6 | 0.5 | 10.2 | 2.2 | 10.6 | 8.0 | 0.5 | 2.6 | 7.3 | 4.4 |
| Cycle Q Clear(g_c), s | 0.9 | 2.7 | 12.6 | 0.5 | 10.2 | 2.2 | 10.6 | 8.0 | 0.5 | 2.6 | 7.3 | 4.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 52 | 482 | 404 | 31 | 460 | 385 | 790 | 1361 | 599 | 104 | 1085 | 332 |
| V/C Ratio(X) | 0.50 | 0.21 | 0.82 | 0.46 | 0.72 | 0.18 | 0.79 | 0.45 | 0.03 | 0.72 | 0.61 | 0.39 |
| Avail Cap(c_a), veh/h | 168 | 719 | 602 | 168 | 719 | 602 | 1268 | 1859 | 819 | 267 | 1564 | 479 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.0 | 18.3 | 21.9 | 30.5 | 21.7 | 18.7 | 22.7 | 14.4 | 12.1 | 29.0 | 22.3 | 21.2 |
| Incr Delay (d2), s/veh | 7.4 | 0.2 | 5.8 | 10.2 | 2.1 | 0.2 | 1.8 | 0.2 | 0.0 | 9.2 | 0.5 | 0.7 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.5 | 1.1 | 4.6 | 0.3 | 4.1 | 0.7 | 3.9 | 2.6 | 0.1 | 1.3 | 2.5 | 1.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 37.3 | 18.5 | 27.8 | 40.7 | 23.8 | 18.9 | 24.5 | 14.6 | 12.1 | 38.2 | 22.9 | 21.9 |
| LnGrp LOS | D | B | C | D | C | B | C | B | B | D | C | C |
| Approach Vol, veh/h | | 460 | | | 415 | | | 1248 | | | 860 | |
| Approach Delay, s/veh | | 26.3 | | | 23.5 | | | 19.5 | | | 24.0 | |
| Approach LOS | | C | | | C | | | B | | | C | |

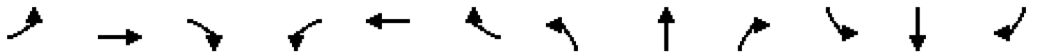
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 28.9 | 5.1 | 21.1 | 18.3 | 18.2 | 5.8 | 20.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 9.4 | 32.8 | 5.9 | 24.1 | 23.0 | 19.2 | 5.9 | 24.1 |
| Max Q Clear Time (g_c+I1), s | 4.6 | 10.0 | 2.5 | 14.6 | 12.6 | 9.3 | 2.9 | 12.2 |
| Green Ext Time (p_c), s | 0.0 | 3.7 | 0.0 | 1.2 | 1.7 | 3.1 | 0.0 | 1.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 26 | 101 | 416 | 14 | 331 | 87 | 622 | 608 | 23 | 75 | 657 | 160 |
| v/c Ratio | 0.16 | 0.20 | 0.57 | 0.09 | 0.70 | 0.17 | 0.70 | 0.42 | 0.03 | 0.36 | 0.57 | 0.34 |
| Control Delay (s/veh) | 39.7 | 22.2 | 6.2 | 39.0 | 34.0 | 0.7 | 29.7 | 18.4 | 0.1 | 39.0 | 28.0 | 7.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 39.7 | 22.2 | 6.2 | 39.0 | 34.0 | 0.7 | 29.7 | 18.4 | 0.1 | 39.0 | 28.0 | 7.0 |
| Queue Length 50th (ft) | 10 | 31 | 0 | 5 | 116 | 0 | 112 | 90 | 0 | 27 | 82 | 0 |
| Queue Length 95th (ft) | 34 | 72 | 30 | 23 | 212 | 0 | 184 | 153 | 0 | 71 | 136 | 27 |
| Internal Link Dist (ft) | | 2502 | | | 5399 | | | 2584 | | | 1653 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 25 | 255 | | | 255 | | 205 |
| Base Capacity (vph) | 163 | 739 | 862 | 163 | 700 | 684 | 1231 | 1810 | 832 | 259 | 1522 | 578 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.16 | 0.14 | 0.48 | 0.09 | 0.47 | 0.13 | 0.51 | 0.34 | 0.03 | 0.29 | 0.43 | 0.28 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 77 | 137 | 258 | 175 | 188 | 186 | 134 | 785 | 29 | 79 | 700 | 66 |
| Future Volume (veh/h) | 77 | 137 | 258 | 175 | 188 | 186 | 134 | 785 | 29 | 79 | 700 | 66 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 87 | 154 | 232 | 197 | 211 | 169 | 151 | 882 | 18 | 89 | 787 | 67 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 116 | 389 | 324 | 242 | 267 | 214 | 191 | 1451 | 442 | 117 | 1240 | 377 |
| Arrive On Green | 0.06 | 0.21 | 0.21 | 0.14 | 0.28 | 0.28 | 0.11 | 0.28 | 0.28 | 0.07 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1562 | 1781 | 957 | 766 | 1781 | 5106 | 1557 | 1781 | 5106 | 1552 |
| Grp Volume(v), veh/h | 87 | 154 | 232 | 197 | 0 | 380 | 151 | 882 | 18 | 89 | 787 | 67 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1562 | 1781 | 0 | 1723 | 1781 | 1702 | 1557 | 1781 | 1702 | 1552 |
| Q Serve(g_s), s | 2.8 | 4.1 | 8.0 | 6.2 | 0.0 | 11.9 | 4.8 | 8.7 | 0.5 | 2.9 | 8.0 | 2.0 |
| Cycle Q Clear(g_c), s | 2.8 | 4.1 | 8.0 | 6.2 | 0.0 | 11.9 | 4.8 | 8.7 | 0.5 | 2.9 | 8.0 | 2.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.44 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 116 | 389 | 324 | 242 | 0 | 480 | 191 | 1451 | 442 | 117 | 1240 | 377 |
| V/C Ratio(X) | 0.75 | 0.40 | 0.71 | 0.81 | 0.00 | 0.79 | 0.79 | 0.61 | 0.04 | 0.76 | 0.63 | 0.18 |
| Avail Cap(c_a), veh/h | 187 | 580 | 484 | 245 | 0 | 590 | 215 | 1759 | 536 | 190 | 1688 | 513 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.7 | 19.9 | 21.4 | 24.4 | 0.0 | 19.4 | 25.3 | 18.0 | 15.1 | 26.7 | 19.7 | 17.4 |
| Incr Delay (d2), s/veh | 9.4 | 0.7 | 2.9 | 18.4 | 0.0 | 5.9 | 16.4 | 0.4 | 0.0 | 9.7 | 0.5 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.4 | 1.6 | 2.8 | 3.5 | 0.0 | 4.7 | 2.6 | 2.8 | 0.1 | 1.4 | 2.7 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.1 | 20.5 | 24.3 | 42.7 | 0.0 | 25.3 | 41.7 | 18.4 | 15.1 | 36.4 | 20.2 | 17.6 |
| LnGrp LOS | D | C | C | D | | C | D | B | B | D | C | B |
| Approach Vol, veh/h | | 473 | | | 577 | | | 1051 | | | 943 | |
| Approach Delay, s/veh | | 25.3 | | | 31.2 | | | 21.7 | | | 21.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.8 | 21.4 | 11.9 | 17.0 | 10.2 | 19.0 | 7.8 | 21.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.2 | 20.0 | 8.0 | 18.0 | 7.0 | 19.2 | 6.1 | 19.9 |
| Max Q Clear Time (g_c+I1), s | 4.9 | 10.7 | 8.2 | 10.0 | 6.8 | 10.0 | 4.8 | 13.9 |
| Green Ext Time (p_c), s | 0.0 | 3.7 | 0.0 | 1.0 | 0.0 | 3.4 | 0.0 | 1.1 |

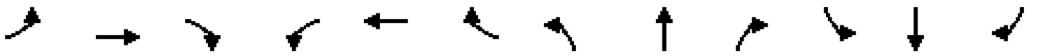
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 24.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 87 | 154 | 290 | 197 | 420 | 151 | 882 | 33 | 89 | 787 | 74 |
| v/c Ratio | 0.52 | 0.36 | 0.54 | 0.88 | 0.75 | 0.77 | 0.57 | 0.06 | 0.52 | 0.61 | 0.15 |
| Control Delay (s/veh) | 42.9 | 23.7 | 9.3 | 70.1 | 28.9 | 59.2 | 21.9 | 0.2 | 42.9 | 23.8 | 0.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 42.9 | 23.7 | 9.3 | 70.1 | 28.9 | 59.2 | 21.9 | 0.2 | 42.9 | 23.8 | 0.6 |
| Queue Length 50th (ft) | 36 | 52 | 15 | 84 | 133 | 64 | 119 | 0 | 37 | 106 | 0 |
| Queue Length 95th (ft) | #90 | 100 | 72 | #204 | #272 | #160 | 156 | 0 | #91 | 141 | 1 |
| Internal Link Dist (ft) | | 2539 | | | 5389 | | 2581 | | | 2584 | |
| Turn Bay Length (ft) | 230 | | | 75 | | 250 | | 105 | 250 | | 205 |
| Base Capacity (vph) | 171 | 531 | 615 | 224 | 585 | 196 | 1639 | 594 | 174 | 1548 | 570 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.51 | 0.29 | 0.47 | 0.88 | 0.72 | 0.77 | 0.54 | 0.06 | 0.51 | 0.51 | 0.13 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 131 | 288 | 127 | 257 | 318 | 176 | 143 | 688 | 152 | 193 | 1423 | 235 |
| Future Volume (veh/h) | 131 | 288 | 127 | 257 | 318 | 176 | 143 | 688 | 152 | 193 | 1423 | 235 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 146 | 320 | 113 | 286 | 353 | 157 | 159 | 764 | 136 | 214 | 1581 | 211 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 239 | 564 | 247 | 386 | 715 | 314 | 246 | 1913 | 589 | 315 | 2015 | 621 |
| Arrive On Green | 0.07 | 0.16 | 0.16 | 0.11 | 0.20 | 0.20 | 0.07 | 0.37 | 0.37 | 0.09 | 0.39 | 0.39 |
| Sat Flow, veh/h | 3456 | 3554 | 1555 | 3456 | 3554 | 1561 | 3456 | 5106 | 1572 | 3456 | 5106 | 1573 |
| Grp Volume(v), veh/h | 146 | 320 | 113 | 286 | 353 | 157 | 159 | 764 | 136 | 214 | 1581 | 211 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1555 | 1728 | 1777 | 1561 | 1728 | 1702 | 1572 | 1728 | 1702 | 1573 |
| Q Serve(g_s), s | 2.8 | 5.6 | 4.4 | 5.4 | 5.9 | 6.0 | 3.0 | 7.4 | 4.0 | 4.0 | 18.3 | 6.3 |
| Cycle Q Clear(g_c), s | 2.8 | 5.6 | 4.4 | 5.4 | 5.9 | 6.0 | 3.0 | 7.4 | 4.0 | 4.0 | 18.3 | 6.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 239 | 564 | 247 | 386 | 715 | 314 | 246 | 1913 | 589 | 315 | 2015 | 621 |
| V/C Ratio(X) | 0.61 | 0.57 | 0.46 | 0.74 | 0.49 | 0.50 | 0.65 | 0.40 | 0.23 | 0.68 | 0.78 | 0.34 |
| Avail Cap(c_a), veh/h | 369 | 948 | 415 | 461 | 1043 | 458 | 307 | 1937 | 596 | 492 | 2209 | 681 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.5 | 26.2 | 25.8 | 29.0 | 23.9 | 23.9 | 30.5 | 15.5 | 14.4 | 29.7 | 17.9 | 14.3 |
| Incr Delay (d2), s/veh | 2.5 | 0.9 | 1.3 | 5.2 | 0.5 | 1.2 | 3.2 | 0.1 | 0.2 | 2.6 | 1.8 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 2.2 | 1.5 | 2.3 | 2.2 | 2.1 | 1.2 | 2.4 | 1.2 | 1.6 | 6.1 | 1.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.0 | 27.1 | 27.1 | 34.2 | 24.4 | 25.2 | 33.7 | 15.6 | 14.6 | 32.3 | 19.7 | 14.6 |
| LnGrp LOS | C | C | C | C | C | C | C | B | B | C | B | B |
| Approach Vol, veh/h | | 579 | | | 796 | | | 1059 | | | 2006 | |
| Approach Delay, s/veh | | 28.6 | | | 28.1 | | | 18.2 | | | 20.5 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.2 | 30.2 | 11.5 | 15.6 | 8.8 | 31.5 | 8.7 | 18.5 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 9.6 | 25.6 | 9.0 | 18.0 | 6.0 | 29.2 | 7.2 | 19.8 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 9.4 | 7.4 | 7.6 | 5.0 | 20.3 | 4.8 | 8.0 |
| Green Ext Time (p_c), s | 0.2 | 4.7 | 0.2 | 1.6 | 0.0 | 6.3 | 0.1 | 2.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 146 | 320 | 141 | 286 | 353 | 196 | 159 | 764 | 169 | 214 | 1581 | 261 |
| v/c Ratio | 0.45 | 0.54 | 0.38 | 0.69 | 0.52 | 0.43 | 0.57 | 0.43 | 0.26 | 0.52 | 0.80 | 0.35 |
| Control Delay (s/veh) | 37.1 | 31.8 | 8.4 | 41.7 | 29.7 | 7.4 | 42.2 | 19.8 | 4.6 | 35.7 | 24.2 | 5.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 37.1 | 31.8 | 8.4 | 41.7 | 29.7 | 7.4 | 42.2 | 19.8 | 4.6 | 35.7 | 24.2 | 5.3 |
| Queue Length 50th (ft) | 32 | 72 | 0 | 65 | 77 | 0 | 37 | 97 | 0 | 47 | 226 | 10 |
| Queue Length 95th (ft) | 63 | 110 | 44 | #123 | 116 | 49 | #71 | 141 | 40 | 84 | 312 | 58 |
| Internal Link Dist (ft) | | 2544 | | | 5360 | | | 2600 | | | 2626 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 100 | 250 | | 160 | 250 | | 150 |
| Base Capacity (vph) | 336 | 868 | 485 | 421 | 955 | 559 | 280 | 1787 | 652 | 449 | 2024 | 749 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.43 | 0.37 | 0.29 | 0.68 | 0.37 | 0.35 | 0.57 | 0.43 | 0.26 | 0.48 | 0.78 | 0.35 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 2 | 0 | 112 | 0 | 1 | 0 | 325 | 185 | 0 | 0 | 297 | 8 |
| Future Vol, veh/h | 2 | 0 | 112 | 0 | 1 | 0 | 325 | 185 | 0 | 0 | 297 | 8 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 2 | 0 | 137 | 0 | 1 | 0 | 396 | 226 | 0 | 0 | 362 | 10 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1406 | 1405 | 387 | 1400 | 1410 | 246 | 382 | 0 | 0 | 236 | 0 | 0 |
| Stage 1 | 377 | 377 | - | 1028 | 1028 | - | - | - | - | - | - | - |
| Stage 2 | 1029 | 1028 | - | 372 | 382 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.15 | 6.55 | 6.25 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.15 | - | - |
| Critical Hdwy Stg 1 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.545 | 4.045 | 3.345 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.245 | - | - |
| Pot Cap-1 Maneuver | 115 | 137 | 654 | 116 | 136 | 786 | 1160 | - | - | 1314 | - | - |
| Stage 1 | 638 | 610 | - | 279 | 308 | - | - | - | - | - | - | - |
| Stage 2 | 279 | 308 | - | 642 | 607 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 68 | 82 | 642 | 54 | 81 | 771 | 1149 | - | - | 1302 | - | - |
| Mov Cap-2 Maneuver | 68 | 82 | - | 54 | 81 | - | - | - | - | - | - | - |
| Stage 1 | 632 | 605 | - | 167 | 185 | - | - | - | - | - | - | - |
| Stage 2 | 166 | 185 | - | 501 | 602 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 13.56 | 50.12 | 6.23 | 0 |
| HCM LOS | B | F | | |

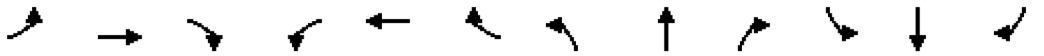
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1005 | - | - | 559 | 81 | 1302 | - | - |
| HCM Lane V/C Ratio | 0.345 | - | - | 0.249 | 0.015 | - | - | - |
| HCM Ctrl Dly (s/v) | 9.8 | 0 | - | 13.6 | 50.1 | 0 | - | - |
| HCM Lane LOS | A | A | - | B | F | A | - | - |
| HCM 95th %tile Q(veh) | 1.6 | - | - | 1 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 222.9 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 151 | 62 | 57 | 396 | 298 | 156 | 219 | 20 | 166 | 218 | 4 |
| Future Vol, veh/h | 3 | 151 | 62 | 57 | 396 | 298 | 156 | 219 | 20 | 166 | 218 | 4 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 3 | 161 | 66 | 61 | 421 | 317 | 166 | 233 | 21 | 177 | 232 | 4 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 31.5 | 422.8 | 85.3 | 82.5 |
| HCM LOS | D | F | F | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 39% | 1% | 8% | 43% |
| Vol Thru, % | 55% | 70% | 53% | 56% |
| Vol Right, % | 5% | 29% | 40% | 1% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 395 | 216 | 751 | 388 |
| LT Vol | 156 | 3 | 57 | 166 |
| Through Vol | 219 | 151 | 396 | 218 |
| RT Vol | 20 | 62 | 298 | 4 |
| Lane Flow Rate | 420 | 230 | 799 | 413 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.003 | 0.601 | 1.875 | 0.991 |
| Departure Headway (Hd) | 11.045 | 11.971 | 8.45 | 11.113 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 332 | 303 | 431 | 330 |
| Service Time | 9.045 | 9.971 | 6.538 | 9.113 |
| HCM Lane V/C Ratio | 1.265 | 0.759 | 1.854 | 1.252 |
| HCM Control Delay, s/veh | 85.3 | 31.5 | 422.8 | 82.5 |
| HCM Lane LOS | F | D | F | F |
| HCM 95th-tile Q | 11.1 | 3.6 | 51.8 | 10.8 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 40 | 550 | 309 | 104 | 434 | 130 | 127 | 239 | 79 | 164 | 357 | 45 |
| Future Volume (veh/h) | 40 | 550 | 309 | 104 | 434 | 130 | 127 | 239 | 79 | 164 | 357 | 45 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 45 | 625 | 281 | 118 | 493 | 120 | 144 | 272 | 73 | 186 | 406 | 41 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 75 | 927 | 406 | 150 | 567 | 473 | 181 | 435 | 364 | 229 | 486 | 407 |
| Arrive On Green | 0.04 | 0.27 | 0.27 | 0.09 | 0.31 | 0.31 | 0.10 | 0.24 | 0.24 | 0.13 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1739 | 3469 | 1518 | 1739 | 1826 | 1522 | 1739 | 1826 | 1528 | 1739 | 1826 | 1530 |
| Grp Volume(v), veh/h | 45 | 625 | 281 | 118 | 493 | 120 | 144 | 272 | 73 | 186 | 406 | 41 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1518 | 1739 | 1826 | 1522 | 1739 | 1826 | 1528 | 1739 | 1826 | 1530 |
| Q Serve(g_s), s | 1.6 | 10.4 | 10.7 | 4.3 | 16.4 | 3.8 | 5.2 | 8.6 | 2.5 | 6.7 | 13.5 | 1.3 |
| Cycle Q Clear(g_c), s | 1.6 | 10.4 | 10.7 | 4.3 | 16.4 | 3.8 | 5.2 | 8.6 | 2.5 | 6.7 | 13.5 | 1.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 75 | 927 | 406 | 150 | 567 | 473 | 181 | 435 | 364 | 229 | 486 | 407 |
| V/C Ratio(X) | 0.60 | 0.67 | 0.69 | 0.79 | 0.87 | 0.25 | 0.79 | 0.62 | 0.20 | 0.81 | 0.84 | 0.10 |
| Avail Cap(c_a), veh/h | 159 | 1196 | 523 | 211 | 683 | 570 | 243 | 601 | 503 | 297 | 658 | 551 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.3 | 21.1 | 21.2 | 28.8 | 21.0 | 16.6 | 28.2 | 21.9 | 19.6 | 27.2 | 22.3 | 17.8 |
| Incr Delay (d2), s/veh | 7.6 | 1.0 | 2.7 | 12.2 | 10.2 | 0.3 | 12.2 | 1.5 | 0.3 | 12.2 | 6.9 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 3.7 | 3.5 | 2.1 | 7.4 | 1.2 | 2.6 | 3.4 | 0.8 | 3.3 | 5.9 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 37.9 | 22.1 | 23.9 | 41.1 | 31.1 | 16.9 | 40.4 | 23.4 | 19.9 | 39.4 | 29.2 | 17.9 |
| LnGrp LOS | D | C | C | D | C | B | D | C | B | D | C | B |
| Approach Vol, veh/h | | 951 | | | 731 | | | 489 | | | 633 | |
| Approach Delay, s/veh | | 23.4 | | | 30.4 | | | 27.9 | | | 31.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.5 | 20.3 | 9.6 | 22.1 | 10.7 | 22.0 | 6.8 | 24.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 11.0 | 21.2 | 7.8 | 22.2 | 9.0 | 23.2 | 5.9 | 24.1 |
| Max Q Clear Time (g_c+I1), s | 8.7 | 10.6 | 6.3 | 12.7 | 7.2 | 15.5 | 3.6 | 18.4 |
| Green Ext Time (p_c), s | 0.1 | 1.2 | 0.0 | 3.3 | 0.1 | 1.4 | 0.0 | 1.6 |

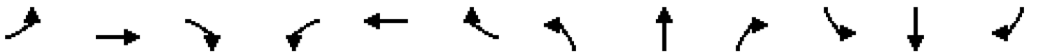
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 27.8 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 45 | 625 | 351 | 118 | 493 | 148 | 144 | 272 | 90 | 186 | 406 | 51 |
| v/c Ratio | 0.32 | 0.65 | 0.58 | 0.64 | 0.83 | 0.26 | 0.69 | 0.59 | 0.19 | 0.74 | 0.80 | 0.10 |
| Control Delay (s/veh) | 41.4 | 27.9 | 11.2 | 52.9 | 39.1 | 6.6 | 52.5 | 31.0 | 2.7 | 51.5 | 39.3 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 41.4 | 27.9 | 11.2 | 52.9 | 39.1 | 6.6 | 52.5 | 31.0 | 2.7 | 51.5 | 39.3 | 0.4 |
| Queue Length 50th (ft) | 22 | 144 | 32 | 58 | 235 | 5 | 71 | 117 | 0 | 91 | 185 | 0 |
| Queue Length 95th (ft) | 53 | 195 | 105 | #132 | #398 | 42 | #155 | 188 | 14 | #188 | #307 | 0 |
| Internal Link Dist (ft) | | 5360 | | | 2582 | | | 1302 | | | 2564 | |
| Turn Bay Length (ft) | 230 | | 75 | 215 | | 55 | 225 | | | 255 | | 25 |
| Base Capacity (vph) | 144 | 1084 | 647 | 190 | 648 | 614 | 219 | 545 | 546 | 268 | 596 | 584 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.31 | 0.58 | 0.54 | 0.62 | 0.76 | 0.24 | 0.66 | 0.50 | 0.16 | 0.69 | 0.68 | 0.09 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 35 | 658 | 420 | 338 | 521 | 48 | 135 | 59 | 161 | 19 | 71 | 67 |
| Future Volume (veh/h) | 35 | 658 | 420 | 338 | 521 | 48 | 135 | 59 | 161 | 19 | 71 | 67 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.96 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 43 | 802 | 410 | 412 | 635 | 47 | 165 | 72 | 159 | 23 | 87 | 66 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 146 | 1120 | 495 | 527 | 1512 | 670 | 208 | 732 | 319 | 91 | 411 | 175 |
| Arrive On Green | 0.04 | 0.32 | 0.32 | 0.15 | 0.43 | 0.43 | 0.12 | 0.21 | 0.21 | 0.03 | 0.12 | 0.12 |
| Sat Flow, veh/h | 3428 | 3526 | 1558 | 3428 | 3526 | 1561 | 1767 | 3526 | 1535 | 3428 | 3526 | 1505 |
| Grp Volume(v), veh/h | 43 | 802 | 410 | 412 | 635 | 47 | 165 | 72 | 159 | 23 | 87 | 66 |
| Grp Sat Flow(s),veh/h/ln | 1714 | 1763 | 1558 | 1714 | 1763 | 1561 | 1767 | 1763 | 1535 | 1714 | 1763 | 1505 |
| Q Serve(g_s), s | 0.7 | 12.2 | 14.7 | 7.0 | 7.6 | 1.1 | 5.5 | 1.0 | 5.5 | 0.4 | 1.4 | 2.5 |
| Cycle Q Clear(g_c), s | 0.7 | 12.2 | 14.7 | 7.0 | 7.6 | 1.1 | 5.5 | 1.0 | 5.5 | 0.4 | 1.4 | 2.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 146 | 1120 | 495 | 527 | 1512 | 670 | 208 | 732 | 319 | 91 | 411 | 175 |
| V/C Ratio(X) | 0.29 | 0.72 | 0.83 | 0.78 | 0.42 | 0.07 | 0.79 | 0.10 | 0.50 | 0.25 | 0.21 | 0.38 |
| Avail Cap(c_a), veh/h | 335 | 1230 | 544 | 624 | 1528 | 677 | 292 | 1411 | 614 | 335 | 1172 | 500 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.1 | 18.2 | 19.1 | 24.6 | 12.0 | 10.2 | 26.0 | 19.4 | 21.2 | 28.8 | 24.2 | 24.7 |
| Incr Delay (d2), s/veh | 1.1 | 1.8 | 9.6 | 5.4 | 0.2 | 0.0 | 9.6 | 0.1 | 1.2 | 1.4 | 0.3 | 1.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 4.3 | 5.6 | 2.8 | 2.3 | 0.3 | 2.6 | 0.4 | 1.8 | 0.2 | 0.5 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 29.2 | 20.0 | 28.7 | 30.0 | 12.2 | 10.2 | 35.5 | 19.4 | 22.4 | 30.3 | 24.4 | 26.0 |
| LnGrp LOS | C | C | C | C | B | B | D | B | C | C | C | C |
| Approach Vol, veh/h | | 1255 | | | 1094 | | | 396 | | | 176 | |
| Approach Delay, s/veh | | 23.2 | | | 18.8 | | | 27.3 | | | 25.8 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.6 | 17.5 | 13.3 | 24.1 | 11.1 | 11.9 | 6.6 | 30.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 24.2 | 11.0 | 21.1 | 10.0 | 20.1 | 5.9 | 26.2 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 7.5 | 9.0 | 16.7 | 7.5 | 4.5 | 2.7 | 9.6 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.3 | 2.5 | 0.1 | 0.5 | 0.0 | 3.6 |

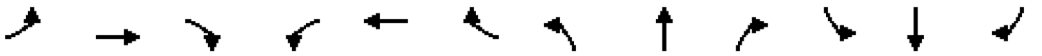
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 43 | 802 | 512 | 412 | 635 | 59 | 165 | 72 | 196 | 23 | 87 | 82 |
| v/c Ratio | 0.14 | 0.74 | 0.80 | 0.73 | 0.40 | 0.07 | 0.65 | 0.07 | 0.35 | 0.08 | 0.23 | 0.22 |
| Control Delay (s/veh) | 29.9 | 25.5 | 22.5 | 35.5 | 14.6 | 0.2 | 40.7 | 19.4 | 5.9 | 29.2 | 28.9 | 1.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 29.9 | 25.5 | 22.5 | 35.5 | 14.6 | 0.2 | 40.7 | 19.4 | 5.9 | 29.2 | 28.9 | 1.3 |
| Queue Length 50th (ft) | 8 | 151 | 96 | 84 | 98 | 0 | 64 | 10 | 0 | 4 | 17 | 0 |
| Queue Length 95th (ft) | 20 | 193 | #180 | 117 | 130 | 0 | #115 | 26 | 38 | 13 | 33 | 0 |
| Internal Link Dist (ft) | | 2582 | | | 2532 | | | 2598 | | | 898 | |
| Turn Bay Length (ft) | 240 | | 50 | 245 | | 175 | 235 | | | 250 | | 100 |
| Base Capacity (vph) | 306 | 1129 | 657 | 571 | 1572 | 790 | 267 | 1295 | 678 | 306 | 1075 | 630 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.14 | 0.71 | 0.78 | 0.72 | 0.40 | 0.07 | 0.62 | 0.06 | 0.29 | 0.08 | 0.08 | 0.13 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 40 | 645 | 194 | 44 | 534 | 185 | 70 | 402 | 26 | 97 | 757 | 54 |
| Future Volume (veh/h) | 40 | 645 | 194 | 44 | 534 | 185 | 70 | 402 | 26 | 97 | 757 | 54 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 43 | 694 | 167 | 47 | 574 | 159 | 75 | 432 | 23 | 104 | 814 | 47 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 65 | 742 | 624 | 69 | 745 | 627 | 95 | 855 | 377 | 131 | 927 | 406 |
| Arrive On Green | 0.04 | 0.41 | 0.41 | 0.04 | 0.41 | 0.41 | 0.05 | 0.25 | 0.25 | 0.08 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1739 | 1826 | 1536 | 1739 | 1826 | 1536 | 1739 | 3469 | 1529 | 1739 | 3469 | 1518 |
| Grp Volume(v), veh/h | 43 | 694 | 167 | 47 | 574 | 159 | 75 | 432 | 23 | 104 | 814 | 47 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1826 | 1536 | 1739 | 1826 | 1536 | 1739 | 1735 | 1529 | 1739 | 1735 | 1518 |
| Q Serve(g_s), s | 2.1 | 30.7 | 6.1 | 2.3 | 22.9 | 5.8 | 3.6 | 9.1 | 1.0 | 5.0 | 19.0 | 2.0 |
| Cycle Q Clear(g_c), s | 2.1 | 30.7 | 6.1 | 2.3 | 22.9 | 5.8 | 3.6 | 9.1 | 1.0 | 5.0 | 19.0 | 2.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 65 | 742 | 624 | 69 | 745 | 627 | 95 | 855 | 377 | 131 | 927 | 406 |
| V/C Ratio(X) | 0.66 | 0.94 | 0.27 | 0.68 | 0.77 | 0.25 | 0.79 | 0.51 | 0.06 | 0.79 | 0.88 | 0.12 |
| Avail Cap(c_a), veh/h | 103 | 781 | 657 | 103 | 781 | 657 | 105 | 855 | 377 | 175 | 994 | 435 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 40.1 | 24.0 | 16.7 | 40.0 | 21.6 | 16.5 | 39.4 | 27.4 | 24.3 | 38.4 | 29.6 | 23.4 |
| Incr Delay (d2), s/veh | 10.7 | 18.0 | 0.2 | 11.3 | 4.5 | 0.2 | 29.3 | 0.5 | 0.1 | 16.1 | 8.7 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.0 | 15.3 | 2.0 | 1.1 | 9.6 | 1.9 | 2.2 | 3.5 | 0.3 | 2.6 | 8.3 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 50.8 | 42.0 | 16.9 | 51.3 | 26.1 | 16.7 | 68.7 | 27.9 | 24.4 | 54.5 | 38.3 | 23.5 |
| LnGrp LOS | D | D | B | D | C | B | E | C | C | D | D | C |
| Approach Vol, veh/h | | 904 | | | 780 | | | 530 | | | 965 | |
| Approach Delay, s/veh | | 37.8 | | | 25.7 | | | 33.5 | | | 39.3 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.3 | 25.7 | 8.2 | 39.2 | 9.5 | 27.5 | 8.1 | 39.4 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 8.5 | 20.8 | 5.0 | 36.1 | 5.1 | 24.2 | 5.0 | 36.1 |
| Max Q Clear Time (g_c+I1), s | 7.0 | 11.1 | 4.3 | 32.7 | 5.6 | 21.0 | 4.1 | 24.9 |
| Green Ext Time (p_c), s | 0.0 | 1.8 | 0.0 | 1.6 | 0.0 | 1.6 | 0.0 | 3.0 |

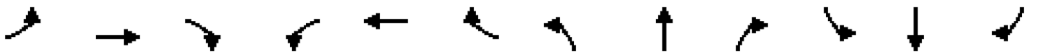
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 34.6 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 43 | 694 | 209 | 47 | 574 | 199 | 75 | 432 | 28 | 104 | 814 | 58 |
| v/c Ratio | 0.39 | 0.89 | 0.27 | 0.42 | 0.74 | 0.28 | 0.66 | 0.49 | 0.06 | 0.59 | 0.83 | 0.11 |
| Control Delay (s/veh) | 51.3 | 40.3 | 3.8 | 53.3 | 28.7 | 7.2 | 70.6 | 30.3 | 0.2 | 53.9 | 37.4 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.3 | 40.3 | 3.8 | 53.3 | 28.7 | 7.2 | 70.6 | 30.3 | 0.2 | 53.9 | 37.4 | 0.4 |
| Queue Length 50th (ft) | 24 | 375 | 0 | 27 | 280 | 20 | 43 | 114 | 0 | 58 | 233 | 0 |
| Queue Length 95th (ft) | #62 | #607 | 41 | #70 | #432 | 64 | #120 | 162 | 0 | #129 | #338 | 0 |
| Internal Link Dist (ft) | | 2056 | | | 3072 | | | 1478 | | | 985 | |
| Turn Bay Length (ft) | 230 | | | 55 | | 60 | 330 | | 95 | 265 | | 145 |
| Base Capacity (vph) | 111 | 848 | 812 | 111 | 848 | 777 | 113 | 928 | 508 | 189 | 1080 | 559 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.39 | 0.82 | 0.26 | 0.42 | 0.68 | 0.26 | 0.66 | 0.47 | 0.06 | 0.55 | 0.75 | 0.10 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 19 | 400 | 232 | 50 | 701 | 93 | 127 | 511 | 65 | 186 | 747 | 45 |
| Future Volume (veh/h) | 19 | 400 | 232 | 50 | 701 | 93 | 127 | 511 | 65 | 186 | 747 | 45 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 22 | 455 | 212 | 57 | 797 | 84 | 144 | 581 | 59 | 211 | 849 | 41 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 40 | 793 | 667 | 73 | 828 | 697 | 164 | 771 | 336 | 240 | 923 | 404 |
| Arrive On Green | 0.02 | 0.43 | 0.43 | 0.04 | 0.45 | 0.45 | 0.09 | 0.22 | 0.22 | 0.14 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1753 | 1841 | 1549 | 1753 | 1841 | 1550 | 1753 | 3497 | 1525 | 1753 | 3497 | 1530 |
| Grp Volume(v), veh/h | 22 | 455 | 212 | 57 | 797 | 84 | 144 | 581 | 59 | 211 | 849 | 41 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 1841 | 1549 | 1753 | 1841 | 1550 | 1753 | 1749 | 1525 | 1753 | 1749 | 1530 |
| Q Serve(g_s), s | 1.3 | 19.6 | 9.4 | 3.4 | 44.0 | 3.3 | 8.5 | 16.3 | 3.3 | 12.4 | 24.7 | 2.1 |
| Cycle Q Clear(g_c), s | 1.3 | 19.6 | 9.4 | 3.4 | 44.0 | 3.3 | 8.5 | 16.3 | 3.3 | 12.4 | 24.7 | 2.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 40 | 793 | 667 | 73 | 828 | 697 | 164 | 771 | 336 | 240 | 923 | 404 |
| V/C Ratio(X) | 0.56 | 0.57 | 0.32 | 0.78 | 0.96 | 0.12 | 0.88 | 0.75 | 0.18 | 0.88 | 0.92 | 0.10 |
| Avail Cap(c_a), veh/h | 99 | 793 | 667 | 154 | 846 | 712 | 164 | 795 | 347 | 241 | 949 | 415 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 50.6 | 22.5 | 19.7 | 49.7 | 27.9 | 16.7 | 46.9 | 38.1 | 33.1 | 44.3 | 37.5 | 29.1 |
| Incr Delay (d2), s/veh | 11.6 | 1.0 | 0.3 | 16.1 | 22.0 | 0.1 | 37.7 | 4.0 | 0.2 | 28.7 | 13.6 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 8.1 | 3.2 | 1.8 | 22.5 | 1.1 | 5.3 | 7.1 | 1.2 | 7.1 | 11.8 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 62.3 | 23.5 | 19.9 | 65.8 | 49.9 | 16.8 | 84.6 | 42.1 | 33.3 | 73.0 | 51.1 | 29.3 |
| LnGrp LOS | E | C | B | E | D | B | F | D | C | E | D | C |
| Approach Vol, veh/h | | 689 | | | 938 | | | 784 | | | 1101 | |
| Approach Delay, s/veh | | 23.7 | | | 47.9 | | | 49.2 | | | 54.5 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 18.3 | 28.0 | 8.4 | 50.0 | 13.8 | 32.5 | 6.4 | 52.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 14.4 | 23.8 | 9.2 | 44.8 | 9.8 | 28.4 | 5.9 | 48.1 |
| Max Q Clear Time (g_c+I1), s | 14.4 | 18.3 | 5.4 | 21.6 | 10.5 | 26.7 | 3.3 | 46.0 |
| Green Ext Time (p_c), s | 0.0 | 1.8 | 0.0 | 3.3 | 0.0 | 0.9 | 0.0 | 1.1 |

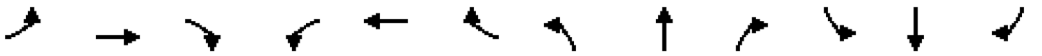
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 45.5 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 22 | 455 | 264 | 57 | 797 | 106 | 144 | 581 | 74 | 211 | 849 | 51 |
| v/c Ratio | 0.23 | 0.61 | 0.37 | 0.43 | 0.94 | 0.14 | 0.88 | 0.74 | 0.17 | 0.88 | 0.91 | 0.11 |
| Control Delay (s/veh) | 54.6 | 29.7 | 10.6 | 57.0 | 47.4 | 1.9 | 92.8 | 44.5 | 0.8 | 78.6 | 51.5 | 1.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 54.6 | 29.7 | 10.6 | 57.0 | 47.4 | 1.9 | 92.8 | 44.5 | 0.8 | 78.6 | 51.5 | 1.1 |
| Queue Length 50th (ft) | 14 | 247 | 46 | 35 | 452 | 0 | 92 | 179 | 0 | 133 | 270 | 0 |
| Queue Length 95th (ft) | 41 | 347 | 104 | 80 | #789 | 16 | #219 | 262 | 0 | #283 | #418 | 3 |
| Internal Link Dist (ft) | | 2744 | | | 2456 | | | 1336 | | | 1121 | |
| Turn Bay Length (ft) | 150 | | 100 | 165 | | 105 | 230 | | 85 | 240 | | 85 |
| Base Capacity (vph) | 99 | 804 | 752 | 154 | 849 | 774 | 164 | 799 | 445 | 241 | 953 | 476 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.57 | 0.35 | 0.37 | 0.94 | 0.14 | 0.88 | 0.73 | 0.17 | 0.88 | 0.89 | 0.11 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 238 | 1042 | 264 | 188 | 1423 | 259 | 203 | 275 | 152 | 258 | 476 | 669 |
| Future Volume (veh/h) | 238 | 1042 | 264 | 188 | 1423 | 259 | 203 | 275 | 152 | 258 | 476 | 669 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 256 | 1120 | 227 | 202 | 1530 | 222 | 218 | 296 | 131 | 277 | 512 | 576 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 328 | 1935 | 596 | 274 | 1855 | 571 | 289 | 832 | 342 | 355 | 1298 | 701 |
| Arrive On Green | 0.10 | 0.39 | 0.39 | 0.08 | 0.37 | 0.37 | 0.09 | 0.24 | 0.24 | 0.11 | 0.26 | 0.26 |
| Sat Flow, veh/h | 3374 | 4985 | 1535 | 3374 | 4985 | 1535 | 3374 | 3455 | 1418 | 3374 | 4985 | 2692 |
| Grp Volume(v), veh/h | 256 | 1120 | 227 | 202 | 1530 | 222 | 218 | 284 | 143 | 277 | 512 | 576 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1662 | 1535 | 1687 | 1662 | 1535 | 1687 | 1662 | 1550 | 1687 | 1662 | 1346 |
| Q Serve(g_s), s | 7.1 | 17.1 | 10.2 | 5.6 | 26.8 | 10.2 | 6.1 | 6.8 | 7.5 | 7.7 | 8.2 | 19.4 |
| Cycle Q Clear(g_c), s | 7.1 | 17.1 | 10.2 | 5.6 | 26.8 | 10.2 | 6.1 | 6.8 | 7.5 | 7.7 | 8.2 | 19.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.91 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 328 | 1935 | 596 | 274 | 1855 | 571 | 289 | 801 | 373 | 355 | 1298 | 701 |
| V/C Ratio(X) | 0.78 | 0.58 | 0.38 | 0.74 | 0.82 | 0.39 | 0.75 | 0.35 | 0.38 | 0.78 | 0.39 | 0.82 |
| Avail Cap(c_a), veh/h | 420 | 2042 | 629 | 406 | 2021 | 622 | 385 | 899 | 419 | 525 | 1556 | 840 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 42.5 | 23.3 | 21.2 | 43.3 | 27.4 | 22.2 | 43.1 | 30.4 | 30.6 | 42.1 | 29.4 | 33.6 |
| Incr Delay (d2), s/veh | 7.1 | 0.4 | 0.4 | 3.9 | 2.7 | 0.4 | 5.8 | 0.3 | 0.6 | 4.5 | 0.2 | 5.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.2 | 6.2 | 3.5 | 2.4 | 10.2 | 3.5 | 2.7 | 2.6 | 2.7 | 3.3 | 3.1 | 6.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 49.6 | 23.7 | 21.6 | 47.2 | 30.2 | 22.7 | 48.9 | 30.6 | 31.3 | 46.6 | 29.6 | 39.2 |
| LnGrp LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Approach Vol, veh/h | | 1603 | | | 1954 | | | 645 | | | 1365 | |
| Approach Delay, s/veh | | 27.5 | | | 31.1 | | | 37.0 | | | 37.1 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 14.1 | 28.1 | 11.8 | 42.3 | 12.3 | 30.0 | 13.4 | 40.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 15.0 | 26.1 | 11.6 | 39.5 | 11.0 | 30.1 | 12.0 | 39.1 |
| Max Q Clear Time (g_c+I1), s | 9.7 | 9.5 | 7.6 | 19.1 | 8.1 | 21.4 | 9.1 | 28.8 |
| Green Ext Time (p_c), s | 0.4 | 2.2 | 0.2 | 8.3 | 0.2 | 3.7 | 0.2 | 7.1 |

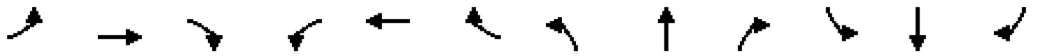
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 32.2 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 256 | 1120 | 284 | 202 | 1530 | 278 | 218 | 459 | 277 | 512 | 719 |
| v/c Ratio | 0.68 | 0.59 | 0.38 | 0.58 | 0.83 | 0.42 | 0.64 | 0.44 | 0.64 | 0.45 | 0.80 |
| Control Delay (s/veh) | 54.8 | 27.5 | 4.6 | 52.0 | 34.4 | 11.7 | 54.3 | 27.0 | 50.5 | 34.4 | 24.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 54.8 | 27.5 | 4.6 | 52.0 | 34.4 | 11.7 | 54.3 | 27.0 | 50.5 | 34.4 | 24.3 |
| Queue Length 50th (ft) | 86 | 219 | 0 | 67 | 338 | 46 | 73 | 71 | 92 | 107 | 124 |
| Queue Length 95th (ft) | #136 | 287 | 56 | 109 | 430 | 122 | 118 | 106 | 141 | 141 | 203 |
| Internal Link Dist (ft) | | 542 | | | 2532 | | | 2220 | | 1300 | |
| Turn Bay Length (ft) | 240 | | 240 | 250 | | 150 | 200 | | 230 | | 185 |
| Base Capacity (vph) | 403 | 1979 | 768 | 390 | 1948 | 695 | 370 | 1306 | 504 | 1500 | 1060 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.64 | 0.57 | 0.37 | 0.52 | 0.79 | 0.40 | 0.59 | 0.35 | 0.55 | 0.34 | 0.68 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

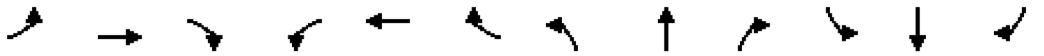


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 996 | 273 | 0 | 2135 | 70 | 457 | 0 | 538 | 0 | 0 | 0 |
| Future Volume (veh/h) | 0 | 996 | 273 | 0 | 2135 | 70 | 457 | 0 | 538 | 0 | 0 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Work Zone On Approach | | No | | | No | | | No | | | | |
| Adj Sat Flow, veh/h/ln | 0 | 1856 | 1856 | 0 | 1856 | 1856 | 1856 | 0 | 1856 | | | |
| Adj Flow Rate, veh/h | 0 | 1060 | 5 | 0 | 2271 | 59 | 486 | 0 | 459 | | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | |
| Percent Heavy Veh, % | 0 | 3 | 3 | 0 | 3 | 3 | 3 | 0 | 3 | | | |
| Cap, veh/h | 0 | 2962 | 912 | 0 | 4394 | 912 | 1247 | 0 | 693 | | | |
| Arrive On Green | 0.00 | 0.58 | 0.58 | 0.00 | 0.58 | 0.58 | 0.25 | 0.00 | 0.25 | | | |
| Sat Flow, veh/h | 0 | 5233 | 1559 | 0 | 7867 | 1559 | 4983 | 0 | 2768 | | | |
| Grp Volume(v), veh/h | 0 | 1060 | 5 | 0 | 2271 | 59 | 486 | 0 | 459 | | | |
| Grp Sat Flow(s),veh/h/ln | 0 | 1689 | 1559 | 0 | 1503 | 1559 | 1661 | 0 | 1384 | | | |
| Q Serve(g_s), s | 0.0 | 6.5 | 0.1 | 0.0 | 10.7 | 1.0 | 4.8 | 0.0 | 8.9 | | | |
| Cycle Q Clear(g_c), s | 0.0 | 6.5 | 0.1 | 0.0 | 10.7 | 1.0 | 4.8 | 0.0 | 8.9 | | | |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 0 | 2962 | 912 | 0 | 4394 | 912 | 1247 | 0 | 693 | | | |
| V/C Ratio(X) | 0.00 | 0.36 | 0.01 | 0.00 | 0.52 | 0.06 | 0.39 | 0.00 | 0.66 | | | |
| Avail Cap(c_a), veh/h | 0 | 3761 | 1158 | 0 | 5580 | 1158 | 3029 | 0 | 1682 | | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 0.0 | 6.5 | 5.1 | 0.0 | 7.3 | 5.3 | 18.5 | 0.0 | 20.0 | | | |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 1.1 | | | |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.5 | 0.1 | 0.0 | 2.2 | 0.2 | 1.7 | 0.0 | 2.7 | | | |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 6.6 | 5.1 | 0.0 | 7.4 | 5.4 | 18.7 | 0.0 | 21.1 | | | |
| LnGrp LOS | | A | A | | A | A | B | | C | | | |
| Approach Vol, veh/h | | 1065 | | | 2330 | | | 945 | | | | |
| Approach Delay, s/veh | | 6.5 | | | 7.4 | | | 19.9 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Timer - Assigned Phs | | 2 | | 4 | | | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 19.8 | | 39.6 | | | | 39.6 | | | | |
| Change Period (Y+Rc), s | | 4.9 | | 4.9 | | | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 36.1 | | 44.1 | | | | 44.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 10.9 | | 8.5 | | | | 12.7 | | | | |
| Green Ext Time (p_c), s | | 4.0 | | 8.2 | | | | 22.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 7th Control Delay, s/veh | | | 9.9 | | | | | | | | | |
| HCM 7th LOS | | | A | | | | | | | | | |



| Lane Group | EBT | EBR | WBT | WBR | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1060 | 290 | 2271 | 74 | 486 | 572 |
| v/c Ratio | 0.36 | 0.29 | 0.52 | 0.08 | 0.37 | 0.72 |
| Control Delay (s/veh) | 8.2 | 2.0 | 9.3 | 2.4 | 21.4 | 24.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 8.2 | 2.0 | 9.3 | 2.4 | 21.4 | 24.7 |
| Queue Length 50th (ft) | 74 | 0 | 121 | 0 | 63 | 110 |
| Queue Length 95th (ft) | 129 | 32 | 194 | 17 | 89 | 168 |
| Internal Link Dist (ft) | 739 | | 542 | | | |
| Turn Bay Length (ft) | | | | 450 | | |
| Base Capacity (vph) | 3398 | 1105 | 5042 | 1053 | 2730 | 1528 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.31 | 0.26 | 0.45 | 0.07 | 0.18 | 0.37 |

Intersection Summary

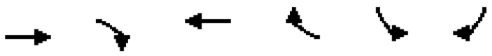


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑↑ | ↱ | | ↑↑↑↑ | ↱ | | | | ↰↰ | | ↱↱ |
| Traffic Volume (veh/h) | 0 | 1180 | 546 | 0 | 1761 | 890 | 0 | 0 | 0 | 106 | 0 | 895 |
| Future Volume (veh/h) | 0 | 1180 | 546 | 0 | 1761 | 890 | 0 | 0 | 0 | 106 | 0 | 895 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | | | | No | |
| Adj Sat Flow, veh/h/ln | 0 | 1856 | 1856 | 0 | 1856 | 1856 | | | | 1856 | 0 | 1856 |
| Adj Flow Rate, veh/h | 0 | 1229 | 455 | 0 | 1834 | 5 | | | | 110 | 0 | 749 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | | | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 0 | 3 | 3 | 0 | 3 | 3 | | | | 3 | 0 | 3 |
| Cap, veh/h | 0 | 3067 | 748 | 0 | 3566 | 1292 | | | | 1186 | 0 | 958 |
| Arrive On Green | 0.00 | 0.48 | 0.48 | 0.00 | 0.48 | 0.48 | | | | 0.35 | 0.00 | 0.35 |
| Sat Flow, veh/h | 0 | 6643 | 1556 | 0 | 7422 | 1556 | | | | 3428 | 0 | 2768 |
| Grp Volume(v), veh/h | 0 | 1229 | 455 | 0 | 1834 | 5 | | | | 110 | 0 | 749 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1596 | 1556 | 0 | 1856 | 1556 | | | | 1714 | 0 | 1384 |
| Q Serve(g_s), s | 0.0 | 7.0 | 12.1 | 0.0 | 9.6 | 0.0 | | | | 1.2 | 0.0 | 13.7 |
| Cycle Q Clear(g_c), s | 0.0 | 7.0 | 12.1 | 0.0 | 9.6 | 0.0 | | | | 1.2 | 0.0 | 13.7 |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 3067 | 748 | 0 | 3566 | 1292 | | | | 1186 | 0 | 958 |
| V/C Ratio(X) | 0.00 | 0.40 | 0.61 | 0.00 | 0.51 | 0.00 | | | | 0.09 | 0.00 | 0.78 |
| Avail Cap(c_a), veh/h | 0 | 4420 | 1078 | 0 | 5140 | 1622 | | | | 2496 | 0 | 2015 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 9.4 | 10.8 | 0.0 | 10.1 | 0.9 | | | | 12.5 | 0.0 | 16.6 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.8 | 0.0 | 0.1 | 0.0 | | | | 0.0 | 0.0 | 1.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.8 | 3.1 | 0.0 | 2.8 | 0.1 | | | | 0.4 | 0.0 | 4.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 9.5 | 11.6 | 0.0 | 10.2 | 0.9 | | | | 12.5 | 0.0 | 18.0 |
| LnGrp LOS | | A | B | | B | A | | | | B | | B |
| Approach Vol, veh/h | | 1684 | | | 1839 | | | | | | 859 | |
| Approach Delay, s/veh | | 10.1 | | | 10.2 | | | | | | 17.3 | |
| Approach LOS | | B | | | B | | | | | | B | |

| Timer - Assigned Phs | | | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | | | 32.0 | | 24.4 | | 32.0 | | | | |
| Change Period (Y+Rc), s | | | | 4.9 | | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | | | 39.1 | | 41.1 | | 39.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | | | 14.1 | | 15.7 | | 11.6 | | | | |
| Green Ext Time (p_c), s | | | | 11.2 | | 3.8 | | 15.5 | | | | |

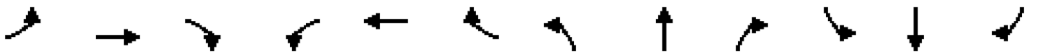
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 11.5 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |

| Notes |
|---|
| User approved volume balancing among the lanes for turning movement. |
| User approved changes to right turn type. |



| Lane Group | EBT | EBR | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1229 | 569 | 2260 | 501 | 110 | 932 |
| v/c Ratio | 0.41 | 0.56 | 0.81 | 0.46 | 0.08 | 0.86 |
| Control Delay (s/veh) | 15.1 | 3.8 | 21.3 | 1.9 | 14.7 | 30.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 15.1 | 3.8 | 21.3 | 1.9 | 14.7 | 30.2 |
| Queue Length 50th (ft) | 113 | 0 | 281 | 0 | 17 | 235 |
| Queue Length 95th (ft) | 168 | 58 | 402 | 0 | 31 | 320 |
| Internal Link Dist (ft) | 1332 | | 739 | | | |
| Turn Bay Length (ft) | | 360 | | 100 | | |
| Base Capacity (vph) | 3089 | 1034 | 2855 | 1156 | 1739 | 1385 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.40 | 0.55 | 0.79 | 0.43 | 0.06 | 0.67 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 21 | 654 | 153 | 69 | 716 | 24 | 54 | 39 | 37 | 2 | 135 | 74 |
| Future Volume (veh/h) | 21 | 654 | 153 | 69 | 716 | 24 | 54 | 39 | 37 | 2 | 135 | 74 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 0.99 | | 0.99 | 0.99 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 23 | 711 | 132 | 75 | 778 | 21 | 59 | 42 | 32 | 2 | 147 | 64 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 376 | 1057 | 888 | 397 | 1057 | 888 | 368 | 393 | 328 | 454 | 393 | 328 |
| Arrive On Green | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| Sat Flow, veh/h | 679 | 1870 | 1571 | 652 | 1870 | 1571 | 1160 | 1870 | 1562 | 1309 | 1870 | 1562 |
| Grp Volume(v), veh/h | 23 | 711 | 132 | 75 | 778 | 21 | 59 | 42 | 32 | 2 | 147 | 64 |
| Grp Sat Flow(s),veh/h/ln | 679 | 1870 | 1571 | 652 | 1870 | 1571 | 1160 | 1870 | 1562 | 1309 | 1870 | 1562 |
| Q Serve(g_s), s | 0.9 | 9.5 | 1.4 | 3.3 | 11.0 | 0.2 | 1.6 | 0.6 | 0.6 | 0.0 | 2.4 | 1.2 |
| Cycle Q Clear(g_c), s | 12.0 | 9.5 | 1.4 | 12.8 | 11.0 | 0.2 | 4.0 | 0.6 | 0.6 | 0.7 | 2.4 | 1.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 376 | 1057 | 888 | 397 | 1057 | 888 | 368 | 393 | 328 | 454 | 393 | 328 |
| V/C Ratio(X) | 0.06 | 0.67 | 0.15 | 0.19 | 0.74 | 0.02 | 0.16 | 0.11 | 0.10 | 0.00 | 0.37 | 0.19 |
| Avail Cap(c_a), veh/h | 620 | 1731 | 1454 | 631 | 1731 | 1454 | 742 | 997 | 833 | 876 | 997 | 833 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 10.2 | 5.4 | 3.7 | 9.9 | 5.8 | 3.4 | 13.8 | 11.4 | 11.4 | 11.7 | 12.1 | 11.6 |
| Incr Delay (d2), s/veh | 0.1 | 0.8 | 0.1 | 0.2 | 1.0 | 0.0 | 0.2 | 0.1 | 0.1 | 0.0 | 0.6 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.1 | 0.8 | 0.1 | 0.3 | 1.0 | 0.0 | 0.3 | 0.2 | 0.2 | 0.0 | 0.8 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 10.3 | 6.2 | 3.8 | 10.1 | 6.8 | 3.4 | 14.0 | 11.5 | 11.5 | 11.7 | 12.7 | 11.9 |
| LnGrp LOS | B | A | A | B | A | A | B | B | B | B | B | B |
| Approach Vol, veh/h | | 866 | | | 874 | | | 133 | | | 213 | |
| Approach Delay, s/veh | | 5.9 | | | 7.0 | | | 12.6 | | | 12.4 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 11.5 | | 24.2 | | 11.5 | | 24.2 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 19.0 | | 33.0 | | 19.0 | | 33.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 6.0 | | 14.0 | | 4.4 | | 14.8 | | | | |
| Green Ext Time (p_c), s | | 0.3 | | 4.8 | | 0.8 | | 5.4 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 7.5 | | | | | | | | | |
| HCM 7th LOS | | | A | | | | | | | | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 23 | 711 | 166 | 75 | 778 | 26 | 59 | 42 | 40 | 2 | 147 | 80 |
| v/c Ratio | 0.10 | 0.69 | 0.18 | 0.27 | 0.75 | 0.03 | 0.21 | 0.10 | 0.10 | 0.01 | 0.35 | 0.19 |
| Control Delay (s/veh) | 5.4 | 10.3 | 1.5 | 7.6 | 12.1 | 2.6 | 17.1 | 15.3 | 7.2 | 15.0 | 17.6 | 6.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 5.4 | 10.3 | 1.5 | 7.6 | 12.1 | 2.6 | 17.1 | 15.3 | 7.2 | 15.0 | 17.6 | 6.3 |
| Queue Length 50th (ft) | 2 | 87 | 0 | 7 | 101 | 1 | 10 | 7 | 0 | 0 | 27 | 0 |
| Queue Length 95th (ft) | 10 | 204 | 16 | 27 | 241 | 7 | 40 | 30 | 19 | 5 | 80 | 26 |
| Internal Link Dist (ft) | | 2532 | | | 910 | | | 5241 | | | 1172 | |
| Turn Bay Length (ft) | 265 | | 265 | 155 | | 25 | 100 | | 50 | 175 | | 105 |
| Base Capacity (vph) | 339 | 1553 | 1299 | 413 | 1553 | 1275 | 630 | 959 | 816 | 693 | 959 | 836 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.07 | 0.46 | 0.13 | 0.18 | 0.50 | 0.02 | 0.09 | 0.04 | 0.05 | 0.00 | 0.15 | 0.10 |

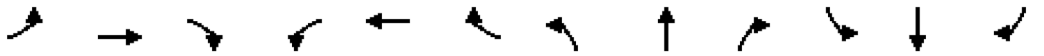
Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 177.3 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 22 | 383 | 328 | 52 | 453 | 15 | 137 | 94 | 28 | 56 | 346 | 71 |
| Future Vol, veh/h | 22 | 383 | 328 | 52 | 453 | 15 | 137 | 94 | 28 | 56 | 346 | 71 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 24 | 412 | 353 | 56 | 487 | 16 | 147 | 101 | 30 | 60 | 372 | 76 |
| Number of Lanes | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 3 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 3 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 2 | 3 |
| HCM Control Delay, s/veh | 425.9 | 233.1 | 49.6 | 265.7 |
| HCM LOS | F | F | E | F |

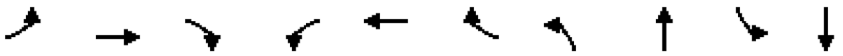
| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 59% | 0% | 100% | 0% | 0% | 100% | 0% | 12% |
| Vol Thru, % | 41% | 0% | 0% | 100% | 28% | 0% | 97% | 73% |
| Vol Right, % | 0% | 100% | 0% | 0% | 72% | 0% | 3% | 15% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 231 | 28 | 22 | 255 | 456 | 52 | 468 | 473 |
| LT Vol | 137 | 0 | 22 | 0 | 0 | 52 | 0 | 56 |
| Through Vol | 94 | 0 | 0 | 255 | 128 | 0 | 453 | 346 |
| RT Vol | 0 | 28 | 0 | 0 | 328 | 0 | 15 | 71 |
| Lane Flow Rate | 248 | 30 | 24 | 275 | 490 | 56 | 503 | 509 |
| Geometry Grp | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Degree of Util (X) | 0.777 | 0.086 | 0.068 | 0.75 | 1.271 | 0.171 | 1.463 | 1.487 |
| Departure Headway (Hd) | 14.301 | 13.225 | 12.693 | 12.156 | 11.616 | 12.906 | 12.34 | 11.973 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 256 | 273 | 284 | 299 | 318 | 280 | 297 | 310 |
| Service Time | 12.001 | 10.925 | 10.393 | 9.856 | 9.316 | 10.606 | 10.04 | 9.673 |
| HCM Lane V/C Ratio | 0.969 | 0.11 | 0.085 | 0.92 | 1.541 | 0.2 | 1.694 | 1.642 |
| HCM Control Delay, s/veh | 53.5 | 17.2 | 16.3 | 43.9 | 177.1 | 18.2 | 257 | 265.7 |
| HCM Lane LOS | F | C | C | E | F | C | F | F |
| HCM 95th-tile Q | 5.7 | 0.3 | 0.2 | 5.6 | 18.5 | 0.6 | 23.7 | 25 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 136 | 388 | 178 | 70 | 861 | 82 | 127 | 178 | 30 | 147 | 482 | 177 |
| Future Volume (veh/h) | 136 | 388 | 178 | 70 | 861 | 82 | 127 | 178 | 30 | 147 | 482 | 177 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 172 | 491 | 179 | 89 | 1090 | 84 | 161 | 225 | 30 | 186 | 610 | 180 |
| Peak Hour Factor | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 151 | 946 | 797 | 110 | 903 | 760 | 139 | 568 | 75 | 210 | 593 | 175 |
| Arrive On Green | 0.09 | 0.51 | 0.51 | 0.06 | 0.49 | 0.49 | 0.08 | 0.18 | 0.18 | 0.12 | 0.22 | 0.22 |
| Sat Flow, veh/h | 1767 | 1856 | 1563 | 1767 | 1856 | 1563 | 1767 | 3121 | 410 | 1767 | 2669 | 786 |
| Grp Volume(v), veh/h | 172 | 491 | 179 | 89 | 1090 | 84 | 161 | 126 | 129 | 186 | 402 | 388 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1563 | 1767 | 1856 | 1563 | 1767 | 1763 | 1768 | 1767 | 1763 | 1693 |
| Q Serve(g_s), s | 12.0 | 24.7 | 8.9 | 7.0 | 68.1 | 4.1 | 11.0 | 8.8 | 9.0 | 14.5 | 31.1 | 31.1 |
| Cycle Q Clear(g_c), s | 12.0 | 24.7 | 8.9 | 7.0 | 68.1 | 4.1 | 11.0 | 8.8 | 9.0 | 14.5 | 31.1 | 31.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.23 | 1.00 | | 0.46 |
| Lane Grp Cap(c), veh/h | 151 | 946 | 797 | 110 | 903 | 760 | 139 | 321 | 322 | 210 | 392 | 376 |
| V/C Ratio(X) | 1.14 | 0.52 | 0.22 | 0.81 | 1.21 | 0.11 | 1.16 | 0.39 | 0.40 | 0.89 | 1.03 | 1.03 |
| Avail Cap(c_a), veh/h | 151 | 946 | 797 | 168 | 903 | 760 | 139 | 321 | 322 | 237 | 392 | 376 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 64.0 | 22.9 | 19.0 | 64.8 | 35.9 | 19.5 | 64.5 | 50.4 | 50.5 | 60.8 | 54.4 | 54.5 |
| Incr Delay (d2), s/veh | 114.2 | 0.5 | 0.1 | 15.3 | 103.9 | 0.1 | 125.6 | 0.8 | 0.8 | 28.6 | 52.7 | 54.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 10.1 | 10.5 | 3.2 | 3.5 | 54.9 | 1.5 | 9.7 | 3.9 | 4.0 | 8.1 | 19.3 | 18.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 178.2 | 23.4 | 19.1 | 80.1 | 139.8 | 19.6 | 190.1 | 51.2 | 51.3 | 89.3 | 107.2 | 109.0 |
| LnGrp LOS | F | C | B | F | F | B | F | D | D | F | F | F |
| Approach Vol, veh/h | | 842 | | | 1263 | | | 416 | | | 976 | |
| Approach Delay, s/veh | | 54.1 | | | 127.6 | | | 105.0 | | | 104.5 | |
| Approach LOS | | D | | | F | | | F | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 20.6 | 30.4 | 12.7 | 76.3 | 15.0 | 36.0 | 16.0 | 73.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 18.8 | 23.3 | 13.3 | 66.8 | 11.0 | 31.1 | 12.0 | 68.1 |
| Max Q Clear Time (g_c+I1), s | 16.5 | 11.0 | 9.0 | 26.7 | 13.0 | 33.1 | 14.0 | 70.1 |
| Green Ext Time (p_c), s | 0.1 | 1.0 | 0.1 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 100.8 |
| HCM 7th LOS | F |

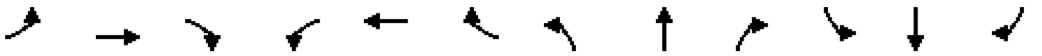


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 172 | 491 | 225 | 89 | 1090 | 104 | 161 | 263 | 186 | 834 |
| v/c Ratio | 1.15 | 0.54 | 0.28 | 0.62 | 1.22 | 0.13 | 1.18 | 0.44 | 0.84 | 1.09 |
| Control Delay (s/veh) | 173.1 | 28.0 | 11.4 | 80.9 | 140.1 | 3.5 | 185.3 | 52.2 | 90.2 | 109.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 173.1 | 28.0 | 11.4 | 80.9 | 140.1 | 3.5 | 185.3 | 52.2 | 90.2 | 109.4 |
| Queue Length 50th (ft) | ~183 | 308 | 56 | 79 | ~1212 | 0 | ~174 | 110 | 166 | ~437 |
| Queue Length 95th (ft) | #278 | 351 | 88 | 121 | #1189 | 19 | #269 | 134 | #221 | #453 |
| Internal Link Dist (ft) | | 2456 | | | 2474 | | | 1532 | | 255 |
| Turn Bay Length (ft) | 100 | | 100 | 140 | | 50 | 115 | | 140 | |
| Base Capacity (vph) | 150 | 905 | 800 | 166 | 897 | 791 | 137 | 603 | 235 | 762 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.15 | 0.54 | 0.28 | 0.54 | 1.22 | 0.13 | 1.18 | 0.44 | 0.79 | 1.09 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 67 | 749 | 344 | 113 | 1325 | 88 | 271 | 151 | 89 | 200 | 342 | 206 |
| Future Volume (veh/h) | 67 | 749 | 344 | 113 | 1325 | 88 | 271 | 151 | 89 | 200 | 342 | 206 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 72 | 805 | 296 | 122 | 1425 | 77 | 291 | 162 | 77 | 215 | 368 | 178 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 174 | 1674 | 515 | 205 | 1721 | 530 | 336 | 965 | 426 | 305 | 609 | 267 |
| Arrive On Green | 0.05 | 0.34 | 0.34 | 0.06 | 0.35 | 0.35 | 0.19 | 0.28 | 0.28 | 0.09 | 0.18 | 0.18 |
| Sat Flow, veh/h | 3374 | 4985 | 1534 | 3374 | 4985 | 1534 | 1739 | 3469 | 1531 | 3374 | 3469 | 1521 |
| Grp Volume(v), veh/h | 72 | 805 | 296 | 122 | 1425 | 77 | 291 | 162 | 77 | 215 | 368 | 178 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1662 | 1534 | 1687 | 1662 | 1534 | 1739 | 1735 | 1531 | 1687 | 1735 | 1521 |
| Q Serve(g_s), s | 1.6 | 9.7 | 12.1 | 2.7 | 19.9 | 2.6 | 12.3 | 2.7 | 2.9 | 4.7 | 7.4 | 8.3 |
| Cycle Q Clear(g_c), s | 1.6 | 9.7 | 12.1 | 2.7 | 19.9 | 2.6 | 12.3 | 2.7 | 2.9 | 4.7 | 7.4 | 8.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 174 | 1674 | 515 | 205 | 1721 | 530 | 336 | 965 | 426 | 305 | 609 | 267 |
| V/C Ratio(X) | 0.41 | 0.48 | 0.57 | 0.59 | 0.83 | 0.15 | 0.87 | 0.17 | 0.18 | 0.70 | 0.60 | 0.67 |
| Avail Cap(c_a), veh/h | 262 | 1761 | 542 | 320 | 1846 | 568 | 435 | 1262 | 557 | 471 | 878 | 385 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.9 | 20.0 | 20.7 | 34.7 | 22.8 | 17.1 | 29.7 | 20.7 | 20.8 | 33.5 | 28.8 | 29.2 |
| Incr Delay (d2), s/veh | 1.6 | 0.2 | 1.4 | 2.7 | 3.1 | 0.1 | 13.7 | 0.1 | 0.2 | 3.0 | 1.0 | 2.9 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 3.4 | 4.0 | 1.1 | 7.3 | 0.8 | 6.1 | 1.0 | 1.0 | 1.9 | 3.0 | 3.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.5 | 20.2 | 22.1 | 37.5 | 25.9 | 17.2 | 43.3 | 20.8 | 21.0 | 36.5 | 29.8 | 32.0 |
| LnGrp LOS | D | C | C | D | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 1173 | | | 1624 | | | 530 | | | 761 | |
| Approach Delay, s/veh | | 21.7 | | | 26.3 | | | 33.2 | | | 32.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.9 | 26.0 | 8.6 | 30.4 | 18.6 | 18.2 | 7.9 | 31.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 10.6 | 27.6 | 7.2 | 26.8 | 19.0 | 19.2 | 5.9 | 28.1 |
| Max Q Clear Time (g_c+I1), s | 6.7 | 4.9 | 4.7 | 14.1 | 14.3 | 10.3 | 3.6 | 21.9 |
| Green Ext Time (p_c), s | 0.2 | 1.1 | 0.1 | 5.0 | 0.4 | 1.9 | 0.0 | 4.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 27.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 72 | 805 | 370 | 122 | 1425 | 95 | 291 | 162 | 96 | 215 | 368 | 222 |
| v/c Ratio | 0.29 | 0.50 | 0.51 | 0.42 | 0.85 | 0.15 | 0.80 | 0.17 | 0.19 | 0.54 | 0.60 | 0.53 |
| Control Delay (s/veh) | 42.3 | 24.6 | 6.1 | 42.7 | 32.3 | 0.8 | 49.5 | 23.7 | 4.0 | 40.8 | 35.7 | 12.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 42.3 | 24.6 | 6.1 | 42.7 | 32.3 | 0.8 | 49.5 | 23.7 | 4.0 | 40.8 | 35.7 | 12.8 |
| Queue Length 50th (ft) | 19 | 130 | 5 | 32 | 264 | 0 | 148 | 35 | 0 | 57 | 97 | 17 |
| Queue Length 95th (ft) | 42 | 180 | 72 | 62 | #378 | 3 | #286 | 59 | 24 | 96 | 142 | 80 |
| Internal Link Dist (ft) | | 2532 | | | 4548 | | | 2495 | | | 509 | |
| Turn Bay Length (ft) | 200 | | 100 | 300 | | 100 | 150 | | 60 | 180 | | 75 |
| Base Capacity (vph) | 250 | 1687 | 746 | 306 | 1769 | 644 | 416 | 1209 | 604 | 450 | 841 | 505 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.29 | 0.48 | 0.50 | 0.40 | 0.81 | 0.15 | 0.70 | 0.13 | 0.16 | 0.48 | 0.44 | 0.44 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 128.3 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 12 | 28 | 300 | 72 | 169 | 1 | 556 | 125 | 59 | 0 | 59 | 16 |
| Future Vol, veh/h | 12 | 28 | 300 | 72 | 169 | 1 | 556 | 125 | 59 | 0 | 59 | 16 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.25 | 0.91 | 0.91 |
| Heavy Vehicles, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Mvmt Flow | 13 | 31 | 330 | 79 | 186 | 1 | 611 | 137 | 65 | 0 | 65 | 18 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 22.9 | 19.6 | 224 | 13 |
| HCM LOS | C | C | F | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 75% | 4% | 30% | 0% |
| Vol Thru, % | 17% | 8% | 70% | 79% |
| Vol Right, % | 8% | 88% | 0% | 21% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 740 | 340 | 242 | 75 |
| LT Vol | 556 | 12 | 72 | 0 |
| Through Vol | 125 | 28 | 169 | 59 |
| RT Vol | 59 | 300 | 1 | 16 |
| Lane Flow Rate | 813 | 374 | 266 | 82 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.434 | 0.649 | 0.518 | 0.169 |
| Departure Headway (Hd) | 6.347 | 7.318 | 8.15 | 8.279 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 577 | 497 | 447 | 436 |
| Service Time | 4.411 | 5.318 | 6.15 | 6.279 |
| HCM Lane V/C Ratio | 1.409 | 0.753 | 0.595 | 0.188 |
| HCM Control Delay, s/veh | 224 | 22.9 | 19.6 | 13 |
| HCM Lane LOS | F | C | C | B |
| HCM 95th-tile Q | 38.3 | 4.6 | 2.9 | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 103.9 |

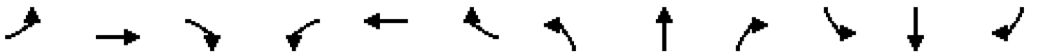
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 259 | 67 | 607 | 151 | 16 | 523 |
| Future Vol, veh/h | 259 | 67 | 607 | 151 | 16 | 523 |
| Conflicting Peds, #/hr | 10 | 10 | 0 | 10 | 10 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 282 | 73 | 660 | 164 | 17 | 568 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1365 | 762 | 0 | 0 | 834 | 0 |
| Stage 1 | 752 | - | - | - | - | - |
| Stage 2 | 613 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | ~ 162 | 405 | - | - | 799 | - |
| Stage 1 | 466 | - | - | - | - | - |
| Stage 2 | 540 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | ~ 154 | 397 | - | - | 792 | - |
| Mov Cap-2 Maneuver | ~ 154 | - | - | - | - | - |
| Stage 1 | 461 | - | - | - | - | - |
| Stage 2 | 518 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | $ 516.8 | 0 | 0.29 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 176 | 53 | - |
| HCM Lane V/C Ratio | - | - | 2.009 | 0.022 | - |
| HCM Ctrl Dly (s/v) | - | - | $ 516.8 | 9.6 | 0 |
| HCM Lane LOS | - | - | F | A | A |
| HCM 95th %tile Q(veh) | - | - | 27.1 | 0.1 | - |

| Notes | |
|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s |
| +: Computation Not Defined | *: All major volume in platoon |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 102 | 602 | 51 | 151 | 463 | 381 | 152 | 197 | 48 | 261 | 280 | 207 |
| Future Volume (veh/h) | 102 | 602 | 51 | 151 | 463 | 381 | 152 | 197 | 48 | 261 | 280 | 207 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 111 | 654 | 44 | 164 | 503 | 331 | 165 | 214 | 42 | 284 | 304 | 186 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 140 | 878 | 59 | 199 | 548 | 457 | 199 | 445 | 373 | 323 | 332 | 203 |
| Arrive On Green | 0.08 | 0.26 | 0.26 | 0.11 | 0.29 | 0.29 | 0.11 | 0.24 | 0.24 | 0.18 | 0.31 | 0.31 |
| Sat Flow, veh/h | 1781 | 3376 | 227 | 1781 | 1870 | 1558 | 1781 | 1870 | 1565 | 1781 | 1079 | 660 |
| Grp Volume(v), veh/h | 111 | 344 | 354 | 164 | 503 | 331 | 165 | 214 | 42 | 284 | 0 | 490 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1826 | 1781 | 1870 | 1558 | 1781 | 1870 | 1565 | 1781 | 0 | 1739 |
| Q Serve(g_s), s | 5.2 | 15.2 | 15.2 | 7.7 | 22.2 | 16.3 | 7.7 | 8.4 | 1.8 | 13.2 | 0.0 | 23.2 |
| Cycle Q Clear(g_c), s | 5.2 | 15.2 | 15.2 | 7.7 | 22.2 | 16.3 | 7.7 | 8.4 | 1.8 | 13.2 | 0.0 | 23.2 |
| Prop In Lane | 1.00 | | 0.12 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.38 |
| Lane Grp Cap(c), veh/h | 140 | 462 | 475 | 199 | 548 | 457 | 199 | 445 | 373 | 323 | 0 | 535 |
| V/C Ratio(X) | 0.79 | 0.74 | 0.75 | 0.82 | 0.92 | 0.72 | 0.83 | 0.48 | 0.11 | 0.88 | 0.00 | 0.92 |
| Avail Cap(c_a), veh/h | 146 | 462 | 475 | 234 | 572 | 477 | 209 | 452 | 378 | 386 | 0 | 593 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 38.6 | 29.0 | 29.0 | 37.1 | 29.1 | 27.1 | 37.1 | 28.0 | 25.5 | 34.0 | 0.0 | 28.5 |
| Incr Delay (d2), s/veh | 24.3 | 6.4 | 6.3 | 18.2 | 19.4 | 5.2 | 22.5 | 0.8 | 0.1 | 17.7 | 0.0 | 18.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.1 | 6.7 | 6.9 | 4.1 | 11.9 | 6.1 | 4.4 | 3.6 | 0.6 | 6.9 | 0.0 | 11.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 63.0 | 35.4 | 35.3 | 55.3 | 48.5 | 32.2 | 59.6 | 28.8 | 25.6 | 51.7 | 0.0 | 46.6 |
| LnGrp LOS | E | D | D | E | D | C | E | C | C | D | | D |
| Approach Vol, veh/h | | 809 | | | 998 | | | 421 | | | 774 | |
| Approach Delay, s/veh | | 39.2 | | | 44.2 | | | 40.5 | | | 48.5 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 19.5 | 25.2 | 13.5 | 27.1 | 13.6 | 31.1 | 10.7 | 29.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 18.5 | 20.6 | 11.2 | 21.9 | 10.0 | 29.1 | 7.0 | 26.1 |
| Max Q Clear Time (g_c+I1), s | 15.2 | 10.4 | 9.7 | 17.2 | 9.7 | 25.2 | 7.2 | 24.2 |
| Green Ext Time (p_c), s | 0.3 | 0.8 | 0.1 | 1.6 | 0.0 | 1.1 | 0.0 | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 43.4 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 111 | 709 | 164 | 503 | 414 | 165 | 214 | 52 | 284 | 529 |
| v/c Ratio | 0.79 | 0.81 | 0.77 | 0.93 | 0.74 | 0.83 | 0.49 | 0.10 | 0.83 | 0.93 |
| Control Delay (s/veh) | 78.4 | 40.0 | 62.0 | 57.4 | 26.1 | 72.2 | 34.3 | 0.4 | 55.6 | 52.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 78.4 | 40.0 | 62.0 | 57.4 | 26.1 | 72.2 | 34.3 | 0.4 | 55.6 | 52.5 |
| Queue Length 50th (ft) | 63 | 199 | 91 | 277 | 127 | 94 | 107 | 0 | 154 | 265 |
| Queue Length 95th (ft) | #156 | #286 | #188 | #468 | #247 | #204 | 176 | 0 | #276 | #462 |
| Internal Link Dist (ft) | | 1 | | 1257 | | | 2574 | | | 2558 |
| Turn Bay Length (ft) | 115 | | 260 | | 55 | 155 | | | 205 | |
| Base Capacity (vph) | 140 | 877 | 225 | 553 | 568 | 201 | 441 | 531 | 372 | 596 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.79 | 0.81 | 0.73 | 0.91 | 0.73 | 0.82 | 0.49 | 0.10 | 0.76 | 0.89 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

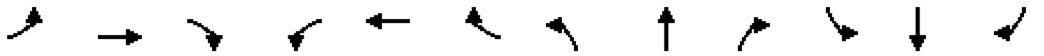
| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 6 | 6 | 17 | 8 | 45 | 3 | 284 | 8 | 21 | 453 | 10 |
| Future Vol, veh/h | 3 | 6 | 6 | 17 | 8 | 45 | 3 | 284 | 8 | 21 | 453 | 10 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 100 | - | - | 255 | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 4 | 8 | 8 | 22 | 10 | 57 | 4 | 359 | 10 | 27 | 573 | 13 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1019 | 1024 | 593 | 1023 | 1031 | 385 | 596 | 0 | 0 | 380 | 0 | 0 |
| Stage 1 | 637 | 637 | - | 382 | 382 | - | - | - | - | - | - | - |
| Stage 2 | 382 | 387 | - | 640 | 649 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.15 | 6.55 | 6.25 | 7.15 | 6.55 | 6.25 | 4.15 | - | - | 4.15 | - | - |
| Critical Hdwy Stg 1 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.15 | 5.55 | - | 6.15 | 5.55 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.545 | 4.045 | 3.345 | 3.545 | 4.045 | 3.345 | 2.245 | - | - | 2.245 | - | - |
| Pot Cap-1 Maneuver | 213 | 233 | 500 | 211 | 230 | 657 | 966 | - | - | 1163 | - | - |
| Stage 1 | 461 | 467 | - | 634 | 607 | - | - | - | - | - | - | - |
| Stage 2 | 634 | 604 | - | 458 | 461 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 177 | 222 | 490 | 192 | 220 | 644 | 957 | - | - | 1152 | - | - |
| Mov Cap-2 Maneuver | 177 | 222 | - | 192 | 220 | - | - | - | - | - | - | - |
| Stage 1 | 446 | 452 | - | 626 | 599 | - | - | - | - | - | - | - |
| Stage 2 | 561 | 596 | - | 429 | 446 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 19.53 | 18.27 | 0.09 | 0.36 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 957 | - | - | 267 | 359 | 1152 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | - | 0.071 | 0.247 | 0.023 | - | - |
| HCM Ctrl Dly (s/v) | 8.8 | - | - | 19.5 | 18.3 | 8.2 | - | - |
| HCM Lane LOS | A | - | - | C | C | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 1 | 0.1 | - | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 40 | 312 | 110 | 120 | 358 | 33 | 111 | 229 | 49 | 38 | 398 | 81 |
| Future Volume (veh/h) | 40 | 312 | 110 | 120 | 358 | 33 | 111 | 229 | 49 | 38 | 398 | 81 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 45 | 351 | 99 | 135 | 402 | 29 | 125 | 257 | 44 | 43 | 447 | 73 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 71 | 577 | 160 | 170 | 458 | 33 | 158 | 697 | 583 | 69 | 505 | 83 |
| Arrive On Green | 0.04 | 0.22 | 0.22 | 0.10 | 0.27 | 0.27 | 0.09 | 0.38 | 0.38 | 0.04 | 0.33 | 0.33 |
| Sat Flow, veh/h | 1739 | 2672 | 742 | 1739 | 1680 | 121 | 1739 | 1826 | 1527 | 1739 | 1527 | 249 |
| Grp Volume(v), veh/h | 45 | 226 | 224 | 135 | 0 | 431 | 125 | 257 | 44 | 43 | 0 | 520 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1680 | 1739 | 0 | 1801 | 1739 | 1826 | 1527 | 1739 | 0 | 1776 |
| Q Serve(g_s), s | 1.9 | 8.7 | 8.9 | 5.6 | 0.0 | 16.9 | 5.2 | 7.5 | 1.4 | 1.8 | 0.0 | 20.5 |
| Cycle Q Clear(g_c), s | 1.9 | 8.7 | 8.9 | 5.6 | 0.0 | 16.9 | 5.2 | 7.5 | 1.4 | 1.8 | 0.0 | 20.5 |
| Prop In Lane | 1.00 | | 0.44 | 1.00 | | 0.07 | 1.00 | | 1.00 | 1.00 | | 0.14 |
| Lane Grp Cap(c), veh/h | 71 | 375 | 363 | 170 | 0 | 491 | 158 | 697 | 583 | 69 | 0 | 588 |
| V/C Ratio(X) | 0.63 | 0.60 | 0.62 | 0.80 | 0.00 | 0.88 | 0.79 | 0.37 | 0.08 | 0.62 | 0.00 | 0.88 |
| Avail Cap(c_a), veh/h | 120 | 467 | 452 | 242 | 0 | 611 | 214 | 835 | 698 | 151 | 0 | 747 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.9 | 26.1 | 26.2 | 32.6 | 0.0 | 25.7 | 32.9 | 16.4 | 14.5 | 35.0 | 0.0 | 23.4 |
| Incr Delay (d2), s/veh | 9.0 | 1.6 | 1.7 | 11.3 | 0.0 | 11.6 | 13.3 | 0.3 | 0.1 | 8.9 | 0.0 | 10.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 3.4 | 3.4 | 2.7 | 0.0 | 8.0 | 2.6 | 2.8 | 0.4 | 0.9 | 0.0 | 9.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 43.9 | 27.7 | 27.9 | 43.9 | 0.0 | 37.4 | 46.3 | 16.8 | 14.6 | 43.8 | 0.0 | 33.7 |
| LnGrp LOS | D | C | C | D | | D | D | B | B | D | | C |
| Approach Vol, veh/h | | 495 | | | 566 | | | 426 | | | 563 | |
| Approach Delay, s/veh | | 29.3 | | | 38.9 | | | 25.2 | | | 34.4 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.8 | 33.1 | 12.1 | 20.9 | 11.6 | 29.4 | 7.9 | 25.1 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 6.4 | 33.8 | 10.3 | 19.9 | 9.1 | 31.1 | 5.1 | 25.1 |
| Max Q Clear Time (g_c+I1), s | 3.8 | 9.5 | 7.6 | 10.9 | 7.2 | 22.5 | 3.9 | 18.9 |
| Green Ext Time (p_c), s | 0.0 | 1.4 | 0.1 | 1.6 | 0.0 | 2.0 | 0.0 | 1.2 |

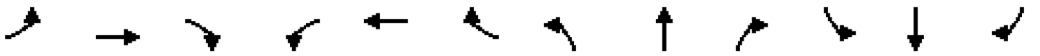
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 32.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 45 | 475 | 135 | 439 | 125 | 257 | 55 | 43 | 538 |
| v/c Ratio | 0.42 | 0.68 | 0.67 | 0.79 | 0.69 | 0.33 | 0.07 | 0.33 | 0.90 |
| Control Delay (s/veh) | 53.2 | 33.3 | 55.2 | 40.4 | 59.5 | 19.8 | 0.2 | 46.8 | 46.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 53.2 | 33.3 | 55.2 | 40.4 | 59.5 | 19.8 | 0.2 | 46.8 | 46.7 |
| Queue Length 50th (ft) | 25 | 114 | 75 | 236 | 70 | 105 | 0 | 24 | 279 |
| Queue Length 95th (ft) | #64 | 164 | #155 | #401 | #152 | 166 | 0 | 57 | #459 |
| Internal Link Dist (ft) | | 2553 | | 2529 | | 2558 | | | 2587 |
| Turn Bay Length (ft) | 235 | | 145 | | 200 | | | 85 | |
| Base Capacity (vph) | 107 | 837 | 216 | 568 | 191 | 783 | 750 | 134 | 673 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.42 | 0.57 | 0.63 | 0.77 | 0.65 | 0.33 | 0.07 | 0.32 | 0.80 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 46 | 252 | 318 | 135 | 382 | 42 | 495 | 378 | 60 | 62 | 738 | 122 |
| Future Volume (veh/h) | 46 | 252 | 318 | 135 | 382 | 42 | 495 | 378 | 60 | 62 | 738 | 122 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 54 | 296 | 299 | 159 | 449 | 40 | 582 | 445 | 57 | 73 | 868 | 117 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 69 | 305 | 254 | 161 | 762 | 335 | 553 | 1868 | 828 | 94 | 841 | 113 |
| Arrive On Green | 0.04 | 0.16 | 0.16 | 0.09 | 0.22 | 0.22 | 0.31 | 0.53 | 0.53 | 0.05 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1767 | 1856 | 1544 | 1767 | 3526 | 1551 | 1767 | 3526 | 1564 | 1767 | 3114 | 420 |
| Grp Volume(v), veh/h | 54 | 296 | 299 | 159 | 449 | 40 | 582 | 445 | 57 | 73 | 491 | 494 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1544 | 1767 | 1763 | 1551 | 1767 | 1763 | 1564 | 1767 | 1763 | 1771 |
| Q Serve(g_s), s | 3.3 | 17.4 | 18.1 | 9.9 | 12.6 | 2.3 | 34.4 | 7.5 | 2.0 | 4.5 | 29.7 | 29.7 |
| Cycle Q Clear(g_c), s | 3.3 | 17.4 | 18.1 | 9.9 | 12.6 | 2.3 | 34.4 | 7.5 | 2.0 | 4.5 | 29.7 | 29.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.24 |
| Lane Grp Cap(c), veh/h | 69 | 305 | 254 | 161 | 762 | 335 | 553 | 1868 | 828 | 94 | 476 | 478 |
| V/C Ratio(X) | 0.78 | 0.97 | 1.18 | 0.99 | 0.59 | 0.12 | 1.05 | 0.24 | 0.07 | 0.78 | 1.03 | 1.03 |
| Avail Cap(c_a), veh/h | 96 | 305 | 254 | 161 | 762 | 335 | 553 | 1868 | 828 | 162 | 476 | 478 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.4 | 45.7 | 46.0 | 49.9 | 38.7 | 34.7 | 37.8 | 13.9 | 12.6 | 51.5 | 40.2 | 40.2 |
| Incr Delay (d2), s/veh | 23.2 | 43.1 | 112.9 | 67.8 | 1.2 | 0.2 | 53.0 | 0.1 | 0.0 | 13.0 | 49.9 | 49.8 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.9 | 11.4 | 14.6 | 7.3 | 5.4 | 0.9 | 22.1 | 2.8 | 0.6 | 2.3 | 18.8 | 18.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 75.5 | 88.8 | 158.9 | 117.7 | 39.9 | 34.8 | 90.8 | 14.0 | 12.7 | 64.5 | 90.0 | 89.9 |
| LnGrp LOS | E | F | F | F | D | C | F | B | B | E | F | F |
| Approach Vol, veh/h | | 649 | | | 648 | | | 1084 | | | 1058 | |
| Approach Delay, s/veh | | 120.0 | | | 58.7 | | | 55.2 | | | 88.2 | |
| Approach LOS | | F | | | E | | | E | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.8 | 63.2 | 14.0 | 23.0 | 38.4 | 34.6 | 8.3 | 28.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 10.1 | 54.0 | 10.0 | 18.1 | 34.4 | 29.7 | 6.0 | 22.1 |
| Max Q Clear Time (g_c+I1), s | 6.5 | 9.5 | 11.9 | 20.1 | 36.4 | 31.7 | 5.3 | 14.6 |
| Green Ext Time (p_c), s | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 78.2 |
| HCM 7th LOS | E |

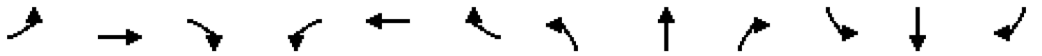


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 54 | 296 | 374 | 159 | 449 | 49 | 582 | 445 | 71 | 73 | 1012 |
| v/c Ratio | 0.57 | 0.98 | 0.73 | 1.00 | 0.58 | 0.11 | 1.06 | 0.24 | 0.08 | 0.52 | 1.09 |
| Control Delay (s/veh) | 74.8 | 92.9 | 17.4 | 122.6 | 42.8 | 0.5 | 93.9 | 15.7 | 1.6 | 61.3 | 93.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 74.8 | 92.9 | 17.4 | 122.6 | 42.8 | 0.5 | 93.9 | 15.7 | 1.6 | 61.3 | 93.6 |
| Queue Length 50th (ft) | 38 | 210 | 35 | 114 | 154 | 0 | ~454 | 92 | 0 | 50 | ~419 |
| Queue Length 95th (ft) | #84 | #349 | 116 | #230 | 195 | 0 | #610 | 118 | 11 | 92 | #500 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | |
| Base Capacity (vph) | 95 | 303 | 515 | 159 | 768 | 440 | 547 | 1823 | 838 | 160 | 932 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.57 | 0.98 | 0.73 | 1.00 | 0.58 | 0.11 | 1.06 | 0.24 | 0.08 | 0.46 | 1.09 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 232 | 0 | 31 | 603 | 845 | 0 | 0 | 530 | 668 |
| Future Volume (veh/h) | 0 | 0 | 0 | 232 | 0 | 31 | 603 | 845 | 0 | 0 | 530 | 668 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 1870 | 1870 | 0 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 270 | 0 | 36 | 701 | 983 | 0 | 0 | 616 | 626 |
| Peak Hour Factor | | | | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 313 | 0 | 278 | 793 | 2513 | 0 | 0 | 763 | 673 |
| Arrive On Green | | | | 0.18 | 0.00 | 0.18 | 0.23 | 0.71 | 0.00 | 0.00 | 0.43 | 0.43 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 3456 | 3647 | 0 | 0 | 1870 | 1567 |
| Grp Volume(v), veh/h | | | | 270 | 0 | 36 | 701 | 983 | 0 | 0 | 616 | 626 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 1728 | 1777 | 0 | 0 | 1777 | 1567 |
| Q Serve(g_s), s | | | | 12.3 | 0.0 | 1.6 | 16.4 | 9.3 | 0.0 | 0.0 | 25.3 | 31.7 |
| Cycle Q Clear(g_c), s | | | | 12.3 | 0.0 | 1.6 | 16.4 | 9.3 | 0.0 | 0.0 | 25.3 | 31.7 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 313 | 0 | 278 | 793 | 2513 | 0 | 0 | 763 | 673 |
| V/C Ratio(X) | | | | 0.86 | 0.00 | 0.13 | 0.88 | 0.39 | 0.00 | 0.00 | 0.81 | 0.93 |
| Avail Cap(c_a), veh/h | | | | 391 | 0 | 348 | 870 | 2637 | 0 | 0 | 786 | 693 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 33.4 | 0.0 | 29.0 | 31.1 | 4.9 | 0.0 | 0.0 | 20.8 | 22.6 |
| Incr Delay (d2), s/veh | | | | 15.1 | 0.0 | 0.2 | 10.1 | 0.1 | 0.0 | 0.0 | 6.1 | 18.9 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 6.5 | 0.0 | 0.6 | 7.4 | 2.2 | 0.0 | 0.0 | 10.4 | 13.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 48.5 | 0.0 | 29.2 | 41.1 | 5.0 | 0.0 | 0.0 | 26.9 | 41.5 |
| LnGrp LOS | | | | D | | C | D | A | | | C | D |
| Approach Vol, veh/h | | | | | 306 | | | 1684 | | | 1242 | |
| Approach Delay, s/veh | | | | | 46.3 | | | 20.1 | | | 34.2 | |
| Approach LOS | | | | | D | | | C | | | C | |

| Timer - Assigned Phs | 2 | | 5 | 6 | | 8 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 63.9 | | 23.1 | 40.7 | | 19.5 | | | | | | |
| Change Period (Y+Rc), s | 4.9 | | 4.0 | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 61.9 | | 21.0 | 36.9 | | 18.3 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 11.3 | | 18.4 | 33.7 | | 14.3 | | | | | | |
| Green Ext Time (p_c), s | 7.9 | | 0.8 | 2.2 | | 0.4 | | | | | | |

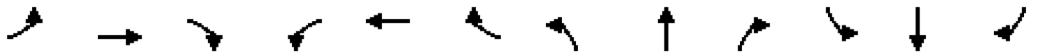
| Intersection Summary | | |
|---|---|---|
| HCM 7th Control Delay, s/veh | 28.0 | |
| HCM 7th LOS | C | |



| Lane Group | WBL | WBR | NBL | NBT | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 270 | 36 | 701 | 983 | 1393 |
| v/c Ratio | 0.79 | 0.10 | 0.86 | 0.40 | 0.90 |
| Control Delay (s/veh) | 51.2 | 2.5 | 44.5 | 6.4 | 25.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.2 | 2.5 | 44.5 | 6.4 | 25.8 |
| Queue Length 50th (ft) | 145 | 0 | 198 | 110 | 278 |
| Queue Length 95th (ft) | #238 | 6 | #270 | 133 | 347 |
| Internal Link Dist (ft) | | | | 535 | 971 |
| Turn Bay Length (ft) | | | 260 | | |
| Base Capacity (vph) | 387 | 393 | 864 | 2625 | 1651 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.70 | 0.09 | 0.81 | 0.37 | 0.84 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 235 | 0 | 394 | 0 | 0 | 0 | 0 | 1190 | 147 | 18 | 716 | 0 |
| Future Volume (veh/h) | 235 | 0 | 394 | 0 | 0 | 0 | 0 | 1190 | 147 | 18 | 716 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 258 | 0 | 346 | | | | 0 | 1308 | 131 | 20 | 787 | 0 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | | | | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 899 | 0 | 413 | | | | 0 | 1634 | 163 | 41 | 2119 | 0 |
| Arrive On Green | 0.26 | 0.00 | 0.26 | | | | 0.00 | 0.50 | 0.50 | 0.02 | 0.60 | 0.00 |
| Sat Flow, veh/h | 3456 | 0 | 1585 | | | | 0 | 3353 | 325 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 258 | 0 | 346 | | | | 0 | 710 | 729 | 20 | 787 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 0 | 1585 | | | | 0 | 1777 | 1808 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 4.1 | 0.0 | 14.1 | | | | 0.0 | 22.7 | 23.0 | 0.8 | 7.8 | 0.0 |
| Cycle Q Clear(g_c), s | 4.1 | 0.0 | 14.1 | | | | 0.0 | 22.7 | 23.0 | 0.8 | 7.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.18 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 899 | 0 | 413 | | | | 0 | 891 | 906 | 41 | 2119 | 0 |
| V/C Ratio(X) | 0.29 | 0.00 | 0.84 | | | | 0.00 | 0.80 | 0.80 | 0.49 | 0.37 | 0.00 |
| Avail Cap(c_a), veh/h | 1321 | 0 | 606 | | | | 0 | 1147 | 1167 | 133 | 2815 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 20.2 | 0.0 | 23.9 | | | | 0.0 | 14.1 | 14.2 | 33.0 | 7.2 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 6.8 | | | | 0.0 | 3.1 | 3.2 | 8.6 | 0.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 0.0 | 5.7 | | | | 0.0 | 7.8 | 8.0 | 0.4 | 2.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 20.4 | 0.0 | 30.7 | | | | 0.0 | 17.2 | 17.4 | 41.6 | 7.3 | 0.0 |
| LnGrp LOS | C | | C | | | | | B | B | D | A | |
| Approach Vol, veh/h | | 604 | | | | | | 1439 | | | 807 | |
| Approach Delay, s/veh | | 26.3 | | | | | | 17.3 | | | 8.1 | |
| Approach LOS | | C | | | | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.5 | 39.1 | | 22.7 | | 45.6 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 44.1 | | 26.1 | | 54.1 |
| Max Q Clear Time (g_c+I1), s | 2.8 | 25.0 | | 16.1 | | 9.8 |
| Green Ext Time (p_c), s | 0.0 | 9.3 | | 1.7 | | 5.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 16.6 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 258 | 433 | 1470 | 20 | 787 |
| v/c Ratio | 0.28 | 0.79 | 0.80 | 0.14 | 0.39 |
| Control Delay (s/veh) | 22.3 | 25.7 | 18.9 | 40.6 | 8.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.3 | 25.7 | 18.9 | 40.6 | 8.8 |
| Queue Length 50th (ft) | 40 | 86 | 203 | 8 | 82 |
| Queue Length 95th (ft) | 89 | #248 | 469 | 34 | 145 |
| Internal Link Dist (ft) | | | 824 | | 535 |
| Turn Bay Length (ft) | | | | 90 | |
| Base Capacity (vph) | 1462 | 764 | 2421 | 147 | 2853 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.57 | 0.61 | 0.14 | 0.28 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 141 | 8 | 35 | 314 | 11 | 16 |
| Future Vol, veh/h | 141 | 8 | 35 | 314 | 11 | 16 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 88 | 88 | 88 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 160 | 9 | 40 | 357 | 13 | 18 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 179 | 0 | 621 | 185 |
| Stage 1 | - | - | - | - | 175 | - |
| Stage 2 | - | - | - | - | 446 | - |
| Critical Hdwy | - | - | 4.15 | - | 6.45 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | - | - | 2.245 | - | 3.545 | 3.345 |
| Pot Cap-1 Maneuver | - | - | 1378 | - | 446 | 850 |
| Stage 1 | - | - | - | - | 848 | - |
| Stage 2 | - | - | - | - | 639 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1365 | - | 422 | 834 |
| Mov Cap-2 Maneuver | - | - | - | - | 422 | - |
| Stage 1 | - | - | - | - | 840 | - |
| Stage 2 | - | - | - | - | 609 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.77 | 11.36 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 596 | - | - | 181 | - |
| HCM Lane V/C Ratio | 0.051 | - | - | 0.029 | - |
| HCM Ctrl Dly (s/v) | 11.4 | - | - | 7.7 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 26 | 630 | 856 | 14 | 5 | 50 |
| Future Vol, veh/h | 26 | 630 | 856 | 14 | 5 | 50 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 100 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 29 | 708 | 962 | 16 | 6 | 56 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 988 | 0 | - | 0 | 1402 | 990 |
| Stage 1 | - | - | - | - | 980 | - |
| Stage 2 | - | - | - | - | 422 | - |
| Critical Hdwy | 4.145 | - | - | - | 6.645 | 6.245 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.445 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.845 | - |
| Follow-up Hdwy | 2.2285 | - | - | - | 3.5285 | 3.3285 |
| Pot Cap-1 Maneuver | 693 | - | - | - | 141 | 297 |
| Stage 1 | - | - | - | - | 361 | - |
| Stage 2 | - | - | - | - | 628 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 686 | - | - | - | 133 | 291 |
| Mov Cap-2 Maneuver | - | - | - | - | 133 | - |
| Stage 1 | - | - | - | - | 342 | - |
| Stage 2 | - | - | - | - | 622 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.42 | 0 | 22.89 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 686 | - | - | - | 262 |
| HCM Lane V/C Ratio | 0.043 | - | - | - | 0.235 |
| HCM Ctrl Dly (s/v) | 10.5 | - | - | - | 22.9 |
| HCM Lane LOS | B | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.9 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 29.1 |

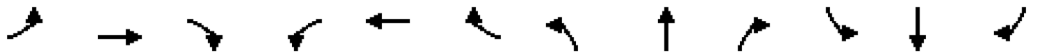
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 642 | 37 | 5 | 766 | 81 | 20 |
| Future Vol, veh/h | 642 | 37 | 5 | 766 | 81 | 20 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | 110 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 76 | 76 | 76 | 76 | 76 | 76 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 845 | 49 | 7 | 1008 | 107 | 26 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 903 | 0 | 1910 | 467 |
| Stage 1 | - | - | - | - | 879 | - |
| Stage 2 | - | - | - | - | 1031 | - |
| Critical Hdwy | - | - | 4.13 | - | 6.63 | 6.93 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.83 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.43 | - |
| Follow-up Hdwy | - | - | 2.219 | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | - | - | 751 | - | ~ 67 | 544 |
| Stage 1 | - | - | - | - | 367 | - |
| Stage 2 | - | - | - | - | 343 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 743 | - | ~ 65 | 533 |
| Mov Cap-2 Maneuver | - | - | - | - | ~ 65 | - |
| Stage 1 | - | - | - | - | 364 | - |
| Stage 2 | - | - | - | - | 337 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.06 | $ 446.26 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 79 | - | - | 743 | - |
| HCM Lane V/C Ratio | 1.685 | - | - | 0.009 | - |
| HCM Ctrl Dly (s/v) | $ 446.3 | - | - | 9.9 | - |
| HCM Lane LOS | F | - | - | A | - |
| HCM 95th %tile Q(veh) | 11.2 | - | - | 0 | - |

| Notes | |
|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s |
| +: Computation Not Defined | *: All major volume in platoon |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 48 | 266 | 319 | 99 | 402 | 11 | 146 | 278 | 43 | 28 | 326 | 108 |
| Future Volume (veh/h) | 48 | 266 | 319 | 99 | 402 | 11 | 146 | 278 | 43 | 28 | 326 | 108 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 62 | 345 | 331 | 129 | 522 | 11 | 190 | 361 | 46 | 36 | 423 | 117 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 79 | 884 | 390 | 160 | 536 | 11 | 141 | 188 | 785 | 43 | 291 | 74 |
| Arrive On Green | 0.04 | 0.25 | 0.25 | 0.09 | 0.30 | 0.30 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Sat Flow, veh/h | 1767 | 3526 | 1554 | 1767 | 1810 | 38 | 172 | 374 | 1563 | 0 | 579 | 148 |
| Grp Volume(v), veh/h | 62 | 345 | 331 | 129 | 0 | 533 | 551 | 0 | 46 | 576 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1554 | 1767 | 0 | 1848 | 546 | 0 | 1563 | 727 | 0 | 0 |
| Q Serve(g_s), s | 3.1 | 7.2 | 17.9 | 6.3 | 0.0 | 25.1 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 3.1 | 7.2 | 17.9 | 6.3 | 0.0 | 25.1 | 44.2 | 0.0 | 1.3 | 44.2 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.02 | 0.34 | | 1.00 | 0.06 | | 0.20 |
| Lane Grp Cap(c), veh/h | 79 | 884 | 390 | 160 | 0 | 548 | 329 | 0 | 785 | 408 | 0 | 0 |
| V/C Ratio(X) | 0.78 | 0.39 | 0.85 | 0.81 | 0.00 | 0.97 | 1.68 | 0.00 | 0.06 | 1.41 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 118 | 925 | 408 | 179 | 0 | 548 | 329 | 0 | 785 | 408 | 0 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 41.6 | 27.4 | 31.4 | 39.3 | 0.0 | 30.6 | 24.5 | 0.0 | 11.3 | 29.4 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 17.4 | 0.3 | 15.0 | 21.3 | 0.0 | 31.6 | 316.8 | 0.0 | 0.0 | 199.1 | 0.0 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 2.8 | 7.7 | 3.5 | 0.0 | 14.9 | 35.7 | 0.0 | 0.4 | 29.5 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 59.1 | 27.7 | 46.4 | 60.6 | 0.0 | 62.2 | 341.3 | 0.0 | 11.3 | 228.5 | 0.0 | 0.0 |
| LnGrp LOS | E | C | D | E | | E | F | | B | F | | |
| Approach Vol, veh/h | | 738 | | | 662 | | | 597 | | | 576 | |
| Approach Delay, s/veh | | 38.7 | | | 61.9 | | | 315.9 | | | 228.5 | |
| Approach LOS | | D | | | E | | | F | | | F | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 49.1 | 12.0 | 27.0 | | 49.1 | 8.0 | 31.0 | | | | |
| Change Period (Y+Rc), s | | 4.9 | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 44.2 | 8.9 | 23.1 | | 44.2 | 5.9 | 26.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 46.2 | 8.3 | 19.9 | | 46.2 | 5.1 | 27.1 | | | | |
| Green Ext Time (p_c), s | | 0.0 | 0.0 | 1.0 | | 0.0 | 0.0 | 0.0 | | | | |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 151.5 |
| HCM 7th LOS | F |

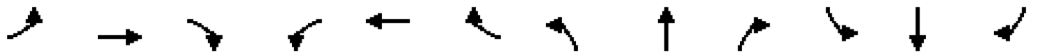


| Lane Group | EBL | EBT | EBR | WBL | WBT | NBT | NBR | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 62 | 345 | 414 | 129 | 536 | 551 | 56 | 599 |
| v/c Ratio | 0.53 | 0.41 | 0.68 | 0.75 | 0.98 | 1.04 | 0.07 | 0.70 |
| Control Delay (s/veh) | 58.7 | 29.6 | 14.0 | 66.4 | 67.4 | 76.4 | 2.4 | 22.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 58.7 | 29.6 | 14.0 | 66.4 | 67.4 | 76.4 | 2.4 | 22.2 |
| Queue Length 50th (ft) | 35 | 85 | 44 | 73 | ~306 | ~351 | 0 | 246 |
| Queue Length 95th (ft) | 64 | 104 | 83 | #124 | #397 | #424 | 9 | 287 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | 2587 | | 894 |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | |
| Base Capacity (vph) | 117 | 921 | 635 | 177 | 546 | 528 | 804 | 854 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.37 | 0.65 | 0.73 | 0.98 | 1.04 | 0.07 | 0.70 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 99 | 88 | 175 | 248 | 226 | 6 | 98 | 299 | 70 | 2 | 972 | 277 |
| Future Volume (veh/h) | 99 | 88 | 175 | 248 | 226 | 6 | 98 | 299 | 70 | 2 | 972 | 277 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 121 | 107 | 170 | 302 | 276 | 6 | 120 | 365 | 68 | 2 | 1185 | 273 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 152 | 283 | 235 | 337 | 477 | 399 | 150 | 1564 | 690 | 5 | 1274 | 560 |
| Arrive On Green | 0.09 | 0.15 | 0.15 | 0.19 | 0.26 | 0.26 | 0.08 | 0.44 | 0.44 | 0.00 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1542 | 1767 | 1856 | 1554 | 1767 | 3526 | 1555 | 1767 | 3526 | 1551 |
| Grp Volume(v), veh/h | 121 | 107 | 170 | 302 | 276 | 6 | 120 | 365 | 68 | 2 | 1185 | 273 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1542 | 1767 | 1856 | 1554 | 1767 | 1763 | 1555 | 1767 | 1763 | 1551 |
| Q Serve(g_s), s | 5.7 | 4.4 | 8.9 | 14.1 | 11.0 | 0.2 | 5.6 | 5.4 | 2.1 | 0.1 | 27.3 | 11.5 |
| Cycle Q Clear(g_c), s | 5.7 | 4.4 | 8.9 | 14.1 | 11.0 | 0.2 | 5.6 | 5.4 | 2.1 | 0.1 | 27.3 | 11.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 152 | 283 | 235 | 337 | 477 | 399 | 150 | 1564 | 690 | 5 | 1274 | 560 |
| V/C Ratio(X) | 0.80 | 0.38 | 0.72 | 0.90 | 0.58 | 0.02 | 0.80 | 0.23 | 0.10 | 0.42 | 0.93 | 0.49 |
| Avail Cap(c_a), veh/h | 191 | 396 | 329 | 337 | 550 | 460 | 151 | 1564 | 690 | 124 | 1291 | 568 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 37.8 | 32.2 | 34.1 | 33.3 | 27.4 | 23.4 | 37.9 | 14.6 | 13.7 | 42.0 | 25.9 | 20.9 |
| Incr Delay (d2), s/veh | 16.8 | 0.8 | 4.7 | 25.3 | 1.1 | 0.0 | 25.4 | 0.1 | 0.1 | 48.9 | 11.9 | 0.7 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.0 | 1.9 | 3.4 | 8.0 | 4.6 | 0.1 | 3.3 | 1.9 | 0.7 | 0.1 | 12.1 | 3.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 54.6 | 33.0 | 38.8 | 58.6 | 28.5 | 23.4 | 63.3 | 14.6 | 13.7 | 90.9 | 37.8 | 21.5 |
| LnGrp LOS | D | C | D | E | C | C | E | B | B | F | D | C |
| Approach Vol, veh/h | | 398 | | | 584 | | | 553 | | | 1460 | |
| Approach Delay, s/veh | | 42.0 | | | 44.0 | | | 25.1 | | | 34.8 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.2 | 42.3 | 20.1 | 17.8 | 11.2 | 35.4 | 11.3 | 26.6 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 32.2 | 16.1 | 18.0 | 7.2 | 30.9 | 9.1 | 25.0 |
| Max Q Clear Time (g_c+I1), s | 2.1 | 7.4 | 16.1 | 10.9 | 7.6 | 29.3 | 7.7 | 13.0 |
| Green Ext Time (p_c), s | 0.0 | 2.3 | 0.0 | 0.6 | 0.0 | 1.2 | 0.0 | 1.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 35.8 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 121 | 107 | 213 | 302 | 276 | 7 | 120 | 365 | 85 | 2 | 1185 | 338 |
| v/c Ratio | 0.66 | 0.44 | 0.61 | 0.89 | 0.67 | 0.02 | 0.79 | 0.21 | 0.10 | 0.02 | 0.91 | 0.51 |
| Control Delay (s/veh) | 55.5 | 38.4 | 17.2 | 63.3 | 38.5 | 0.0 | 74.5 | 14.3 | 0.3 | 38.5 | 37.4 | 13.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 55.5 | 38.4 | 17.2 | 63.3 | 38.5 | 0.0 | 74.5 | 14.3 | 0.3 | 38.5 | 37.4 | 13.5 |
| Queue Length 50th (ft) | 61 | 52 | 21 | 153 | 133 | 0 | 62 | 51 | 0 | 1 | 297 | 61 |
| Queue Length 95th (ft) | #125 | 89 | 66 | #285 | 188 | 0 | #145 | 100 | 0 | 8 | #416 | 128 |
| Internal Link Dist (ft) | | 2578 | | | 2549 | | | 1811 | | | 2540 | |
| Turn Bay Length (ft) | 240 | | 80 | 100 | | 25 | 240 | | 120 | 250 | | 95 |
| Base Capacity (vph) | 192 | 399 | 462 | 339 | 555 | 543 | 151 | 1699 | 812 | 124 | 1304 | 662 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.63 | 0.27 | 0.46 | 0.89 | 0.50 | 0.01 | 0.79 | 0.21 | 0.10 | 0.02 | 0.91 | 0.51 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# MOVEMENT SUMMARY

**Site: [1 (3)] Temperance - Alluvial NT+ MP AM** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Temperance - Alluvial
Near-Term With Master Plan
AM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] ft | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Temperance Ave | | | | | | | | | | | | | | | |
| 3 | L2 | All MCs | 189 | 3.0 | 189 | 3.0 | 0.383 | 7.0 | LOS A | 2.6 | 67.7 | 0.53 | 0.32 | 0.53 | 30.8 |
| 8 | T1 | All MCs | 429 | 3.0 | 429 | 3.0 | 0.383 | 6.7 | LOS A | 2.7 | 69.7 | 0.52 | 0.31 | 0.52 | 32.9 |
| 18 | R2 | All MCs | 301 | 3.0 | 301 | 3.0 | 0.383 | 6.4 | LOS A | 2.7 | 69.7 | 0.51 | 0.29 | 0.51 | 33.6 |
| Approach | | | 919 | 3.0 | 919 | 3.0 | 0.383 | 6.7 | LOS A | 2.7 | 69.7 | 0.52 | 0.30 | 0.52 | 32.6 |
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 266 | 3.0 | 266 | 3.0 | 0.242 | 7.1 | LOS A | 1.1 | 28.9 | 0.60 | 0.50 | 0.60 | 28.3 |
| 6 | T1 | All MCs | 41 | 3.0 | 41 | 3.0 | 0.242 | 6.6 | LOS A | 1.1 | 28.9 | 0.60 | 0.48 | 0.60 | 34.3 |
| 16 | R2 | All MCs | 93 | 3.0 | 93 | 3.0 | 0.242 | 6.6 | LOS A | 1.1 | 28.9 | 0.60 | 0.48 | 0.60 | 34.0 |
| Approach | | | 400 | 3.0 | 400 | 3.0 | 0.242 | 6.9 | LOS A | 1.1 | 28.9 | 0.60 | 0.49 | 0.60 | 30.5 |
| North: Temperance Ave | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 125 | 3.0 | 125 | 3.0 | 0.841 | 24.8 | LOS C | 15.4 | 394.7 | 0.90 | 1.13 | 1.99 | 28.1 |
| 4 | T1 | All MCs | 1266 | 3.0 | 1266 | 3.0 | 0.841 | 24.2 | LOS C | 15.9 | 407.0 | 0.90 | 1.13 | 1.98 | 23.7 |
| 14 | R2 | All MCs | 155 | 3.0 | 155 | 3.0 | 0.841 | 23.6 | LOS C | 15.9 | 407.0 | 0.90 | 1.12 | 1.97 | 29.0 |
| Approach | | | 1546 | 3.0 | 1546 | 3.0 | 0.841 | 24.2 | LOS C | 15.9 | 407.0 | 0.90 | 1.13 | 1.98 | 24.8 |
| West: Alluvial Ave | | | | | | | | | | | | | | | |
| 5 | L2 | All MCs | 58 | 3.0 | 58 | 3.0 | 0.298 | 16.8 | LOS C | 1.4 | 35.7 | 0.83 | 0.84 | 0.88 | 28.9 |
| 2 | T1 | All MCs | 41 | 3.0 | 41 | 3.0 | 0.298 | 16.8 | LOS C | 1.4 | 35.7 | 0.83 | 0.84 | 0.88 | 29.5 |
| 12 | R2 | All MCs | 164 | 3.0 | 164 | 3.0 | 0.356 | 13.8 | LOS B | 2.0 | 50.2 | 0.87 | 0.84 | 0.95 | 27.2 |
| Approach | | | 263 | 3.0 | 263 | 3.0 | 0.356 | 14.9 | LOS B | 2.0 | 50.2 | 0.85 | 0.84 | 0.92 | 28.1 |
| All Vehicles | | | 3127 | 3.0 | 3127 | 3.0 | 0.841 | 16.1 | LOS C | 15.9 | 407.0 | 0.75 | 0.78 | 1.29 | 27.6 |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 84 | 0 | 135 | 0 | 669 | 949 | 0 | 838 | 736 |
| Future Volume (veh/h) | 0 | 0 | 0 | 84 | 0 | 135 | 0 | 669 | 949 | 0 | 838 | 736 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 0 | 1870 | 1870 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 93 | 0 | 150 | 0 | 743 | 0 | 0 | 931 | 660 |
| Peak Hour Factor | | | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Cap, veh/h | | | | 256 | 0 | 228 | 0 | 2176 | 970 | 0 | 2176 | 962 |
| Arrive On Green | | | | 0.14 | 0.00 | 0.14 | 0.00 | 0.61 | 0.00 | 0.00 | 0.61 | 0.61 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 0 | 3647 | 1585 | 0 | 3647 | 1572 |
| Grp Volume(v), veh/h | | | | 93 | 0 | 150 | 0 | 743 | 0 | 0 | 931 | 660 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 0 | 1777 | 1585 | 0 | 1777 | 1572 |
| Q Serve(g_s), s | | | | 1.9 | 0.0 | 3.6 | 0.0 | 4.1 | 0.0 | 0.0 | 5.5 | 11.3 |
| Cycle Q Clear(g_c), s | | | | 1.9 | 0.0 | 3.6 | 0.0 | 4.1 | 0.0 | 0.0 | 5.5 | 11.3 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 256 | 0 | 228 | 0 | 2176 | 970 | 0 | 2176 | 962 |
| V/C Ratio(X) | | | | 0.36 | 0.00 | 0.66 | 0.00 | 0.34 | 0.00 | 0.00 | 0.43 | 0.69 |
| Avail Cap(c_a), veh/h | | | | 803 | 0 | 715 | 0 | 5499 | 2453 | 0 | 5499 | 2433 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 15.5 | 0.0 | 16.3 | 0.0 | 3.8 | 0.0 | 0.0 | 4.1 | 5.2 |
| Incr Delay (d2), s/veh | | | | 0.9 | 0.0 | 3.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.9 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 0.7 | 0.0 | 1.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.4 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 16.4 | 0.0 | 19.5 | 0.0 | 3.9 | 0.0 | 0.0 | 4.2 | 6.1 |
| LnGrp LOS | | | | B | | B | | A | | | A | A |
| Approach Vol, veh/h | | | | | 243 | | | 743 | | | 1591 | |
| Approach Delay, s/veh | | | | | 18.3 | | | 3.9 | | | 5.0 | |
| Approach LOS | | | | | B | | | A | | | A | |

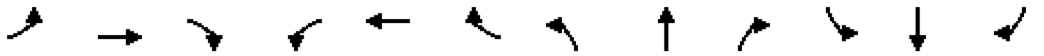
| Timer - Assigned Phs | 2 | | 6 | 8 |
|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 29.5 | | 29.5 | 10.7 |
| Change Period (Y+Rc), s | 4.9 | | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 62.1 | | 62.1 | 18.1 |
| Max Q Clear Time (g_c+I1), s | 6.1 | | 13.3 | 5.6 |
| Green Ext Time (p_c), s | 5.2 | | 11.3 | 0.6 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 5.9 |
| HCM 7th LOS | A |



| Lane Group | WBL | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 93 | 150 | 743 | 1054 | 931 | 818 |
| v/c Ratio | 0.30 | 0.39 | 0.30 | 0.77 | 0.37 | 0.62 |
| Control Delay (s/veh) | 25.0 | 9.1 | 4.2 | 4.7 | 4.6 | 2.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 |
| Total Delay (s/veh) | 25.0 | 9.1 | 4.2 | 5.3 | 4.6 | 2.6 |
| Queue Length 50th (ft) | 19 | 0 | 39 | 0 | 53 | 0 |
| Queue Length 95th (ft) | 89 | 50 | 79 | 29 | 104 | 27 |
| Internal Link Dist (ft) | | | 518 | | 438 | |
| Turn Bay Length (ft) | | | | | | 160 |
| Base Capacity (vph) | 720 | 716 | 3348 | 1488 | 3348 | 1502 |
| Starvation Cap Reductn | 0 | 0 | 0 | 146 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.13 | 0.21 | 0.22 | 0.79 | 0.28 | 0.54 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 252 | 0 | 900 | 0 | 0 | 0 | 0 | 1338 | 40 | 29 | 876 | 0 |
| Future Volume (veh/h) | 252 | 0 | 900 | 0 | 0 | 0 | 0 | 1338 | 40 | 29 | 876 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 0 | 1856 | | | | 0 | 1856 | 1856 | 1856 | 1856 | 0 |
| Adj Flow Rate, veh/h | 274 | 0 | 782 | | | | 0 | 1454 | 34 | 32 | 952 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 0 | 3 | | | | 0 | 3 | 3 | 3 | 3 | 0 |
| Cap, veh/h | 900 | 0 | 801 | | | | 0 | 1307 | 31 | 44 | 1493 | 0 |
| Arrive On Green | 0.51 | 0.00 | 0.51 | | | | 0.00 | 0.37 | 0.37 | 0.02 | 0.42 | 0.00 |
| Sat Flow, veh/h | 1767 | 0 | 1572 | | | | 0 | 3614 | 82 | 1767 | 3618 | 0 |
| Grp Volume(v), veh/h | 274 | 0 | 782 | | | | 0 | 727 | 761 | 32 | 952 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1572 | | | | 0 | 1763 | 1841 | 1767 | 1763 | 0 |
| Q Serve(g_s), s | 13.1 | 0.0 | 70.9 | | | | 0.0 | 54.2 | 54.2 | 2.6 | 31.1 | 0.0 |
| Cycle Q Clear(g_c), s | 13.1 | 0.0 | 70.9 | | | | 0.0 | 54.2 | 54.2 | 2.6 | 31.1 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.04 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 900 | 0 | 801 | | | | 0 | 654 | 683 | 44 | 1493 | 0 |
| V/C Ratio(X) | 0.30 | 0.00 | 0.98 | | | | 0.00 | 1.11 | 1.11 | 0.73 | 0.64 | 0.00 |
| Avail Cap(c_a), veh/h | 921 | 0 | 820 | | | | 0 | 654 | 683 | 71 | 1548 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 20.8 | 0.0 | 35.0 | | | | 0.0 | 45.9 | 45.9 | 70.7 | 33.2 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 25.4 | | | | 0.0 | 69.7 | 69.9 | 20.2 | 0.8 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.6 | 0.0 | 32.1 | | | | 0.0 | 35.3 | 36.9 | 1.4 | 13.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 21.0 | 0.0 | 60.4 | | | | 0.0 | 115.6 | 115.8 | 90.9 | 34.1 | 0.0 |
| LnGrp LOS | C | | E | | | | | F | F | F | C | |
| Approach Vol, veh/h | | 1056 | | | | | | 1488 | | | 984 | |
| Approach Delay, s/veh | | 50.2 | | | | | | 115.7 | | | 35.9 | |
| Approach LOS | | D | | | | | | F | | | D | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 59.1 | | 79.3 | | 66.7 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 5.9 | 54.2 | | 76.1 | | 64.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 4.6 | 56.2 | | 72.9 | | 33.1 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 1.5 | | 6.8 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 73.8 | | | | | | | | | |
| HCM 7th LOS | | | E | | | | | | | | | |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 274 | 978 | 1497 | 32 | 952 |
| v/c Ratio | 0.30 | 1.20 | 1.15 | 0.46 | 0.66 |
| Control Delay (s/veh) | 21.6 | 133.3 | 119.5 | 91.5 | 37.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 |
| Total Delay (s/veh) | 21.6 | 133.3 | 119.5 | 91.5 | 38.8 |
| Queue Length 50th (ft) | 153 | ~1156 | ~926 | 31 | 382 |
| Queue Length 95th (ft) | 218 | #1421 | #1068 | #71 | 456 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 913 | 814 | 1298 | 70 | 1539 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 382 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.30 | 1.20 | 1.15 | 0.46 | 0.82 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 60.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 19 | 258 | 36 | 9 | 348 | 41 | 64 | 10 | 23 | 120 | 74 | 90 |
| Future Vol, veh/h | 19 | 258 | 36 | 9 | 348 | 41 | 64 | 10 | 23 | 120 | 74 | 90 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 245 | - | - | 100 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 25 | 344 | 48 | 12 | 464 | 55 | 85 | 13 | 31 | 160 | 99 | 120 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 529 | 0 | 0 | 402 | 0 | 0 | 976 | 981 | 216 | 765 | 978 | 511 |
| Stage 1 | - | - | - | - | - | - | 429 | 429 | - | 525 | 525 | - |
| Stage 2 | - | - | - | - | - | - | 547 | 553 | - | 239 | 453 | - |
| Critical Hdwy | 4.175 | - | - | 4.175 | - | - | 7.375 | 6.575 | 6.975 | 7.375 | 6.575 | 6.275 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.575 | 5.575 | - | 6.175 | 5.575 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.175 | 5.575 | - | 6.575 | 5.575 | - |
| Follow-up Hdwy | 2.2475 | - | - | 2.2475 | - | - | 3.5475 | 4.0475 | 3.3475 | 3.5475 | 4.0475 | 3.3475 |
| Pot Cap-1 Maneuver | 1019 | - | - | 1136 | - | - | 214 | 245 | 781 | 302 | 246 | 554 |
| Stage 1 | - | - | - | - | - | - | 569 | 577 | - | 528 | 522 | - |
| Stage 2 | - | - | - | - | - | - | 513 | 507 | - | 736 | 563 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1009 | - | - | 1125 | - | - | 92 | 231 | 766 | 259 | 233 | 544 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 92 | 231 | - | 259 | 233 | - |
| Stage 1 | - | - | - | - | - | - | 549 | 557 | - | 517 | 512 | - |
| Stage 2 | - | - | - | - | - | - | 316 | 497 | - | 666 | 544 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.53 | 0.19 | 153.32 | 178 |
| HCM LOS | | | F | F |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 126 | 1009 | - | - | 1125 | - | - | 300 |
| HCM Lane V/C Ratio | 1.023 | 0.025 | - | - | 0.011 | - | - | 1.263 |
| HCM Ctrl Dly (s/v) | 153.3 | 8.7 | - | - | 8.2 | - | - | 178 |
| HCM Lane LOS | F | A | - | - | A | - | - | F |
| HCM 95th %tile Q(veh) | 7.1 | 0.1 | - | - | 0 | - | - | 17.8 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 12.3 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 139 | 2 | 2 | 1 | 4 | 1 | 7 | 4 | 1 | 1 | 5 | 454 |
| Future Vol, veh/h | 139 | 2 | 2 | 1 | 4 | 1 | 7 | 4 | 1 | 1 | 5 | 454 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 172 | 2 | 2 | 1 | 5 | 1 | 9 | 5 | 1 | 1 | 6 | 560 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 10.4 | 8.5 | 8.3 | 13.1 |
| HCM LOS | B | A | A | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 58% | 97% | 17% | 0% |
| Vol Thru, % | 33% | 1% | 67% | 1% |
| Vol Right, % | 8% | 1% | 17% | 99% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 12 | 143 | 6 | 460 |
| LT Vol | 7 | 139 | 1 | 1 |
| Through Vol | 4 | 2 | 4 | 5 |
| RT Vol | 1 | 2 | 1 | 454 |
| Lane Flow Rate | 15 | 177 | 7 | 568 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.021 | 0.263 | 0.011 | 0.619 |
| Departure Headway (Hd) | 5.129 | 5.366 | 5.383 | 3.927 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 695 | 666 | 659 | 920 |
| Service Time | 3.18 | 3.432 | 3.46 | 1.946 |
| HCM Lane V/C Ratio | 0.022 | 0.266 | 0.011 | 0.617 |
| HCM Control Delay, s/veh | 8.3 | 10.4 | 8.5 | 13.1 |
| HCM Lane LOS | A | B | A | B |
| HCM 95th-tile Q | 0.1 | 1.1 | 0 | 4.4 |



| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Traffic Volume (veh/h) | 1 | 245 | 159 | 5 | 233 | 166 | 11 |
| Future Volume (veh/h) | 1 | 245 | 159 | 5 | 233 | 166 | 11 |
| Initial Q (Qb), veh | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | 0.98 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | | 336 | 218 | 7 | 319 | 227 | 15 |
| Peak Hour Factor | | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Percent Heavy Veh, % | | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | | 1059 | 465 | 17 | 850 | 375 | 334 |
| Arrive On Green | | 0.30 | 0.30 | 0.01 | 0.46 | 0.21 | 0.21 |
| Sat Flow, veh/h | | 3618 | 1546 | 1767 | 1856 | 1767 | 1572 |
| Grp Volume(v), veh/h | | 336 | 218 | 7 | 319 | 227 | 15 |
| Grp Sat Flow(s),veh/h/ln | | 1763 | 1546 | 1767 | 1856 | 1767 | 1572 |
| Q Serve(g_s), s | | 2.0 | 3.1 | 0.1 | 3.0 | 3.1 | 0.2 |
| Cycle Q Clear(g_c), s | | 2.0 | 3.1 | 0.1 | 3.0 | 3.1 | 0.2 |
| Prop In Lane | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | | 1059 | 465 | 17 | 850 | 375 | 334 |
| V/C Ratio(X) | | 0.32 | 0.47 | 0.42 | 0.38 | 0.61 | 0.04 |
| Avail Cap(c_a), veh/h | | 2494 | 1094 | 393 | 1313 | 1440 | 1281 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | 7.3 | 7.7 | 13.3 | 4.8 | 9.6 | 8.5 |
| Incr Delay (d2), s/veh | | 0.2 | 0.7 | 15.8 | 0.3 | 1.6 | 0.1 |
| Initial Q Delay(d3), s/veh | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | 0.3 | 0.5 | 0.1 | 0.2 | 0.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | |
| LnGrp Delay(d), s/veh | | 7.5 | 8.4 | 29.1 | 5.1 | 11.2 | 8.5 |
| LnGrp LOS | | A | A | C | A | B | A |
| Approach Vol, veh/h | | 554 | | | 326 | 242 | |
| Approach Delay, s/veh | | 7.8 | | | 5.6 | 11.0 | |
| Approach LOS | | A | | | A | B | |

| Timer - Assigned Phs | 2 | 3 | 4 | | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.7 | 4.3 | 13.0 | | | 17.3 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.9 | | | 4.9 |
| Max Green Setting (Gmax), s | 22.0 | 6.0 | 19.1 | | | 19.1 |
| Max Q Clear Time (g_c+I1), s | 5.1 | 2.1 | 5.1 | | | 5.0 |
| Green Ext Time (p_c), s | 0.6 | 0.0 | 2.2 | | | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 7.9 |
| HCM 7th LOS | A |

| Notes |
|---|
| User approved ignoring U-Turning movement. |

| Lane Group | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1 | 336 | 218 | 7 | 319 | 227 | 15 |
| v/c Ratio | 0.00 | 0.28 | 0.33 | 0.02 | 0.50 | 0.41 | 0.03 |
| Control Delay (s/veh) | 18.0 | 9.3 | 3.7 | 17.0 | 12.6 | 13.0 | 6.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 18.0 | 9.3 | 3.7 | 17.0 | 12.6 | 13.0 | 6.5 |
| Queue Length 50th (ft) | 0 | 16 | 0 | 1 | 33 | 24 | 0 |
| Queue Length 95th (ft) | 3 | 52 | 19 | 9 | 106 | 84 | 8 |
| Internal Link Dist (ft) | | 2566 | | | 4832 | 3848 | |
| Turn Bay Length (ft) | 240 | | 115 | 255 | | 250 | |
| Base Capacity (vph) | 355 | 2260 | 1051 | 355 | 1189 | 1301 | 1143 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.00 | 0.15 | 0.21 | 0.02 | 0.27 | 0.17 | 0.01 |

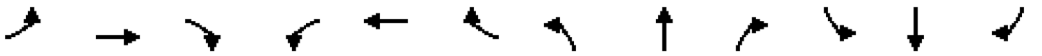
Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 142.5 |
| Intersection LOS | F |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 12 | 51 | 11 | 162 | 667 | 8 |
| Future Vol, veh/h | 12 | 51 | 11 | 162 | 667 | 8 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 15 | 63 | 14 | 200 | 823 | 10 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 1 |

| Approach | EB | WB | SB |
|---|---|---|---|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 2 | 0 |
| Conflicting Approach Left | SB | | WB |
| Conflicting Lanes Left | 2 | 0 | 1 |
| Conflicting Approach Right | | SB | EB |
| Conflicting Lanes Right | 0 | 2 | 2 |
| HCM Control Delay, s/veh | 11.5 | 13.2 | 187.9 |
| HCM LOS | B | B | F |

| Lane | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 6% | 0% | 0% |
| Vol Right, % | 0% | 0% | 94% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 12 | 51 | 173 | 667 | 8 |
| LT Vol | 12 | 0 | 0 | 667 | 0 |
| Through Vol | 0 | 51 | 11 | 0 | 0 |
| RT Vol | 0 | 0 | 162 | 0 | 8 |
| Lane Flow Rate | 15 | 63 | 214 | 823 | 10 |
| Geometry Grp | 5 | 5 | 3b | 5 | 5 |
| Degree of Util (X) | 0.03 | 0.12 | 0.348 | 1.358 | 0.013 |
| Departure Headway (Hd) | 8.303 | 7.789 | 6.687 | 5.936 | 4.729 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 434 | 463 | 542 | 609 | 749 |
| Service Time | 6.003 | 5.489 | 4.687 | 3.715 | 2.508 |
| HCM Lane V/C Ratio | 0.035 | 0.136 | 0.395 | 1.351 | 0.013 |
| HCM Control Delay, s/veh | 11.3 | 11.5 | 13.2 | 190.1 | 7.6 |
| HCM Lane LOS | B | B | B | F | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 1.5 | 35.4 | 0 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 162 | 216 | 51 | 35 | 591 | 19 | 124 | 25 | 12 | 7 | 81 | 668 |
| Future Volume (veh/h) | 162 | 216 | 51 | 35 | 591 | 19 | 124 | 25 | 12 | 7 | 81 | 668 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 208 | 277 | 52 | 45 | 758 | 19 | 159 | 32 | 12 | 9 | 104 | 688 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 237 | 935 | 409 | 57 | 806 | 352 | 171 | 1892 | 839 | 19 | 836 | 704 |
| Arrive On Green | 0.07 | 0.27 | 0.27 | 0.03 | 0.23 | 0.23 | 0.10 | 0.55 | 0.55 | 0.01 | 0.46 | 0.46 |
| Sat Flow, veh/h | 3374 | 3469 | 1519 | 1739 | 3469 | 1514 | 1739 | 3469 | 1539 | 1739 | 1826 | 1537 |
| Grp Volume(v), veh/h | 208 | 277 | 52 | 45 | 758 | 19 | 159 | 32 | 12 | 9 | 104 | 688 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1735 | 1519 | 1739 | 1735 | 1514 | 1739 | 1735 | 1539 | 1739 | 1826 | 1537 |
| Q Serve(g_s), s | 7.3 | 7.6 | 3.1 | 3.1 | 25.7 | 1.2 | 10.9 | 0.5 | 0.4 | 0.6 | 3.9 | 52.6 |
| Cycle Q Clear(g_c), s | 7.3 | 7.6 | 3.1 | 3.1 | 25.7 | 1.2 | 10.9 | 0.5 | 0.4 | 0.6 | 3.9 | 52.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 237 | 935 | 409 | 57 | 806 | 352 | 171 | 1892 | 839 | 19 | 836 | 704 |
| V/C Ratio(X) | 0.88 | 0.30 | 0.13 | 0.78 | 0.94 | 0.05 | 0.93 | 0.02 | 0.01 | 0.48 | 0.12 | 0.98 |
| Avail Cap(c_a), veh/h | 237 | 935 | 409 | 128 | 809 | 353 | 171 | 1892 | 839 | 86 | 839 | 707 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 55.1 | 34.7 | 33.1 | 57.4 | 45.1 | 35.7 | 53.5 | 12.5 | 12.5 | 58.8 | 18.7 | 31.9 |
| Incr Delay (d2), s/veh | 29.0 | 0.2 | 0.1 | 20.3 | 18.8 | 0.1 | 48.0 | 0.0 | 0.0 | 17.7 | 0.1 | 28.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.9 | 3.1 | 1.2 | 1.6 | 12.5 | 0.4 | 7.0 | 0.2 | 0.1 | 0.4 | 1.7 | 24.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 84.1 | 34.9 | 33.2 | 77.8 | 63.9 | 35.8 | 101.5 | 12.5 | 12.5 | 76.5 | 18.7 | 60.1 |
| LnGrp LOS | F | C | C | E | E | D | F | B | B | E | B | E |
| Approach Vol, veh/h | | 537 | | | 822 | | | 203 | | | 801 | |
| Approach Delay, s/veh | | 53.8 | | | 64.0 | | | 82.2 | | | 54.9 | |
| Approach LOS | | D | | | E | | | F | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.9 | 37.1 | 15.8 | 58.8 | 12.4 | 32.7 | 5.3 | 69.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.8 | 27.5 | 11.8 | 55.0 | 8.4 | 27.9 | 5.9 | 60.9 |
| Max Q Clear Time (g_c+I1), s | 5.1 | 9.6 | 12.9 | 54.6 | 9.3 | 27.7 | 2.6 | 2.5 |
| Green Ext Time (p_c), s | 0.0 | 1.5 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 60.2 |
| HCM 7th LOS | E |

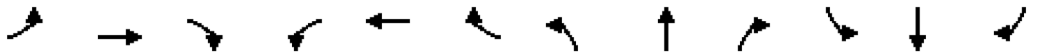


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 208 | 277 | 65 | 45 | 758 | 24 | 159 | 32 | 15 | 9 | 104 | 856 |
| v/c Ratio | 0.89 | 0.32 | 0.14 | 0.41 | 0.95 | 0.06 | 0.94 | 0.02 | 0.02 | 0.11 | 0.13 | 1.06 |
| Control Delay (s/veh) | 92.0 | 38.7 | 1.1 | 64.5 | 67.9 | 0.3 | 109.1 | 12.2 | 0.0 | 57.7 | 19.2 | 71.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 92.0 | 38.7 | 1.1 | 64.5 | 67.9 | 0.3 | 109.1 | 12.2 | 0.0 | 57.7 | 19.2 | 71.9 |
| Queue Length 50th (ft) | 84 | 94 | 0 | 34 | 305 | 0 | 124 | 5 | 0 | 7 | 45 | ~622 |
| Queue Length 95th (ft) | #122 | 116 | 0 | 63 | 320 | 0 | #207 | 12 | 0 | 21 | 68 | #652 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 233 | 869 | 456 | 126 | 800 | 429 | 169 | 1974 | 893 | 84 | 830 | 810 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.89 | 0.32 | 0.14 | 0.36 | 0.95 | 0.06 | 0.94 | 0.02 | 0.02 | 0.11 | 0.13 | 1.06 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 52 | 181 | 13 | 1 | 338 | 97 | 30 | 58 | 2 | 101 | 106 | 209 |
| Future Volume (veh/h) | 52 | 181 | 13 | 1 | 338 | 97 | 30 | 58 | 2 | 101 | 106 | 209 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 62 | 215 | 11 | 1 | 402 | 92 | 36 | 69 | 2 | 120 | 126 | 200 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 208 | 993 | 435 | 4 | 783 | 601 | 71 | 276 | 8 | 411 | 434 | 363 |
| Arrive On Green | 0.06 | 0.29 | 0.29 | 0.00 | 0.23 | 0.23 | 0.04 | 0.16 | 0.16 | 0.12 | 0.24 | 0.24 |
| Sat Flow, veh/h | 3374 | 3469 | 1520 | 1739 | 3469 | 2663 | 1739 | 1764 | 51 | 3374 | 1826 | 1528 |
| Grp Volume(v), veh/h | 62 | 215 | 11 | 1 | 402 | 92 | 36 | 0 | 71 | 120 | 126 | 200 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1735 | 1520 | 1739 | 1735 | 1332 | 1739 | 0 | 1816 | 1687 | 1826 | 1528 |
| Q Serve(g_s), s | 0.7 | 1.9 | 0.2 | 0.0 | 4.2 | 1.1 | 0.8 | 0.0 | 1.4 | 1.3 | 2.3 | 4.7 |
| Cycle Q Clear(g_c), s | 0.7 | 1.9 | 0.2 | 0.0 | 4.2 | 1.1 | 0.8 | 0.0 | 1.4 | 1.3 | 2.3 | 4.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.03 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 208 | 993 | 435 | 4 | 783 | 601 | 71 | 0 | 284 | 411 | 434 | 363 |
| V/C Ratio(X) | 0.30 | 0.22 | 0.03 | 0.24 | 0.51 | 0.15 | 0.50 | 0.00 | 0.25 | 0.29 | 0.29 | 0.55 |
| Avail Cap(c_a), veh/h | 493 | 1531 | 671 | 254 | 1531 | 1175 | 254 | 0 | 845 | 1563 | 1429 | 1196 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 18.4 | 11.1 | 10.5 | 20.4 | 13.9 | 12.7 | 19.3 | 0.0 | 15.2 | 16.4 | 12.8 | 13.7 |
| Incr Delay (d2), s/veh | 0.8 | 0.1 | 0.0 | 26.3 | 0.5 | 0.1 | 5.4 | 0.0 | 0.5 | 0.4 | 0.4 | 1.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.5 | 0.0 | 0.0 | 1.1 | 0.2 | 0.4 | 0.0 | 0.5 | 0.4 | 0.7 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 19.2 | 11.3 | 10.6 | 46.8 | 14.4 | 12.9 | 24.7 | 0.0 | 15.6 | 16.8 | 13.2 | 15.0 |
| LnGrp LOS | B | B | B | D | B | B | C | | B | B | B | B |
| Approach Vol, veh/h | | 288 | | | 495 | | | 107 | | | 446 | |
| Approach Delay, s/veh | | 12.9 | | | 14.2 | | | 18.7 | | | 15.0 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 11.3 | 4.1 | 16.6 | 5.7 | 14.6 | 6.5 | 14.2 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 19.0 | 19.1 | 6.0 | 18.1 | 6.0 | 32.1 | 6.0 | 18.1 |
| Max Q Clear Time (g_c+I1), s | 3.3 | 3.4 | 2.0 | 3.9 | 2.8 | 6.7 | 2.7 | 6.2 |
| Green Ext Time (p_c), s | 0.3 | 0.2 | 0.0 | 0.9 | 0.0 | 1.2 | 0.0 | 2.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 14.5 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 62 | 215 | 15 | 1 | 402 | 115 | 36 | 71 | 120 | 126 | 249 |
| v/c Ratio | 0.14 | 0.19 | 0.02 | 0.00 | 0.47 | 0.15 | 0.16 | 0.24 | 0.22 | 0.20 | 0.36 |
| Control Delay (s/veh) | 22.8 | 12.6 | 0.1 | 23.0 | 18.2 | 1.3 | 24.3 | 21.5 | 21.0 | 16.9 | 5.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.8 | 12.6 | 0.1 | 23.0 | 18.2 | 1.3 | 24.3 | 21.5 | 21.0 | 16.9 | 5.2 |
| Queue Length 50th (ft) | 8 | 18 | 0 | 0 | 54 | 0 | 10 | 18 | 15 | 23 | 0 |
| Queue Length 95th (ft) | 24 | 51 | 0 | 4 | 90 | 3 | 33 | 48 | 37 | 71 | 40 |
| Internal Link Dist (ft) | | 3221 | | | 2598 | | | 468 | | 389 | |
| Turn Bay Length (ft) | 935 | | 470 | 450 | | 550 | 100 | | 635 | | |
| Base Capacity (vph) | 455 | 1526 | 759 | 234 | 1417 | 1180 | 234 | 784 | 1443 | 1323 | 1163 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.14 | 0.14 | 0.02 | 0.00 | 0.28 | 0.10 | 0.15 | 0.09 | 0.08 | 0.10 | 0.21 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 37 | 326 | 704 | 14 | 0 | 145 |
| Future Vol, veh/h | 37 | 326 | 704 | 14 | 0 | 145 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 40 | 354 | 765 | 15 | 0 | 158 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 790 | 0 | - | 0 | 1050 | 793 |
| Stage 1 | - | - | - | - | 783 | - |
| Stage 2 | - | - | - | - | 268 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | 2.219 | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 828 | - | - | - | 236 | 388 |
| Stage 1 | - | - | - | - | 449 | - |
| Stage 2 | - | - | - | - | 754 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 820 | - | - | - | 219 | 380 |
| Mov Cap-2 Maneuver | - | - | - | - | 219 | - |
| Stage 1 | - | - | - | - | 421 | - |
| Stage 2 | - | - | - | - | 747 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 1.36 | 0 | 21 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 367 | - | - | - | 380 |
| HCM Lane V/C Ratio | 0.049 | - | - | - | 0.414 |
| HCM Ctrl Dly (s/v) | 9.6 | 0.4 | - | - | 21 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 84 | 0 | 0 | 233 | 0 |
| Future Vol, veh/h | 0 | 84 | 0 | 0 | 233 | 0 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 91 | 0 | 0 | 253 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 101 | 0 | 67 | 66 |
| Stage 1 | - | - | - | - | 56 | - |
| Stage 2 | - | - | - | - | 11 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1491 | - | 938 | 998 |
| Stage 1 | - | - | - | - | 967 | - |
| Stage 2 | - | - | - | - | 1012 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1477 | - | 921 | 979 |
| Mov Cap-2 Maneuver | - | - | - | - | 921 | - |
| Stage 1 | - | - | - | - | 958 | - |
| Stage 2 | - | - | - | - | 1002 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0 | 10.39 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 921 | - | - | 1477 | - |
| HCM Lane V/C Ratio | 0.275 | - | - | - | - |
| HCM Ctrl Dly (s/v) | 10.4 | - | - | 0 | - |
| HCM Lane LOS | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 1.1 | - | - | 0 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 105 | 324 | 24 | 98 | 72 | 322 | 595 | 24 | 111 | 434 | 94 |
| Future Volume (veh/h) | 15 | 105 | 324 | 24 | 98 | 72 | 322 | 595 | 24 | 111 | 434 | 94 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 19 | 136 | 338 | 31 | 127 | 77 | 418 | 773 | 26 | 144 | 564 | 90 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 40 | 495 | 415 | 60 | 516 | 432 | 568 | 1065 | 467 | 186 | 1226 | 376 |
| Arrive On Green | 0.02 | 0.26 | 0.26 | 0.03 | 0.28 | 0.28 | 0.16 | 0.30 | 0.30 | 0.10 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1567 | 1781 | 1870 | 1568 | 3456 | 3554 | 1559 | 1781 | 5106 | 1565 |
| Grp Volume(v), veh/h | 19 | 136 | 338 | 31 | 127 | 77 | 418 | 773 | 26 | 144 | 564 | 90 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1567 | 1781 | 1870 | 1568 | 1728 | 1777 | 1559 | 1781 | 1702 | 1565 |
| Q Serve(g_s), s | 0.6 | 3.5 | 12.1 | 1.0 | 3.2 | 2.2 | 6.9 | 11.7 | 0.7 | 4.7 | 5.7 | 2.8 |
| Cycle Q Clear(g_c), s | 0.6 | 3.5 | 12.1 | 1.0 | 3.2 | 2.2 | 6.9 | 11.7 | 0.7 | 4.7 | 5.7 | 2.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 40 | 495 | 415 | 60 | 516 | 432 | 568 | 1065 | 467 | 186 | 1226 | 376 |
| V/C Ratio(X) | 0.47 | 0.27 | 0.81 | 0.52 | 0.25 | 0.18 | 0.74 | 0.73 | 0.06 | 0.77 | 0.46 | 0.24 |
| Avail Cap(c_a), veh/h | 179 | 722 | 605 | 179 | 722 | 605 | 999 | 1727 | 758 | 417 | 2200 | 674 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.9 | 17.5 | 20.6 | 28.5 | 16.8 | 16.5 | 23.8 | 18.8 | 14.9 | 26.1 | 19.4 | 18.3 |
| Incr Delay (d2), s/veh | 8.3 | 0.3 | 5.5 | 6.7 | 0.2 | 0.2 | 1.9 | 1.0 | 0.0 | 6.6 | 0.3 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 1.4 | 4.4 | 0.5 | 1.2 | 0.7 | 2.6 | 4.0 | 0.2 | 2.1 | 1.9 | 0.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 37.2 | 17.7 | 26.1 | 35.2 | 17.1 | 16.7 | 25.7 | 19.7 | 15.0 | 32.7 | 19.7 | 18.7 |
| LnGrp LOS | D | B | C | D | B | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 493 | | | 235 | | | 1217 | | | 798 | |
| Approach Delay, s/veh | | 24.3 | | | 19.4 | | | 21.7 | | | 21.9 | |
| Approach LOS | | C | | | B | | | C | | | C | |

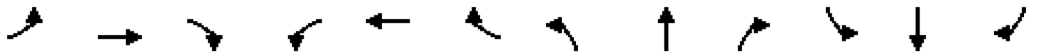
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.3 | 22.8 | 6.0 | 20.8 | 13.8 | 19.3 | 5.4 | 21.4 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 14.0 | 29.1 | 6.0 | 23.1 | 17.3 | 25.8 | 6.0 | 23.1 |
| Max Q Clear Time (g_c+I1), s | 6.7 | 13.7 | 3.0 | 14.1 | 8.9 | 7.7 | 2.6 | 5.2 |
| Green Ext Time (p_c), s | 0.2 | 4.3 | 0.0 | 1.4 | 1.0 | 3.4 | 0.0 | 0.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 19 | 136 | 421 | 31 | 127 | 94 | 418 | 773 | 31 | 144 | 564 | 122 |
| v/c Ratio | 0.10 | 0.38 | 0.66 | 0.17 | 0.31 | 0.22 | 0.55 | 0.57 | 0.05 | 0.46 | 0.39 | 0.23 |
| Control Delay (s/veh) | 35.1 | 28.4 | 9.0 | 35.5 | 24.9 | 4.8 | 26.9 | 19.7 | 0.1 | 32.3 | 19.4 | 6.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 35.1 | 28.4 | 9.0 | 35.5 | 24.9 | 4.8 | 26.9 | 19.7 | 0.1 | 32.3 | 19.4 | 6.0 |
| Queue Length 50th (ft) | 6 | 41 | 0 | 10 | 38 | 0 | 64 | 110 | 0 | 45 | 53 | 0 |
| Queue Length 95th (ft) | 27 | 95 | 31 | 37 | 89 | 14 | 128 | 201 | 0 | 109 | 99 | 25 |
| Internal Link Dist (ft) | | 2502 | | | 5399 | | | 2584 | | | 1653 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 25 | 255 | | | 255 | | 205 |
| Base Capacity (vph) | 194 | 786 | 893 | 194 | 788 | 721 | 1085 | 1882 | 860 | 453 | 2397 | 791 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.17 | 0.47 | 0.16 | 0.16 | 0.13 | 0.39 | 0.41 | 0.04 | 0.32 | 0.24 | 0.15 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 23 | 133 | 156 | 125 | 167 | 105 | 119 | 904 | 193 | 108 | 652 | 48 |
| Future Volume (veh/h) | 23 | 133 | 156 | 125 | 167 | 105 | 119 | 904 | 193 | 108 | 652 | 48 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 26 | 149 | 117 | 140 | 188 | 78 | 134 | 1016 | 202 | 121 | 733 | 47 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 54 | 297 | 247 | 180 | 287 | 119 | 173 | 1551 | 474 | 156 | 1503 | 459 |
| Arrive On Green | 0.03 | 0.16 | 0.16 | 0.10 | 0.23 | 0.23 | 0.10 | 0.30 | 0.30 | 0.09 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1781 | 1870 | 1555 | 1781 | 1250 | 519 | 1781 | 5106 | 1559 | 1781 | 5106 | 1558 |
| Grp Volume(v), veh/h | 26 | 149 | 117 | 140 | 0 | 266 | 134 | 1016 | 202 | 121 | 733 | 47 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1555 | 1781 | 0 | 1769 | 1781 | 1702 | 1559 | 1781 | 1702 | 1558 |
| Q Serve(g_s), s | 0.7 | 3.7 | 3.5 | 3.9 | 0.0 | 7.0 | 3.7 | 8.8 | 5.3 | 3.4 | 6.0 | 1.1 |
| Cycle Q Clear(g_c), s | 0.7 | 3.7 | 3.5 | 3.9 | 0.0 | 7.0 | 3.7 | 8.8 | 5.3 | 3.4 | 6.0 | 1.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.29 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 54 | 297 | 247 | 180 | 0 | 406 | 173 | 1551 | 474 | 156 | 1503 | 459 |
| V/C Ratio(X) | 0.48 | 0.50 | 0.47 | 0.78 | 0.00 | 0.66 | 0.78 | 0.65 | 0.43 | 0.78 | 0.49 | 0.10 |
| Avail Cap(c_a), veh/h | 206 | 660 | 549 | 269 | 0 | 687 | 294 | 1913 | 584 | 259 | 1813 | 553 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.3 | 19.6 | 19.5 | 22.4 | 0.0 | 17.8 | 22.5 | 15.4 | 14.2 | 22.8 | 14.8 | 13.1 |
| Incr Delay (d2), s/veh | 6.6 | 1.3 | 1.4 | 8.1 | 0.0 | 1.8 | 7.3 | 0.6 | 0.6 | 8.0 | 0.2 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 1.5 | 1.2 | 1.8 | 0.0 | 2.5 | 1.7 | 2.6 | 1.5 | 1.5 | 1.8 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 30.9 | 20.9 | 20.9 | 30.5 | 0.0 | 19.6 | 29.7 | 16.0 | 14.8 | 30.8 | 15.1 | 13.2 |
| LnGrp LOS | C | C | C | C | | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 292 | | | 406 | | | 1352 | | | 901 | |
| Approach Delay, s/veh | | 21.8 | | | 23.4 | | | 17.2 | | | 17.1 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.5 | 20.4 | 9.1 | 13.0 | 8.9 | 19.9 | 5.5 | 16.6 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 7.4 | 19.1 | 7.7 | 18.0 | 8.4 | 18.1 | 5.9 | 19.8 |
| Max Q Clear Time (g_c+I1), s | 5.4 | 10.8 | 5.9 | 5.7 | 5.7 | 8.0 | 2.7 | 9.0 |
| Green Ext Time (p_c), s | 0.0 | 4.3 | 0.1 | 0.8 | 0.1 | 3.3 | 0.0 | 1.0 |

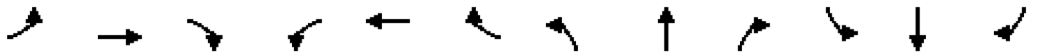
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 18.5 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 26 | 149 | 175 | 140 | 306 | 134 | 1016 | 217 | 121 | 733 | 54 |
| v/c Ratio | 0.13 | 0.38 | 0.38 | 0.56 | 0.56 | 0.51 | 0.63 | 0.35 | 0.51 | 0.47 | 0.09 |
| Control Delay (s/veh) | 30.6 | 25.5 | 6.7 | 39.8 | 20.9 | 36.4 | 21.3 | 5.3 | 38.1 | 20.1 | 0.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 30.6 | 25.5 | 6.7 | 39.8 | 20.9 | 36.4 | 21.3 | 5.3 | 38.1 | 20.1 | 0.3 |
| Queue Length 50th (ft) | 9 | 52 | 0 | 51 | 73 | 48 | 119 | 1 | 44 | 83 | 0 |
| Queue Length 95th (ft) | 32 | 97 | 42 | #139 | 168 | #124 | 187 | 46 | #119 | 134 | 0 |
| Internal Link Dist (ft) | | 2539 | | | 5389 | | 2581 | | | 2584 | |
| Turn Bay Length (ft) | 230 | | | 75 | | 250 | | 105 | 250 | | 205 |
| Base Capacity (vph) | 200 | 642 | 648 | 261 | 702 | 285 | 1862 | 693 | 251 | 1764 | 628 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.13 | 0.23 | 0.27 | 0.54 | 0.44 | 0.47 | 0.55 | 0.31 | 0.48 | 0.42 | 0.09 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 242 | 334 | 143 | 256 | 310 | 235 | 201 | 1091 | 385 | 253 | 947 | 177 |
| Future Volume (veh/h) | 242 | 334 | 143 | 256 | 310 | 235 | 201 | 1091 | 385 | 253 | 947 | 177 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 269 | 371 | 131 | 284 | 344 | 222 | 223 | 1212 | 395 | 281 | 1052 | 147 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 372 | 675 | 296 | 388 | 691 | 303 | 321 | 1735 | 534 | 386 | 1830 | 563 |
| Arrive On Green | 0.11 | 0.19 | 0.19 | 0.11 | 0.19 | 0.19 | 0.09 | 0.34 | 0.34 | 0.11 | 0.36 | 0.36 |
| Sat Flow, veh/h | 3456 | 3554 | 1560 | 3456 | 3554 | 1561 | 3456 | 5106 | 1571 | 3456 | 5106 | 1572 |
| Grp Volume(v), veh/h | 269 | 371 | 131 | 284 | 344 | 222 | 223 | 1212 | 395 | 281 | 1052 | 147 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1560 | 1728 | 1777 | 1561 | 1728 | 1702 | 1571 | 1728 | 1702 | 1572 |
| Q Serve(g_s), s | 5.4 | 6.8 | 5.4 | 5.7 | 6.2 | 9.7 | 4.5 | 14.8 | 16.0 | 5.7 | 12.0 | 4.8 |
| Cycle Q Clear(g_c), s | 5.4 | 6.8 | 5.4 | 5.7 | 6.2 | 9.7 | 4.5 | 14.8 | 16.0 | 5.7 | 12.0 | 4.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 372 | 675 | 296 | 388 | 691 | 303 | 321 | 1735 | 534 | 386 | 1830 | 563 |
| V/C Ratio(X) | 0.72 | 0.55 | 0.44 | 0.73 | 0.50 | 0.73 | 0.69 | 0.70 | 0.74 | 0.73 | 0.57 | 0.26 |
| Avail Cap(c_a), veh/h | 588 | 890 | 391 | 588 | 890 | 391 | 526 | 2057 | 633 | 608 | 2177 | 670 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 31.2 | 26.5 | 25.9 | 31.0 | 25.9 | 27.3 | 31.8 | 20.6 | 21.0 | 31.0 | 18.7 | 16.4 |
| Incr Delay (d2), s/veh | 2.7 | 0.7 | 1.0 | 2.7 | 0.6 | 5.0 | 2.7 | 0.9 | 3.8 | 2.6 | 0.3 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.2 | 2.6 | 1.9 | 2.3 | 2.4 | 3.6 | 1.8 | 5.1 | 5.6 | 2.3 | 4.1 | 1.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.8 | 27.2 | 26.9 | 33.7 | 26.5 | 32.3 | 34.5 | 21.5 | 24.8 | 33.7 | 19.0 | 16.6 |
| LnGrp LOS | C | C | C | C | C | C | C | C | C | C | B | B |
| Approach Vol, veh/h | | 771 | | | 850 | | | 1830 | | | 1480 | |
| Approach Delay, s/veh | | 29.4 | | | 30.4 | | | 23.8 | | | 21.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.1 | 29.4 | 12.1 | 18.6 | 10.7 | 30.8 | 11.8 | 18.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 12.7 | 29.1 | 12.3 | 18.1 | 11.0 | 30.8 | 12.3 | 18.1 |
| Max Q Clear Time (g_c+I1), s | 7.7 | 18.0 | 7.7 | 8.8 | 6.5 | 14.0 | 7.4 | 11.7 |
| Green Ext Time (p_c), s | 0.4 | 6.5 | 0.4 | 1.7 | 0.3 | 6.6 | 0.4 | 1.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 25.2 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 269 | 371 | 159 | 284 | 344 | 261 | 223 | 1212 | 428 | 281 | 1052 | 197 |
| v/c Ratio | 0.58 | 0.61 | 0.40 | 0.61 | 0.56 | 0.55 | 0.53 | 0.72 | 0.56 | 0.59 | 0.60 | 0.30 |
| Control Delay (s/veh) | 40.1 | 36.5 | 8.7 | 40.5 | 35.3 | 10.2 | 40.3 | 27.4 | 7.4 | 40.0 | 24.0 | 4.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.1 | 36.5 | 8.7 | 40.5 | 35.3 | 10.2 | 40.3 | 27.4 | 7.4 | 40.0 | 24.0 | 4.6 |
| Queue Length 50th (ft) | 70 | 98 | 0 | 74 | 90 | 6 | 58 | 204 | 19 | 73 | 165 | 0 |
| Queue Length 95th (ft) | 114 | 144 | 50 | 120 | 134 | 71 | 98 | 274 | 98 | 119 | 224 | 45 |
| Internal Link Dist (ft) | | 2544 | | | 5360 | | | 2600 | | | 2626 | |
| Turn Bay Length (ft) | 250 | | 100 | 250 | | 100 | 250 | | 160 | 250 | | 150 |
| Base Capacity (vph) | 526 | 798 | 470 | 526 | 798 | 538 | 470 | 1844 | 799 | 543 | 1952 | 712 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.51 | 0.46 | 0.34 | 0.54 | 0.43 | 0.49 | 0.47 | 0.66 | 0.54 | 0.52 | 0.54 | 0.28 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 11 | 0 | 204 | 2 | 0 | 0 | 211 | 303 | 2 | 1 | 325 | 5 |
| Future Vol, veh/h | 11 | 0 | 204 | 2 | 0 | 0 | 211 | 303 | 2 | 1 | 325 | 5 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 0 | 249 | 2 | 0 | 0 | 257 | 370 | 2 | 1 | 396 | 6 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1306 | 1308 | 419 | 1304 | 1310 | 391 | 412 | 0 | 0 | 382 | 0 | 0 |
| Stage 1 | 412 | 412 | - | 895 | 895 | - | - | - | - | - | - | - |
| Stage 2 | 894 | 897 | - | 409 | 415 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 137 | 159 | 634 | 137 | 159 | 658 | 1146 | - | - | 1177 | - | - |
| Stage 1 | 617 | 594 | - | 335 | 359 | - | - | - | - | - | - | - |
| Stage 2 | 336 | 359 | - | 620 | 593 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 96 | 112 | 622 | 58 | 111 | 645 | 1136 | - | - | 1165 | - | - |
| Mov Cap-2 Maneuver | 96 | 112 | - | 58 | 111 | - | - | - | - | - | - | - |
| Stage 1 | 610 | 588 | - | 237 | 254 | - | - | - | - | - | - | - |
| Stage 2 | 237 | 254 | - | 368 | 586 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 20.79 | 70.22 | 3.72 | 0.02 |
| HCM LOS | C | F | | |

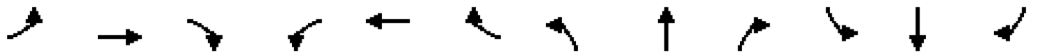
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 735 | - | - | 485 | 58 | 5 | - | - |
| HCM Lane V/C Ratio | 0.227 | - | - | 0.54 | 0.042 | 0.001 | - | - |
| HCM Ctrl Dly (s/v) | 9.1 | 0 | - | 20.8 | 70.2 | 8.1 | 0 | - |
| HCM Lane LOS | A | A | - | C | F | A | A | - |
| HCM 95th %tile Q(veh) | 0.9 | - | - | 3.2 | 0.1 | 0 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 329.6 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 315 | 94 | 48 | 367 | 368 | 102 | 287 | 51 | 262 | 225 | 3 |
| Future Vol, veh/h | 2 | 315 | 94 | 48 | 367 | 368 | 102 | 287 | 51 | 262 | 225 | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 335 | 100 | 51 | 390 | 391 | 109 | 305 | 54 | 279 | 239 | 3 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 149.9 | 560.8 | 182.6 | 243 |
| HCM LOS | F | F | F | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 23% | 0% | 6% | 53% |
| Vol Thru, % | 65% | 77% | 47% | 46% |
| Vol Right, % | 12% | 23% | 47% | 1% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 440 | 411 | 783 | 490 |
| LT Vol | 102 | 2 | 48 | 262 |
| Through Vol | 287 | 315 | 367 | 225 |
| RT Vol | 51 | 94 | 368 | 3 |
| Lane Flow Rate | 468 | 437 | 833 | 521 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.249 | 1.153 | 2.166 | 1.409 |
| Departure Headway (Hd) | 15.268 | 15.743 | 11.882 | 14.657 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 243 | 236 | 317 | 255 |
| Service Time | 13.268 | 13.743 | 9.882 | 12.657 |
| HCM Lane V/C Ratio | 1.926 | 1.852 | 2.628 | 2.043 |
| HCM Control Delay, s/veh | 182.6 | 149.9 | 560.8 | 243 |
| HCM Lane LOS | F | F | F | F |
| HCM 95th-tile Q | 14.8 | 12.4 | 49.2 | 19.3 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 34 | 551 | 114 | 72 | 476 | 114 | 182 | 395 | 114 | 149 | 348 | 29 |
| Future Volume (veh/h) | 34 | 551 | 114 | 72 | 476 | 114 | 182 | 395 | 114 | 149 | 348 | 29 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 39 | 626 | 60 | 82 | 541 | 102 | 207 | 449 | 113 | 169 | 395 | 23 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 66 | 1083 | 475 | 106 | 612 | 510 | 249 | 521 | 436 | 208 | 478 | 400 |
| Arrive On Green | 0.04 | 0.30 | 0.30 | 0.06 | 0.33 | 0.33 | 0.14 | 0.28 | 0.28 | 0.12 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1781 | 3554 | 1559 | 1781 | 1870 | 1561 | 1781 | 1870 | 1568 | 1781 | 1870 | 1566 |
| Grp Volume(v), veh/h | 39 | 626 | 60 | 82 | 541 | 102 | 207 | 449 | 113 | 169 | 395 | 23 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1559 | 1781 | 1870 | 1561 | 1781 | 1870 | 1568 | 1781 | 1870 | 1566 |
| Q Serve(g_s), s | 1.6 | 11.0 | 2.1 | 3.4 | 20.3 | 3.5 | 8.4 | 16.9 | 4.1 | 6.9 | 14.8 | 0.8 |
| Cycle Q Clear(g_c), s | 1.6 | 11.0 | 2.1 | 3.4 | 20.3 | 3.5 | 8.4 | 16.9 | 4.1 | 6.9 | 14.8 | 0.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 66 | 1083 | 475 | 106 | 612 | 510 | 249 | 521 | 436 | 208 | 478 | 400 |
| V/C Ratio(X) | 0.59 | 0.58 | 0.13 | 0.77 | 0.88 | 0.20 | 0.83 | 0.86 | 0.26 | 0.81 | 0.83 | 0.06 |
| Avail Cap(c_a), veh/h | 142 | 1234 | 541 | 224 | 735 | 614 | 313 | 662 | 555 | 265 | 611 | 512 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 35.1 | 21.7 | 18.6 | 34.3 | 23.6 | 17.9 | 31.0 | 25.4 | 20.8 | 31.9 | 26.0 | 20.8 |
| Incr Delay (d2), s/veh | 8.0 | 0.5 | 0.1 | 11.3 | 10.9 | 0.2 | 14.0 | 9.3 | 0.3 | 13.8 | 7.3 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 4.1 | 0.7 | 1.7 | 9.5 | 1.1 | 4.3 | 8.0 | 1.4 | 3.5 | 6.9 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 43.1 | 22.2 | 18.7 | 45.6 | 34.5 | 18.1 | 45.0 | 34.7 | 21.1 | 45.7 | 33.3 | 20.9 |
| LnGrp LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 725 | | | 725 | | | 769 | | | 587 | |
| Approach Delay, s/veh | | 23.1 | | | 33.5 | | | 35.5 | | | 36.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.7 | 25.5 | 8.4 | 27.5 | 14.4 | 23.8 | 6.8 | 29.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 11.0 | 26.2 | 9.3 | 25.7 | 13.0 | 24.2 | 5.9 | 29.1 |
| Max Q Clear Time (g_c+I1), s | 8.9 | 18.9 | 5.4 | 13.0 | 10.4 | 16.8 | 3.6 | 22.3 |
| Green Ext Time (p_c), s | 0.1 | 1.7 | 0.0 | 3.2 | 0.1 | 1.3 | 0.0 | 1.9 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.9 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 39 | 626 | 130 | 82 | 541 | 130 | 207 | 449 | 130 | 169 | 395 | 33 |
| v/c Ratio | 0.30 | 0.62 | 0.25 | 0.45 | 0.86 | 0.22 | 0.75 | 0.85 | 0.24 | 0.72 | 0.81 | 0.07 |
| Control Delay (s/veh) | 45.9 | 29.5 | 7.4 | 45.9 | 42.1 | 6.5 | 54.4 | 44.8 | 6.1 | 55.6 | 43.7 | 0.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 45.9 | 29.5 | 7.4 | 45.9 | 42.1 | 6.5 | 54.4 | 44.8 | 6.1 | 55.6 | 43.7 | 0.3 |
| Queue Length 50th (ft) | 22 | 162 | 4 | 45 | 291 | 4 | 116 | 237 | 0 | 95 | 208 | 0 |
| Queue Length 95th (ft) | 53 | 213 | 43 | 88 | #464 | 40 | #222 | #380 | 38 | #191 | #334 | 0 |
| Internal Link Dist (ft) | | 5360 | | | 2582 | | | 1302 | | | 2564 | |
| Turn Bay Length (ft) | 230 | | 75 | 215 | | 55 | 225 | | | 255 | | 25 |
| Base Capacity (vph) | 134 | 1170 | 580 | 211 | 700 | 643 | 296 | 628 | 605 | 250 | 579 | 562 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.29 | 0.54 | 0.22 | 0.39 | 0.77 | 0.20 | 0.70 | 0.71 | 0.21 | 0.68 | 0.68 | 0.06 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 39 | 655 | 201 | 290 | 520 | 7 | 387 | 44 | 223 | 10 | 24 | 26 |
| Future Volume (veh/h) | 39 | 655 | 201 | 290 | 520 | 7 | 387 | 44 | 223 | 10 | 24 | 26 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 48 | 799 | 143 | 354 | 634 | -3 | 472 | 54 | 235 | 12 | 29 | 16 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 145 | 894 | 394 | 427 | 1183 | 528 | 515 | 1328 | 585 | 51 | 354 | 150 |
| Arrive On Green | 0.04 | 0.25 | 0.25 | 0.12 | 0.33 | 0.00 | 0.29 | 0.37 | 0.37 | 0.01 | 0.10 | 0.10 |
| Sat Flow, veh/h | 3456 | 3554 | 1566 | 3456 | 3554 | 1585 | 1781 | 3554 | 1564 | 3456 | 3554 | 1505 |
| Grp Volume(v), veh/h | 48 | 799 | 143 | 354 | 634 | -3 | 472 | 54 | 235 | 12 | 29 | 16 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1566 | 1728 | 1777 | 1585 | 1781 | 1777 | 1564 | 1728 | 1777 | 1505 |
| Q Serve(g_s), s | 1.0 | 16.3 | 5.7 | 7.5 | 10.9 | 0.0 | 19.3 | 0.7 | 8.3 | 0.3 | 0.6 | 0.7 |
| Cycle Q Clear(g_c), s | 1.0 | 16.3 | 5.7 | 7.5 | 10.9 | 0.0 | 19.3 | 0.7 | 8.3 | 0.3 | 0.6 | 0.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 145 | 894 | 394 | 427 | 1183 | 528 | 515 | 1328 | 585 | 51 | 354 | 150 |
| V/C Ratio(X) | 0.33 | 0.89 | 0.36 | 0.83 | 0.54 | -0.01 | 0.92 | 0.04 | 0.40 | 0.24 | 0.08 | 0.11 |
| Avail Cap(c_a), veh/h | 271 | 916 | 404 | 427 | 1183 | 528 | 568 | 1775 | 781 | 271 | 921 | 390 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 35.0 | 27.2 | 23.2 | 32.2 | 20.4 | 0.0 | 25.9 | 15.0 | 17.4 | 36.7 | 30.8 | 30.8 |
| Incr Delay (d2), s/veh | 1.3 | 11.0 | 0.6 | 12.8 | 0.5 | 0.0 | 18.9 | 0.0 | 0.4 | 2.3 | 0.1 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 7.5 | 1.9 | 3.6 | 4.0 | 0.0 | 10.0 | 0.3 | 2.6 | 0.1 | 0.2 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 36.3 | 38.2 | 23.8 | 45.1 | 20.9 | 0.0 | 44.8 | 15.0 | 17.8 | 39.0 | 30.9 | 31.2 |
| LnGrp LOS | D | D | C | D | C | | D | B | B | D | C | C |
| Approach Vol, veh/h | | 990 | | | 985 | | | 761 | | | 57 | |
| Approach Delay, s/veh | | 36.1 | | | 29.6 | | | 34.3 | | | 32.7 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.1 | 33.0 | 13.3 | 23.8 | 25.8 | 12.4 | 7.2 | 30.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 37.6 | 9.3 | 19.4 | 24.0 | 19.5 | 5.9 | 22.8 |
| Max Q Clear Time (g_c+I1), s | 2.3 | 10.3 | 9.5 | 18.3 | 21.3 | 2.7 | 3.0 | 12.9 |
| Green Ext Time (p_c), s | 0.0 | 1.1 | 0.0 | 0.6 | 0.5 | 0.1 | 0.0 | 2.7 |

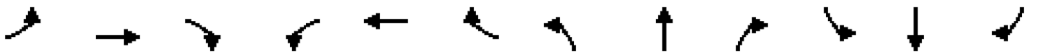
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 33.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 48 | 799 | 245 | 354 | 634 | 9 | 472 | 54 | 272 | 12 | 29 | 32 |
| v/c Ratio | 0.18 | 0.89 | 0.48 | 0.85 | 0.51 | 0.01 | 0.85 | 0.04 | 0.34 | 0.05 | 0.10 | 0.12 |
| Control Delay (s/veh) | 35.2 | 42.1 | 12.0 | 54.0 | 22.8 | 0.0 | 41.8 | 14.7 | 3.8 | 33.6 | 33.5 | 0.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 35.2 | 42.1 | 12.0 | 54.0 | 22.8 | 0.0 | 41.8 | 14.7 | 3.8 | 33.6 | 33.5 | 0.8 |
| Queue Length 50th (ft) | 11 | 193 | 29 | 86 | 134 | 0 | 209 | 7 | 0 | 2 | 6 | 0 |
| Queue Length 95th (ft) | 24 | #253 | 73 | #135 | 170 | 0 | #320 | 19 | 36 | 9 | 17 | 0 |
| Internal Link Dist (ft) | | 2582 | | | 2532 | | | 2598 | | | 898 | |
| Turn Bay Length (ft) | 240 | | 50 | 245 | | 175 | 235 | | | 250 | | 100 |
| Base Capacity (vph) | 264 | 895 | 515 | 416 | 1237 | 647 | 554 | 1736 | 880 | 264 | 900 | 510 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.89 | 0.48 | 0.85 | 0.51 | 0.01 | 0.85 | 0.03 | 0.31 | 0.05 | 0.03 | 0.06 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 46 | 622 | 260 | 35 | 599 | 175 | 131 | 720 | 57 | 57 | 433 | 38 |
| Future Volume (veh/h) | 46 | 622 | 260 | 35 | 599 | 175 | 131 | 720 | 57 | 57 | 433 | 38 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 49 | 669 | 238 | 38 | 644 | 148 | 141 | 774 | 56 | 61 | 466 | 30 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 75 | 749 | 630 | 64 | 737 | 620 | 176 | 939 | 414 | 84 | 754 | 329 |
| Arrive On Green | 0.04 | 0.40 | 0.40 | 0.04 | 0.39 | 0.39 | 0.10 | 0.26 | 0.26 | 0.05 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1781 | 1870 | 1573 | 1781 | 1870 | 1573 | 1781 | 3554 | 1567 | 1781 | 3554 | 1548 |
| Grp Volume(v), veh/h | 49 | 669 | 238 | 38 | 644 | 148 | 141 | 774 | 56 | 61 | 466 | 30 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1573 | 1781 | 1870 | 1573 | 1781 | 1777 | 1567 | 1781 | 1777 | 1548 |
| Q Serve(g_s), s | 2.1 | 25.9 | 8.3 | 1.6 | 24.7 | 4.9 | 6.0 | 15.9 | 2.1 | 2.6 | 9.2 | 1.2 |
| Cycle Q Clear(g_c), s | 2.1 | 25.9 | 8.3 | 1.6 | 24.7 | 4.9 | 6.0 | 15.9 | 2.1 | 2.6 | 9.2 | 1.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 75 | 749 | 630 | 64 | 737 | 620 | 176 | 939 | 414 | 84 | 754 | 329 |
| V/C Ratio(X) | 0.65 | 0.89 | 0.38 | 0.59 | 0.87 | 0.24 | 0.80 | 0.82 | 0.14 | 0.73 | 0.62 | 0.09 |
| Avail Cap(c_a), veh/h | 115 | 870 | 731 | 115 | 870 | 731 | 232 | 1108 | 488 | 117 | 879 | 383 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 36.6 | 21.7 | 16.5 | 36.9 | 21.7 | 15.7 | 34.2 | 26.9 | 21.8 | 36.5 | 27.7 | 24.6 |
| Incr Delay (d2), s/veh | 9.3 | 10.6 | 0.4 | 8.4 | 8.7 | 0.2 | 13.6 | 4.5 | 0.1 | 12.9 | 1.0 | 0.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 12.0 | 2.7 | 0.8 | 11.1 | 1.6 | 3.1 | 6.7 | 0.7 | 1.4 | 3.7 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 45.9 | 32.3 | 16.8 | 45.3 | 30.4 | 15.9 | 47.8 | 31.4 | 21.9 | 49.4 | 28.7 | 24.7 |
| LnGrp LOS | D | C | B | D | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 956 | | | 830 | | | 971 | | | 557 | |
| Approach Delay, s/veh | | 29.2 | | | 28.5 | | | 33.2 | | | 30.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.6 | 25.4 | 7.7 | 36.0 | 12.6 | 21.4 | 8.2 | 35.5 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 24.2 | 5.0 | 36.1 | 10.1 | 19.2 | 5.0 | 36.1 |
| Max Q Clear Time (g_c+I1), s | 4.6 | 17.9 | 3.6 | 27.9 | 8.0 | 11.2 | 4.1 | 26.7 |
| Green Ext Time (p_c), s | 0.0 | 2.6 | 0.0 | 3.1 | 0.1 | 1.8 | 0.0 | 3.1 |

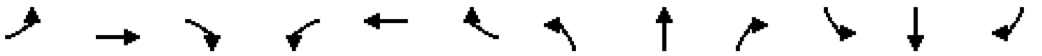
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 30.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 49 | 669 | 280 | 38 | 644 | 188 | 141 | 774 | 61 | 61 | 466 | 41 |
| v/c Ratio | 0.42 | 0.88 | 0.35 | 0.33 | 0.85 | 0.25 | 0.65 | 0.72 | 0.11 | 0.52 | 0.63 | 0.09 |
| Control Delay (s/veh) | 52.5 | 38.3 | 4.0 | 48.3 | 35.1 | 3.3 | 52.6 | 32.1 | 0.4 | 57.5 | 34.1 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 52.5 | 38.3 | 4.0 | 48.3 | 35.1 | 3.3 | 52.6 | 32.1 | 0.4 | 57.5 | 34.1 | 0.4 |
| Queue Length 50th (ft) | 28 | 348 | 2 | 21 | 328 | 0 | 79 | 216 | 0 | 35 | 127 | 0 |
| Queue Length 95th (ft) | #73 | #562 | 49 | 53 | #530 | 35 | #167 | #289 | 0 | #93 | 178 | 0 |
| Internal Link Dist (ft) | | 2056 | | | 3072 | | | 1478 | | | 985 | |
| Turn Bay Length (ft) | 230 | | | 55 | | 60 | 330 | | 95 | 265 | | 145 |
| Base Capacity (vph) | 116 | 884 | 875 | 116 | 884 | 837 | 235 | 1126 | 587 | 118 | 893 | 532 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.42 | 0.76 | 0.32 | 0.33 | 0.73 | 0.22 | 0.60 | 0.69 | 0.10 | 0.52 | 0.52 | 0.08 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 28 | 535 | 250 | 40 | 333 | 92 | 186 | 866 | 78 | 82 | 596 | 24 |
| Future Volume (veh/h) | 28 | 535 | 250 | 40 | 333 | 92 | 186 | 866 | 78 | 82 | 596 | 24 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 32 | 608 | 232 | 45 | 378 | 83 | 211 | 984 | 74 | 93 | 677 | 17 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 56 | 669 | 562 | 70 | 683 | 574 | 248 | 1132 | 497 | 119 | 873 | 382 |
| Arrive On Green | 0.03 | 0.36 | 0.36 | 0.04 | 0.37 | 0.37 | 0.14 | 0.32 | 0.32 | 0.07 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1781 | 1870 | 1572 | 1781 | 1870 | 1572 | 1781 | 3554 | 1560 | 1781 | 3554 | 1553 |
| Grp Volume(v), veh/h | 32 | 608 | 232 | 45 | 378 | 83 | 211 | 984 | 74 | 93 | 677 | 17 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1572 | 1781 | 1870 | 1572 | 1781 | 1777 | 1560 | 1781 | 1777 | 1553 |
| Q Serve(g_s), s | 1.4 | 25.3 | 9.1 | 2.0 | 13.1 | 2.9 | 9.4 | 21.3 | 2.8 | 4.2 | 14.5 | 0.7 |
| Cycle Q Clear(g_c), s | 1.4 | 25.3 | 9.1 | 2.0 | 13.1 | 2.9 | 9.4 | 21.3 | 2.8 | 4.2 | 14.5 | 0.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 56 | 669 | 562 | 70 | 683 | 574 | 248 | 1132 | 497 | 119 | 873 | 382 |
| V/C Ratio(X) | 0.57 | 0.91 | 0.41 | 0.65 | 0.55 | 0.14 | 0.85 | 0.87 | 0.15 | 0.78 | 0.78 | 0.04 |
| Avail Cap(c_a), veh/h | 129 | 735 | 618 | 129 | 735 | 618 | 262 | 1227 | 539 | 131 | 966 | 422 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 39.0 | 25.0 | 19.8 | 38.7 | 20.6 | 17.4 | 34.3 | 26.2 | 19.9 | 37.5 | 28.7 | 23.5 |
| Incr Delay (d2), s/veh | 8.7 | 14.4 | 0.5 | 9.6 | 0.8 | 0.1 | 21.7 | 6.6 | 0.1 | 24.0 | 3.6 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 12.6 | 3.1 | 1.0 | 5.3 | 1.0 | 5.3 | 9.1 | 0.9 | 2.5 | 6.1 | 0.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 47.7 | 39.4 | 20.2 | 48.2 | 21.4 | 17.5 | 56.0 | 32.8 | 20.1 | 61.5 | 32.3 | 23.5 |
| LnGrp LOS | D | D | C | D | C | B | E | C | C | E | C | C |
| Approach Vol, veh/h | | 872 | | | 506 | | | 1269 | | | 787 | |
| Approach Delay, s/veh | | 34.6 | | | 23.1 | | | 35.9 | | | 35.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.4 | 30.9 | 7.2 | 34.1 | 15.4 | 25.0 | 6.6 | 34.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 28.2 | 5.9 | 32.1 | 12.0 | 22.2 | 5.9 | 32.1 |
| Max Q Clear Time (g_c+I1), s | 6.2 | 23.3 | 4.0 | 27.3 | 11.4 | 16.5 | 3.4 | 15.1 |
| Green Ext Time (p_c), s | 0.0 | 2.7 | 0.0 | 2.0 | 0.0 | 2.1 | 0.0 | 2.1 |

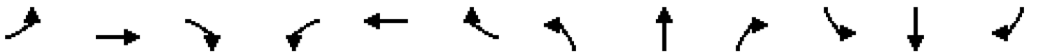
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 33.6 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 32 | 608 | 284 | 45 | 378 | 105 | 211 | 984 | 89 | 93 | 677 | 27 |
| v/c Ratio | 0.25 | 0.89 | 0.42 | 0.35 | 0.56 | 0.16 | 0.81 | 0.86 | 0.16 | 0.71 | 0.76 | 0.05 |
| Control Delay (s/veh) | 44.9 | 43.6 | 11.0 | 48.1 | 25.7 | 1.2 | 62.8 | 36.5 | 2.9 | 70.9 | 36.1 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 44.9 | 43.6 | 11.0 | 48.1 | 25.7 | 1.2 | 62.8 | 36.5 | 2.9 | 70.9 | 36.1 | 0.2 |
| Queue Length 50th (ft) | 18 | 325 | 45 | 25 | 171 | 0 | 120 | 278 | 0 | 53 | 188 | 0 |
| Queue Length 95th (ft) | 45 | #512 | 106 | 58 | 253 | 7 | #240 | #376 | 18 | #133 | 246 | 0 |
| Internal Link Dist (ft) | | 2744 | | | 2456 | | | 1336 | | | 1121 | |
| Turn Bay Length (ft) | 150 | | 100 | 165 | | 105 | 230 | | 85 | 240 | | 85 |
| Base Capacity (vph) | 129 | 739 | 713 | 129 | 739 | 713 | 263 | 1234 | 606 | 131 | 971 | 537 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.25 | 0.82 | 0.40 | 0.35 | 0.51 | 0.15 | 0.80 | 0.80 | 0.15 | 0.71 | 0.70 | 0.05 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 659 | 1697 | 390 | 359 | 1490 | 191 | 492 | 552 | 333 | 334 | 359 | 355 |
| Future Volume (veh/h) | 659 | 1697 | 390 | 359 | 1490 | 191 | 492 | 552 | 333 | 334 | 359 | 355 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 709 | 1825 | 362 | 386 | 1602 | 149 | 529 | 594 | 326 | 359 | 386 | 239 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 743 | 2093 | 645 | 444 | 1651 | 508 | 562 | 675 | 310 | 397 | 770 | 412 |
| Arrive On Green | 0.21 | 0.41 | 0.41 | 0.13 | 0.32 | 0.32 | 0.16 | 0.20 | 0.20 | 0.11 | 0.15 | 0.15 |
| Sat Flow, veh/h | 3456 | 5106 | 1573 | 3456 | 5106 | 1570 | 3456 | 3404 | 1561 | 3456 | 5106 | 2734 |
| Grp Volume(v), veh/h | 709 | 1825 | 362 | 386 | 1602 | 149 | 529 | 594 | 326 | 359 | 386 | 239 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1702 | 1573 | 1728 | 1702 | 1570 | 1728 | 1702 | 1561 | 1728 | 1702 | 1367 |
| Q Serve(g_s), s | 24.3 | 39.4 | 21.2 | 13.2 | 37.1 | 8.5 | 18.2 | 20.3 | 23.8 | 12.3 | 8.3 | 9.8 |
| Cycle Q Clear(g_c), s | 24.3 | 39.4 | 21.2 | 13.2 | 37.1 | 8.5 | 18.2 | 20.3 | 23.8 | 12.3 | 8.3 | 9.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 743 | 2093 | 645 | 444 | 1651 | 508 | 562 | 675 | 310 | 397 | 770 | 412 |
| V/C Ratio(X) | 0.95 | 0.87 | 0.56 | 0.87 | 0.97 | 0.29 | 0.94 | 0.88 | 1.05 | 0.90 | 0.50 | 0.58 |
| Avail Cap(c_a), veh/h | 743 | 2093 | 645 | 484 | 1651 | 508 | 562 | 675 | 310 | 397 | 770 | 412 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 46.5 | 32.5 | 27.1 | 51.3 | 40.0 | 30.4 | 49.7 | 46.7 | 48.1 | 52.4 | 46.8 | 47.4 |
| Incr Delay (d2), s/veh | 22.4 | 4.3 | 1.1 | 14.8 | 15.7 | 0.3 | 24.4 | 12.8 | 65.7 | 23.4 | 0.5 | 2.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 12.4 | 16.1 | 7.8 | 6.4 | 17.2 | 3.2 | 9.5 | 9.5 | 14.6 | 6.5 | 3.5 | 3.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 69.0 | 36.9 | 28.2 | 66.1 | 55.7 | 30.7 | 74.1 | 59.5 | 113.8 | 75.8 | 47.3 | 49.4 |
| LnGrp LOS | E | D | C | E | E | C | E | E | F | E | D | D |
| Approach Vol, veh/h | | 2896 | | | 2137 | | | 1449 | | | 984 | |
| Approach Delay, s/veh | | 43.6 | | | 55.8 | | | 77.1 | | | 58.2 | |
| Approach LOS | | D | | | E | | | E | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 17.8 | 28.7 | 19.4 | 54.1 | 23.5 | 23.0 | 29.8 | 43.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 13.8 | 23.8 | 16.8 | 47.8 | 19.5 | 18.1 | 25.8 | 38.8 |
| Max Q Clear Time (g_c+I1), s | 14.3 | 25.8 | 15.2 | 41.4 | 20.2 | 11.8 | 26.3 | 39.1 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.3 | 5.4 | 0.0 | 1.8 | 0.0 | 0.0 |

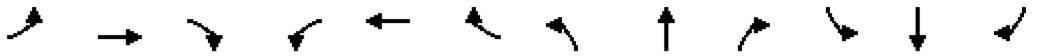
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 55.5 |
| HCM 7th LOS | E |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 709 | 1825 | 419 | 386 | 1602 | 205 | 529 | 952 | 359 | 386 | 382 |
| v/c Ratio | 0.96 | 0.89 | 0.51 | 0.83 | 0.97 | 0.34 | 0.95 | 0.93 | 0.91 | 0.51 | 0.52 |
| Control Delay (s/veh) | 71.5 | 40.2 | 8.3 | 66.1 | 57.0 | 9.3 | 77.3 | 56.8 | 80.3 | 49.5 | 7.3 |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 71.5 | 41.4 | 8.3 | 66.1 | 57.0 | 9.3 | 77.3 | 56.8 | 80.3 | 49.5 | 7.3 |
| Queue Length 50th (ft) | 282 | 479 | 42 | 151 | 447 | 23 | 211 | 238 | 143 | 101 | 0 |
| Queue Length 95th (ft) | #403 | 550 | 129 | #221 | #557 | 81 | #318 | #321 | #232 | 137 | 47 |
| Internal Link Dist (ft) | | 542 | | | 2532 | | | 2220 | | 1300 | |
| Turn Bay Length (ft) | 240 | | 240 | 250 | | 150 | 200 | | 230 | | 185 |
| Base Capacity (vph) | 739 | 2048 | 815 | 481 | 1646 | 606 | 558 | 1033 | 394 | 767 | 731 |
| Starvation Cap Reductn | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.96 | 0.93 | 0.51 | 0.80 | 0.97 | 0.34 | 0.95 | 0.92 | 0.91 | 0.50 | 0.52 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



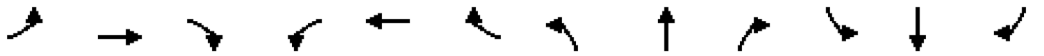
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | | ↑↑↑↑↑ | ↱ | ↰↰↰ | | ↱↱ | | | |
| Traffic Volume (veh/h) | 0 | 1475 | 509 | 0 | 1971 | 245 | 618 | 0 | 1269 | 0 | 0 | 0 |
| Future Volume (veh/h) | 0 | 1475 | 509 | 0 | 1971 | 245 | 618 | 0 | 1269 | 0 | 0 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Work Zone On Approach | | No | | | No | | | No | | | | |
| Adj Sat Flow, veh/h/ln | 0 | 1870 | 1870 | 0 | 1870 | 1870 | 1870 | 0 | 1870 | | | |
| Adj Flow Rate, veh/h | 0 | 1569 | 256 | 0 | 2097 | 246 | 657 | 0 | 1237 | | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | |
| Percent Heavy Veh, % | 0 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | | | |
| Cap, veh/h | 0 | 1871 | 573 | 0 | 2776 | 573 | 2574 | 0 | 1430 | | | |
| Arrive On Green | 0.00 | 0.37 | 0.37 | 0.00 | 0.37 | 0.37 | 0.51 | 0.00 | 0.51 | | | |
| Sat Flow, veh/h | 0 | 5274 | 1563 | 0 | 7930 | 1563 | 5023 | 0 | 2790 | | | |
| Grp Volume(v), veh/h | 0 | 1569 | 256 | 0 | 2097 | 246 | 657 | 0 | 1237 | | | |
| Grp Sat Flow(s),veh/h/ln | 0 | 1702 | 1563 | 0 | 1515 | 1563 | 1674 | 0 | 1395 | | | |
| Q Serve(g_s), s | 0.0 | 22.7 | 10.0 | 0.0 | 19.6 | 9.6 | 5.9 | 0.0 | 31.4 | | | |
| Cycle Q Clear(g_c), s | 0.0 | 22.7 | 10.0 | 0.0 | 19.6 | 9.6 | 5.9 | 0.0 | 31.4 | | | |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 0 | 1871 | 573 | 0 | 2776 | 573 | 2574 | 0 | 1430 | | | |
| V/C Ratio(X) | 0.00 | 0.84 | 0.45 | 0.00 | 0.76 | 0.43 | 0.26 | 0.00 | 0.87 | | | |
| Avail Cap(c_a), veh/h | 0 | 1962 | 601 | 0 | 2910 | 601 | 3047 | 0 | 1692 | | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 0.0 | 23.4 | 19.4 | 0.0 | 22.5 | 19.3 | 11.1 | 0.0 | 17.3 | | | |
| Incr Delay (d2), s/veh | 0.0 | 3.3 | 0.5 | 0.0 | 1.1 | 0.5 | 0.1 | 0.0 | 4.4 | | | |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 0.0 | 8.6 | 9.5 | 0.0 | 6.4 | 3.2 | 2.0 | 0.0 | 9.8 | | | |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 26.7 | 20.0 | 0.0 | 23.6 | 19.8 | 11.1 | 0.0 | 21.7 | | | |
| LnGrp LOS | | C | B | | C | B | B | | C | | | |
| Approach Vol, veh/h | | 1825 | | | 2343 | | | 1894 | | | | |
| Approach Delay, s/veh | | 25.8 | | | 23.2 | | | 18.0 | | | | |
| Approach LOS | | C | | | C | | | B | | | | |
| Timer - Assigned Phs | | 2 | | 4 | | | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 46.4 | | 34.6 | | | | 34.6 | | | | |
| Change Period (Y+Rc), s | | 4.9 | | 4.9 | | | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 49.1 | | 31.1 | | | | 31.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 33.4 | | 24.7 | | | | 21.6 | | | | |
| Green Ext Time (p_c), s | | 8.0 | | 4.9 | | | | 8.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 7th Control Delay, s/veh | | | 22.3 | | | | | | | | | |
| HCM 7th LOS | | | C | | | | | | | | | |



| Lane Group | EBT | EBR | WBT | WBR | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 1569 | 541 | 2097 | 261 | 657 | 1350 |
| v/c Ratio | 0.86 | 0.61 | 0.78 | 0.36 | 0.25 | 0.93 |
| Control Delay (s/veh) | 32.7 | 5.4 | 27.7 | 4.4 | 11.3 | 32.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 32.7 | 5.4 | 27.7 | 4.4 | 11.3 | 32.0 |
| Queue Length 50th (ft) | 305 | 0 | 263 | 0 | 65 | 363 |
| Queue Length 95th (ft) | #378 | 71 | 303 | 50 | 85 | #550 |
| Internal Link Dist (ft) | 739 | | 542 | | | |
| Turn Bay Length (ft) | | | | 450 | | |
| Base Capacity (vph) | 1822 | 889 | 2703 | 719 | 2823 | 1544 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.86 | 0.61 | 0.78 | 0.36 | 0.23 | 0.87 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



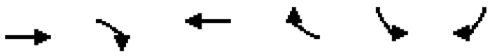
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑↑ | ↱ | | ↑↑↑↑ | ↱ | | | | ↰↰ | | ↱↱ |
| Traffic Volume (veh/h) | 0 | 2004 | 570 | 0 | 1959 | 735 | 0 | 0 | 0 | 81 | 0 | 458 |
| Future Volume (veh/h) | 0 | 2004 | 570 | 0 | 1959 | 735 | 0 | 0 | 0 | 81 | 0 | 458 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | | | | No | |
| Adj Sat Flow, veh/h/ln | 0 | 1870 | 1870 | 0 | 1870 | 1870 | | | | 1870 | 0 | 1870 |
| Adj Flow Rate, veh/h | 0 | 2088 | 480 | 0 | 2041 | -156 | | | | 84 | 0 | 294 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | | | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 0 | 2 | 2 | 0 | 2 | 2 | | | | 2 | 0 | 2 |
| Cap, veh/h | 0 | 4252 | 1039 | 0 | 4944 | 1303 | | | | 557 | 0 | 449 |
| Arrive On Green | 0.00 | 0.66 | 0.66 | 0.00 | 0.66 | 0.00 | | | | 0.16 | 0.00 | 0.16 |
| Sat Flow, veh/h | 0 | 6696 | 1573 | 0 | 7481 | 1585 | | | | 3456 | 0 | 2790 |
| Grp Volume(v), veh/h | 0 | 2088 | 480 | 0 | 2041 | -156 | | | | 84 | 0 | 294 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1609 | 1573 | 0 | 1870 | 1585 | | | | 1728 | 0 | 1395 |
| Q Serve(g_s), s | 0.0 | 9.0 | 8.2 | 0.0 | 7.0 | 0.0 | | | | 1.1 | 0.0 | 5.4 |
| Cycle Q Clear(g_c), s | 0.0 | 9.0 | 8.2 | 0.0 | 7.0 | 0.0 | | | | 1.1 | 0.0 | 5.4 |
| Prop In Lane | 0.00 | | 1.00 | 0.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 4252 | 1039 | 0 | 4944 | 1303 | | | | 557 | 0 | 449 |
| V/C Ratio(X) | 0.00 | 0.49 | 0.46 | 0.00 | 0.41 | -0.12 | | | | 0.15 | 0.00 | 0.65 |
| Avail Cap(c_a), veh/h | 0 | 5743 | 1404 | 0 | 6678 | 1670 | | | | 1954 | 0 | 1577 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 4.7 | 4.6 | 0.0 | 4.4 | 0.0 | | | | 19.8 | 0.0 | 21.6 |
| Incr Delay (d2), s/veh | 0.0 | 0.1 | 0.3 | 0.0 | 0.1 | 0.0 | | | | 0.1 | 0.0 | 1.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 1.3 | 1.2 | 0.0 | 1.2 | 0.0 | | | | 0.4 | 0.0 | 1.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 0.0 | 4.8 | 4.9 | 0.0 | 4.4 | 0.0 | | | | 20.0 | 0.0 | 23.3 |
| LnGrp LOS | | A | A | | A | | | | | B | | C |
| Approach Vol, veh/h | | 2568 | | | 1885 | | | | | | 378 | |
| Approach Delay, s/veh | | 4.8 | | | 4.8 | | | | | | 22.5 | |
| Approach LOS | | A | | | A | | | | | | C | |

| Timer - Assigned Phs | | | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | | | 41.2 | | 13.8 | | 41.2 | | | | |
| Change Period (Y+Rc), s | | | | 4.9 | | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | | | 49.1 | | 31.1 | | 49.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | | | 11.0 | | 7.4 | | 9.0 | | | | |
| Green Ext Time (p_c), s | | | | 25.4 | | 1.4 | | 22.0 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 6.2 | | | | | | | | | |
| HCM 7th LOS | | | A | | | | | | | | | |

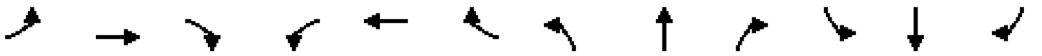
**Notes**

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.



| Lane Group | EBT | EBR | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 2088 | 594 | 2309 | 498 | 84 | 477 |
| v/c Ratio | 0.52 | 0.50 | 0.62 | 0.46 | 0.10 | 0.71 |
| Control Delay (s/veh) | 8.7 | 2.3 | 9.6 | 2.0 | 22.7 | 31.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 8.7 | 2.3 | 9.6 | 2.0 | 22.7 | 31.2 |
| Queue Length 50th (ft) | 135 | 0 | 171 | 0 | 16 | 114 |
| Queue Length 95th (ft) | 207 | 39 | 262 | 0 | 32 | 168 |
| Internal Link Dist (ft) | 1332 | | 739 | | | |
| Turn Bay Length (ft) | | 360 | | 100 | | |
| Base Capacity (vph) | 4380 | 1241 | 4059 | 1178 | 1486 | 1187 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.48 | 0.57 | 0.42 | 0.06 | 0.40 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 31 | 781 | 70 | 56 | 625 | 7 | 80 | 153 | 92 | 4 | 68 | 50 |
| Future Volume (veh/h) | 31 | 781 | 70 | 56 | 625 | 7 | 80 | 153 | 92 | 4 | 68 | 50 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 34 | 849 | 61 | 61 | 679 | 7 | 87 | 166 | 82 | 4 | 74 | 43 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 63 | 950 | 797 | 91 | 979 | 822 | 112 | 312 | 259 | 10 | 204 | 168 |
| Arrive On Green | 0.04 | 0.51 | 0.51 | 0.05 | 0.52 | 0.52 | 0.06 | 0.17 | 0.17 | 0.01 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1781 | 1870 | 1569 | 1781 | 1870 | 1570 | 1781 | 1870 | 1557 | 1781 | 1870 | 1542 |
| Grp Volume(v), veh/h | 34 | 849 | 61 | 61 | 679 | 7 | 87 | 166 | 82 | 4 | 74 | 43 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1569 | 1781 | 1870 | 1570 | 1781 | 1870 | 1557 | 1781 | 1870 | 1542 |
| Q Serve(g_s), s | 1.2 | 27.0 | 1.3 | 2.2 | 17.9 | 0.1 | 3.2 | 5.4 | 3.1 | 0.1 | 2.4 | 1.7 |
| Cycle Q Clear(g_c), s | 1.2 | 27.0 | 1.3 | 2.2 | 17.9 | 0.1 | 3.2 | 5.4 | 3.1 | 0.1 | 2.4 | 1.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 63 | 950 | 797 | 91 | 979 | 822 | 112 | 312 | 259 | 10 | 204 | 168 |
| V/C Ratio(X) | 0.54 | 0.89 | 0.08 | 0.67 | 0.69 | 0.01 | 0.78 | 0.53 | 0.32 | 0.42 | 0.36 | 0.26 |
| Avail Cap(c_a), veh/h | 159 | 1164 | 976 | 159 | 1164 | 977 | 162 | 546 | 455 | 159 | 544 | 448 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 31.4 | 14.7 | 8.3 | 30.8 | 11.8 | 7.5 | 30.5 | 25.2 | 24.2 | 32.8 | 27.3 | 27.0 |
| Incr Delay (d2), s/veh | 7.1 | 7.9 | 0.0 | 8.3 | 1.4 | 0.0 | 13.8 | 1.4 | 0.7 | 26.7 | 1.1 | 0.8 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 10.2 | 0.3 | 1.1 | 5.7 | 0.0 | 1.7 | 2.3 | 1.0 | 0.1 | 1.1 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 38.5 | 22.6 | 8.4 | 39.1 | 13.2 | 7.5 | 44.3 | 26.6 | 24.9 | 59.4 | 28.4 | 27.7 |
| LnGrp LOS | D | C | A | D | B | A | D | C | C | E | C | C |
| Approach Vol, veh/h | | 944 | | | 747 | | | 335 | | | 121 | |
| Approach Delay, s/veh | | 22.2 | | | 15.3 | | | 30.8 | | | 29.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.4 | 15.9 | 7.4 | 38.4 | 8.1 | 12.1 | 6.3 | 39.5 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 19.3 | 5.9 | 41.1 | 6.0 | 19.2 | 5.9 | 41.1 |
| Max Q Clear Time (g_c+I1), s | 2.1 | 7.4 | 4.2 | 29.0 | 5.2 | 4.4 | 3.2 | 19.9 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 4.5 | 0.0 | 0.3 | 0.0 | 4.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 21.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 34 | 849 | 76 | 61 | 679 | 8 | 87 | 166 | 100 | 4 | 74 | 54 |
| v/c Ratio | 0.24 | 0.85 | 0.09 | 0.43 | 0.65 | 0.01 | 0.60 | 0.43 | 0.24 | 0.03 | 0.30 | 0.17 |
| Control Delay (s/veh) | 41.5 | 28.3 | 1.1 | 47.7 | 18.2 | 0.0 | 56.7 | 31.3 | 5.9 | 37.5 | 35.1 | 1.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 41.5 | 28.3 | 1.1 | 47.7 | 18.2 | 0.0 | 56.7 | 31.3 | 5.9 | 37.5 | 35.1 | 1.2 |
| Queue Length 50th (ft) | 16 | 349 | 0 | 30 | 239 | 0 | 43 | 69 | 0 | 2 | 35 | 0 |
| Queue Length 95th (ft) | 48 | #715 | 9 | #82 | 458 | 0 | #126 | 143 | 31 | 12 | 72 | 0 |
| Internal Link Dist (ft) | | 2532 | | | 910 | | | 5241 | | | 1172 | |
| Turn Bay Length (ft) | 265 | | 265 | 155 | | 25 | 100 | | 50 | 175 | | 105 |
| Base Capacity (vph) | 144 | 1057 | 910 | 144 | 1104 | 945 | 146 | 498 | 500 | 144 | 493 | 496 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.80 | 0.08 | 0.42 | 0.62 | 0.01 | 0.60 | 0.33 | 0.20 | 0.03 | 0.15 | 0.11 |

Intersection Summary

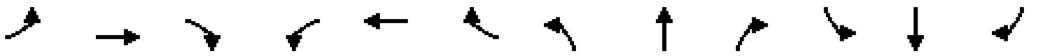
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 247.9 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 77 | 497 | 128 | 50 | 581 | 15 | 194 | 343 | 72 | 17 | 183 | 30 |
| Future Vol, veh/h | 77 | 497 | 128 | 50 | 581 | 15 | 194 | 343 | 72 | 17 | 183 | 30 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 84 | 540 | 139 | 54 | 632 | 16 | 211 | 373 | 78 | 18 | 199 | 33 |
| Number of Lanes | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 3 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 3 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 2 | 3 |
| HCM Control Delay, s/veh | 71.8 | 420.4 | 340.5 | 55.8 |
| HCM LOS | F | F | F | F |

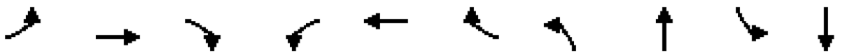
| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 36% | 0% | 100% | 0% | 0% | 100% | 0% | 7% |
| Vol Thru, % | 64% | 0% | 0% | 100% | 56% | 0% | 97% | 80% |
| Vol Right, % | 0% | 100% | 0% | 0% | 44% | 0% | 3% | 13% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 537 | 72 | 77 | 331 | 294 | 50 | 596 | 230 |
| LT Vol | 194 | 0 | 77 | 0 | 0 | 50 | 0 | 17 |
| Through Vol | 343 | 0 | 0 | 331 | 166 | 0 | 581 | 183 |
| RT Vol | 0 | 72 | 0 | 0 | 128 | 0 | 15 | 30 |
| Lane Flow Rate | 584 | 78 | 84 | 360 | 319 | 54 | 648 | 250 |
| Geometry Grp | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Degree of Util (X) | 1.756 | 0.216 | 0.243 | 0.994 | 0.854 | 0.169 | 1.92 | 0.777 |
| Departure Headway (Hd) | 12.956 | 12.015 | 14.068 | 13.526 | 13.195 | 13.158 | 12.597 | 15.065 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 286 | 301 | 257 | 270 | 278 | 274 | 298 | 243 |
| Service Time | 10.656 | 9.715 | 11.768 | 11.226 | 10.895 | 10.858 | 10.297 | 12.765 |
| HCM Lane V/C Ratio | 2.042 | 0.259 | 0.327 | 1.333 | 1.147 | 0.197 | 2.174 | 1.029 |
| HCM Control Delay, s/veh | 383.7 | 18 | 21.2 | 92.7 | 61.5 | 18.5 | 454.1 | 55.8 |
| HCM Lane LOS | F | C | C | F | F | C | F | F |
| HCM 95th-tile Q | 32 | 0.8 | 0.9 | 9.9 | 7.2 | 0.6 | 38.2 | 5.7 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 78 | 442 | 228 | 60 | 392 | 39 | 116 | 565 | 113 | 60 | 261 | 42 |
| Future Volume (veh/h) | 78 | 442 | 228 | 60 | 392 | 39 | 116 | 565 | 113 | 60 | 261 | 42 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 82 | 465 | 192 | 63 | 413 | 33 | 122 | 595 | 97 | 63 | 275 | 36 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 112 | 584 | 490 | 98 | 568 | 477 | 159 | 838 | 136 | 98 | 757 | 98 |
| Arrive On Green | 0.06 | 0.31 | 0.31 | 0.05 | 0.30 | 0.30 | 0.09 | 0.27 | 0.27 | 0.05 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1570 | 1781 | 1870 | 1569 | 1781 | 3051 | 496 | 1781 | 3155 | 408 |
| Grp Volume(v), veh/h | 82 | 465 | 192 | 63 | 413 | 33 | 122 | 346 | 346 | 63 | 153 | 158 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1570 | 1781 | 1870 | 1569 | 1781 | 1777 | 1770 | 1781 | 1777 | 1787 |
| Q Serve(g_s), s | 2.6 | 13.3 | 5.6 | 2.0 | 11.6 | 0.9 | 3.9 | 10.3 | 10.3 | 2.0 | 4.2 | 4.3 |
| Cycle Q Clear(g_c), s | 2.6 | 13.3 | 5.6 | 2.0 | 11.6 | 0.9 | 3.9 | 10.3 | 10.3 | 2.0 | 4.2 | 4.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.28 | 1.00 | | 0.23 |
| Lane Grp Cap(c), veh/h | 112 | 584 | 490 | 98 | 568 | 477 | 159 | 488 | 486 | 98 | 427 | 429 |
| V/C Ratio(X) | 0.73 | 0.80 | 0.39 | 0.65 | 0.73 | 0.07 | 0.77 | 0.71 | 0.71 | 0.65 | 0.36 | 0.37 |
| Avail Cap(c_a), veh/h | 243 | 993 | 834 | 213 | 961 | 807 | 383 | 792 | 789 | 243 | 652 | 656 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 27.0 | 18.4 | 15.8 | 27.1 | 18.2 | 14.5 | 26.1 | 19.1 | 19.2 | 27.1 | 18.5 | 18.5 |
| Incr Delay (d2), s/veh | 8.8 | 2.5 | 0.5 | 7.0 | 1.8 | 0.1 | 7.5 | 1.9 | 2.0 | 7.0 | 0.5 | 0.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.3 | 5.1 | 1.7 | 1.0 | 4.4 | 0.3 | 1.8 | 3.9 | 3.9 | 1.0 | 1.6 | 1.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 35.8 | 21.0 | 16.3 | 34.1 | 20.0 | 14.6 | 33.6 | 21.0 | 21.1 | 34.1 | 19.0 | 19.1 |
| LnGrp LOS | D | C | B | C | C | B | C | C | C | C | B | B |
| Approach Vol, veh/h | | 739 | | | 509 | | | 814 | | | 374 | |
| Approach Delay, s/veh | | 21.4 | | | 21.4 | | | 23.0 | | | 21.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.2 | 21.0 | 7.2 | 23.2 | 9.2 | 19.0 | 7.7 | 22.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 8.0 | 26.1 | 7.0 | 31.1 | 12.6 | 21.5 | 8.0 | 30.1 |
| Max Q Clear Time (g_c+I1), s | 4.0 | 12.3 | 4.0 | 15.3 | 5.9 | 6.3 | 4.6 | 13.6 |
| Green Ext Time (p_c), s | 0.0 | 3.4 | 0.0 | 2.9 | 0.1 | 1.4 | 0.0 | 2.1 |

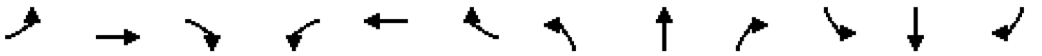
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 22.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 82 | 465 | 240 | 63 | 413 | 41 | 122 | 714 | 63 | 319 |
| v/c Ratio | 0.41 | 0.75 | 0.38 | 0.35 | 0.68 | 0.07 | 0.47 | 0.71 | 0.32 | 0.36 |
| Control Delay (s/veh) | 44.0 | 32.7 | 9.5 | 43.6 | 30.7 | 0.2 | 41.0 | 29.2 | 42.0 | 25.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 44.0 | 32.7 | 9.5 | 43.6 | 30.7 | 0.2 | 41.0 | 29.2 | 42.0 | 25.8 |
| Queue Length 50th (ft) | 40 | 211 | 26 | 31 | 184 | 0 | 58 | 166 | 30 | 66 |
| Queue Length 95th (ft) | #92 | 342 | 84 | 76 | 301 | 0 | 120 | 247 | 75 | 114 |
| Internal Link Dist (ft) | | 2456 | | | 2474 | | | 1532 | | 255 |
| Turn Bay Length (ft) | 100 | | 100 | 140 | | 50 | 115 | | 140 | |
| Base Capacity (vph) | 228 | 933 | 855 | 199 | 903 | 833 | 359 | 1455 | 228 | 1205 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.50 | 0.28 | 0.32 | 0.46 | 0.05 | 0.34 | 0.49 | 0.28 | 0.26 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 280 | 1460 | 554 | 149 | 1172 | 111 | 320 | 367 | 173 | 272 | 258 | 168 |
| Future Volume (veh/h) | 280 | 1460 | 554 | 149 | 1172 | 111 | 320 | 367 | 173 | 272 | 258 | 168 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 292 | 1521 | 461 | 155 | 1221 | 93 | 333 | 382 | 145 | 283 | 269 | 140 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 374 | 1773 | 546 | 232 | 1563 | 481 | 375 | 887 | 391 | 379 | 529 | 231 |
| Arrive On Green | 0.11 | 0.35 | 0.35 | 0.07 | 0.31 | 0.31 | 0.21 | 0.25 | 0.25 | 0.11 | 0.15 | 0.15 |
| Sat Flow, veh/h | 3456 | 5106 | 1571 | 3456 | 5106 | 1570 | 1781 | 3554 | 1566 | 3456 | 3554 | 1553 |
| Grp Volume(v), veh/h | 292 | 1521 | 461 | 155 | 1221 | 93 | 333 | 382 | 145 | 283 | 269 | 140 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1702 | 1571 | 1728 | 1702 | 1570 | 1781 | 1777 | 1566 | 1728 | 1777 | 1553 |
| Q Serve(g_s), s | 6.5 | 21.8 | 21.3 | 3.4 | 17.2 | 3.4 | 14.3 | 7.1 | 6.0 | 6.2 | 5.5 | 6.6 |
| Cycle Q Clear(g_c), s | 6.5 | 21.8 | 21.3 | 3.4 | 17.2 | 3.4 | 14.3 | 7.1 | 6.0 | 6.2 | 5.5 | 6.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 374 | 1773 | 546 | 232 | 1563 | 481 | 375 | 887 | 391 | 379 | 529 | 231 |
| V/C Ratio(X) | 0.78 | 0.86 | 0.84 | 0.67 | 0.78 | 0.19 | 0.89 | 0.43 | 0.37 | 0.75 | 0.51 | 0.61 |
| Avail Cap(c_a), veh/h | 395 | 1824 | 561 | 264 | 1630 | 501 | 430 | 1143 | 504 | 562 | 863 | 377 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.2 | 23.9 | 23.7 | 35.8 | 24.9 | 20.1 | 30.1 | 24.8 | 24.4 | 34.0 | 30.8 | 31.3 |
| Incr Delay (d2), s/veh | 9.2 | 4.2 | 11.1 | 5.3 | 2.4 | 0.2 | 18.1 | 0.3 | 0.6 | 3.0 | 0.8 | 2.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.0 | 8.4 | 8.7 | 1.5 | 6.5 | 1.2 | 7.6 | 2.8 | 2.1 | 2.6 | 2.3 | 2.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 43.4 | 28.1 | 34.9 | 41.1 | 27.3 | 20.3 | 48.3 | 25.1 | 25.0 | 37.0 | 31.6 | 33.9 |
| LnGrp LOS | D | C | C | D | C | C | D | C | C | D | C | C |
| Approach Vol, veh/h | | 2274 | | | 1469 | | | 860 | | | 692 | |
| Approach Delay, s/veh | | 31.4 | | | 28.3 | | | 34.1 | | | 34.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.6 | 24.5 | 9.3 | 32.2 | 20.6 | 16.6 | 12.5 | 29.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 12.8 | 25.3 | 6.0 | 28.1 | 19.0 | 19.1 | 9.0 | 25.1 |
| Max Q Clear Time (g_c+I1), s | 8.2 | 9.1 | 5.4 | 23.8 | 16.3 | 8.6 | 8.5 | 19.2 |
| Green Ext Time (p_c), s | 0.4 | 2.5 | 0.0 | 3.5 | 0.3 | 1.5 | 0.1 | 3.7 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 292 | 1521 | 577 | 155 | 1221 | 116 | 333 | 382 | 180 | 283 | 269 | 175 |
| v/c Ratio | 0.78 | 0.87 | 0.79 | 0.62 | 0.78 | 0.20 | 0.85 | 0.47 | 0.37 | 0.60 | 0.53 | 0.47 |
| Control Delay (s/veh) | 52.0 | 32.8 | 21.7 | 49.6 | 30.9 | 2.2 | 52.4 | 29.6 | 7.9 | 39.4 | 36.5 | 9.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 52.0 | 32.8 | 21.7 | 49.6 | 30.9 | 2.2 | 52.4 | 29.6 | 7.9 | 39.4 | 36.5 | 9.8 |
| Queue Length 50th (ft) | 76 | 266 | 128 | 40 | 209 | 0 | 163 | 90 | 5 | 71 | 68 | 0 |
| Queue Length 95th (ft) | #146 | #386 | #335 | #82 | 282 | 16 | #321 | 133 | 54 | 114 | 106 | 53 |
| Internal Link Dist (ft) | | 2532 | | | 4548 | | | 2495 | | | 509 | |
| Turn Bay Length (ft) | 200 | | 100 | 300 | | 100 | 150 | | 60 | 180 | | 75 |
| Base Capacity (vph) | 376 | 1744 | 726 | 251 | 1557 | 588 | 410 | 1093 | 592 | 536 | 825 | 493 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.78 | 0.87 | 0.79 | 0.62 | 0.78 | 0.20 | 0.81 | 0.35 | 0.30 | 0.53 | 0.33 | 0.35 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 231.7 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 19 | 210 | 373 | 53 | 123 | 1 | 654 | 83 | 54 | 0 | 62 | 21 |
| Future Vol, veh/h | 19 | 210 | 373 | 53 | 123 | 1 | 654 | 83 | 54 | 0 | 62 | 21 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 244 | 434 | 62 | 143 | 1 | 760 | 97 | 63 | 0 | 72 | 24 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 149.5 | 20.7 | 364 | 16.1 |
| HCM LOS | F | C | F | C |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 83% | 3% | 30% | 0% |
| Vol Thru, % | 10% | 35% | 69% | 75% |
| Vol Right, % | 7% | 62% | 1% | 25% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 791 | 602 | 177 | 83 |
| LT Vol | 654 | 19 | 53 | 0 |
| Through Vol | 83 | 210 | 123 | 62 |
| RT Vol | 54 | 373 | 1 | 21 |
| Lane Flow Rate | 920 | 700 | 206 | 97 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.749 | 1.236 | 0.436 | 0.214 |
| Departure Headway (Hd) | 7.413 | 8.037 | 10.117 | 10.316 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 497 | 455 | 358 | 350 |
| Service Time | 5.413 | 6.037 | 8.117 | 8.316 |
| HCM Lane V/C Ratio | 1.851 | 1.538 | 0.575 | 0.277 |
| HCM Control Delay, s/veh | 364 | 149.5 | 20.7 | 16.1 |
| HCM Lane LOS | F | F | C | C |
| HCM 95th-tile Q | 51.6 | 22.5 | 2.1 | 0.8 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 135.1 |

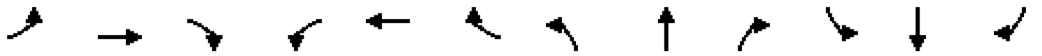
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 258 | 71 | 528 | 401 | 56 | 474 |
| Future Vol, veh/h | 258 | 71 | 528 | 401 | 56 | 474 |
| Conflicting Peds, #/hr | 10 | 10 | 0 | 10 | 10 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 280 | 77 | 574 | 436 | 61 | 515 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1449 | 812 | 0 | 0 | 1020 | 0 |
| Stage 1 | 802 | - | - | - | - | - |
| Stage 2 | 647 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | ~ 144 | 379 | - | - | 680 | - |
| Stage 1 | 441 | - | - | - | - | - |
| Stage 2 | 521 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | ~ 124 | 372 | - | - | 674 | - |
| Mov Cap-2 Maneuver | ~ 124 | - | - | - | - | - |
| Stage 1 | 437 | - | - | - | - | - |
| Stage 2 | 451 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | $ 732.37 | 0 | 1.15 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 145 | 190 | - |
| HCM Lane V/C Ratio | - | - | 2.473 | 0.09 | - |
| HCM Ctrl Dly (s/v) | - | - | $ 732.4 | 10.9 | 0 |
| HCM Lane LOS | - | - | F | B | A |
| HCM 95th %tile Q(veh) | - | - | 31 | 0.3 | - |

| Notes | |
|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s |
| +: Computation Not Defined | *: All major volume in platoon |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 181 | 577 | 75 | 84 | 401 | 293 | 129 | 445 | 88 | 162 | 227 | 191 |
| Future Volume (veh/h) | 181 | 577 | 75 | 84 | 401 | 293 | 129 | 445 | 88 | 162 | 227 | 191 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 193 | 614 | 64 | 89 | 427 | 250 | 137 | 473 | 76 | 172 | 241 | 168 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 229 | 1040 | 108 | 114 | 479 | 398 | 170 | 529 | 444 | 208 | 310 | 216 |
| Arrive On Green | 0.13 | 0.32 | 0.32 | 0.06 | 0.26 | 0.26 | 0.10 | 0.28 | 0.28 | 0.12 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1781 | 3245 | 338 | 1781 | 1870 | 1554 | 1781 | 1870 | 1568 | 1781 | 1019 | 710 |
| Grp Volume(v), veh/h | 193 | 336 | 342 | 89 | 427 | 250 | 137 | 473 | 76 | 172 | 0 | 409 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1806 | 1781 | 1870 | 1554 | 1781 | 1870 | 1568 | 1781 | 0 | 1729 |
| Q Serve(g_s), s | 8.8 | 13.1 | 13.1 | 4.1 | 18.2 | 11.8 | 6.2 | 20.1 | 3.0 | 7.8 | 0.0 | 17.8 |
| Cycle Q Clear(g_c), s | 8.8 | 13.1 | 13.1 | 4.1 | 18.2 | 11.8 | 6.2 | 20.1 | 3.0 | 7.8 | 0.0 | 17.8 |
| Prop In Lane | 1.00 | | 0.19 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.41 |
| Lane Grp Cap(c), veh/h | 229 | 569 | 579 | 114 | 479 | 398 | 170 | 529 | 444 | 208 | 0 | 526 |
| V/C Ratio(X) | 0.84 | 0.59 | 0.59 | 0.78 | 0.89 | 0.63 | 0.80 | 0.89 | 0.17 | 0.83 | 0.00 | 0.78 |
| Avail Cap(c_a), veh/h | 237 | 569 | 579 | 172 | 523 | 434 | 194 | 613 | 514 | 237 | 0 | 609 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 35.2 | 23.5 | 23.5 | 38.1 | 29.6 | 27.3 | 36.6 | 28.4 | 22.3 | 35.7 | 0.0 | 26.2 |
| Incr Delay (d2), s/veh | 22.5 | 1.6 | 1.6 | 11.9 | 16.5 | 2.5 | 19.3 | 14.1 | 0.2 | 18.8 | 0.0 | 5.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.9 | 5.1 | 5.2 | 2.0 | 9.5 | 4.2 | 3.5 | 10.2 | 1.0 | 4.3 | 0.0 | 7.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 57.7 | 25.1 | 25.1 | 50.0 | 46.1 | 29.8 | 55.9 | 42.6 | 22.5 | 54.5 | 0.0 | 31.7 |
| LnGrp LOS | E | C | C | D | D | C | E | D | C | D | | C |
| Approach Vol, veh/h | | 871 | | | 766 | | | 686 | | | 581 | |
| Approach Delay, s/veh | | 32.4 | | | 41.2 | | | 43.0 | | | 38.4 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 13.7 | 28.3 | 9.3 | 31.4 | 11.9 | 30.1 | 14.6 | 26.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 11.0 | 27.1 | 8.0 | 26.1 | 9.0 | 29.1 | 11.0 | 23.1 |
| Max Q Clear Time (g_c+I1), s | 9.8 | 22.1 | 6.1 | 15.1 | 8.2 | 19.8 | 10.8 | 20.2 |
| Green Ext Time (p_c), s | 0.1 | 1.3 | 0.0 | 2.8 | 0.0 | 1.6 | 0.0 | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 38.4 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 193 | 694 | 89 | 427 | 312 | 137 | 473 | 94 | 172 | 444 |
| v/c Ratio | 0.85 | 0.62 | 0.57 | 0.90 | 0.65 | 0.76 | 0.89 | 0.18 | 0.79 | 0.80 |
| Control Delay (s/veh) | 71.7 | 28.6 | 54.6 | 56.1 | 24.5 | 66.1 | 49.9 | 3.6 | 64.2 | 36.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 71.7 | 28.6 | 54.6 | 56.1 | 24.5 | 66.1 | 49.9 | 3.6 | 64.2 | 36.4 |
| Queue Length 50th (ft) | 110 | 178 | 50 | 234 | 93 | 77 | 251 | 0 | 97 | 201 |
| Queue Length 95th (ft) | #234 | 241 | #107 | #405 | 184 | #173 | #417 | 23 | #202 | #344 |
| Internal Link Dist (ft) | | 1 | | 1257 | | | 2574 | | | 2558 |
| Turn Bay Length (ft) | 115 | | 260 | | 55 | 155 | | | 205 | |
| Base Capacity (vph) | 226 | 1127 | 165 | 501 | 498 | 185 | 587 | 568 | 226 | 609 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.85 | 0.62 | 0.54 | 0.85 | 0.63 | 0.74 | 0.81 | 0.17 | 0.76 | 0.73 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

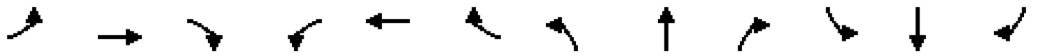
| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 4 | 3 | 5 | 5 | 7 | 42 | 9 | 650 | 13 | 9 | 388 | 7 |
| Future Vol, veh/h | 4 | 3 | 5 | 5 | 7 | 42 | 9 | 650 | 13 | 9 | 388 | 7 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 100 | - | - | 255 | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 3 | 5 | 5 | 8 | 46 | 10 | 707 | 14 | 10 | 422 | 8 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1191 | 1202 | 442 | 1196 | 1202 | 734 | 439 | 0 | 0 | 731 | 0 | 0 |
| Stage 1 | 451 | 451 | - | 743 | 743 | - | - | - | - | - | - | - |
| Stage 2 | 740 | 750 | - | 453 | 459 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 164 | 185 | 616 | 163 | 185 | 420 | 1121 | - | - | 874 | - | - |
| Stage 1 | 588 | 571 | - | 407 | 422 | - | - | - | - | - | - | - |
| Stage 2 | 409 | 419 | - | 586 | 566 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 134 | 178 | 604 | 152 | 177 | 412 | 1110 | - | - | 865 | - | - |
| Mov Cap-2 Maneuver | 134 | 178 | - | 152 | 177 | - | - | - | - | - | - | - |
| Stage 1 | 575 | 559 | - | 400 | 414 | - | - | - | - | - | - | - |
| Stage 2 | 350 | 411 | - | 566 | 555 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 22.52 | 19.3 | 0.11 | 0.21 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1110 | - | - | 218 | 310 | 865 | - | - |
| HCM Lane V/C Ratio | 0.009 | - | - | 0.06 | 0.189 | 0.011 | - | - |
| HCM Ctrl Dly (s/v) | 8.3 | - | - | 22.5 | 19.3 | 9.2 | - | - |
| HCM Lane LOS | A | - | - | C | C | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.7 | 0 | - | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 71 | 376 | 114 | 88 | 357 | 51 | 262 | 525 | 91 | 45 | 330 | 58 |
| Future Volume (veh/h) | 71 | 376 | 114 | 88 | 357 | 51 | 262 | 525 | 91 | 45 | 330 | 58 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 76 | 404 | 98 | 95 | 384 | 44 | 282 | 565 | 80 | 48 | 355 | 50 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 97 | 700 | 168 | 122 | 428 | 49 | 324 | 737 | 616 | 74 | 405 | 57 |
| Arrive On Green | 0.05 | 0.25 | 0.25 | 0.07 | 0.26 | 0.26 | 0.18 | 0.39 | 0.39 | 0.04 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1781 | 2834 | 680 | 1781 | 1644 | 188 | 1781 | 1870 | 1565 | 1781 | 1599 | 225 |
| Grp Volume(v), veh/h | 76 | 252 | 250 | 95 | 0 | 428 | 282 | 565 | 80 | 48 | 0 | 405 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1738 | 1781 | 0 | 1832 | 1781 | 1870 | 1565 | 1781 | 0 | 1824 |
| Q Serve(g_s), s | 3.3 | 9.8 | 10.0 | 4.1 | 0.0 | 17.7 | 12.1 | 20.6 | 2.6 | 2.1 | 0.0 | 16.7 |
| Cycle Q Clear(g_c), s | 3.3 | 9.8 | 10.0 | 4.1 | 0.0 | 17.7 | 12.1 | 20.6 | 2.6 | 2.1 | 0.0 | 16.7 |
| Prop In Lane | 1.00 | | 0.39 | 1.00 | | 0.10 | 1.00 | | 1.00 | 1.00 | | 0.12 |
| Lane Grp Cap(c), veh/h | 97 | 439 | 429 | 122 | 0 | 478 | 324 | 737 | 616 | 74 | 0 | 462 |
| V/C Ratio(X) | 0.78 | 0.57 | 0.58 | 0.78 | 0.00 | 0.90 | 0.87 | 0.77 | 0.13 | 0.65 | 0.00 | 0.88 |
| Avail Cap(c_a), veh/h | 120 | 473 | 462 | 170 | 0 | 539 | 388 | 878 | 735 | 116 | 0 | 578 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 36.7 | 26.0 | 26.0 | 36.0 | 0.0 | 28.0 | 31.2 | 20.7 | 15.2 | 37.1 | 0.0 | 28.2 |
| Incr Delay (d2), s/veh | 22.6 | 1.5 | 1.6 | 14.1 | 0.0 | 16.4 | 16.6 | 3.4 | 0.1 | 9.4 | 0.0 | 12.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.0 | 4.0 | 4.0 | 2.2 | 0.0 | 9.2 | 6.3 | 8.5 | 0.8 | 1.0 | 0.0 | 8.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 59.3 | 27.4 | 27.7 | 50.1 | 0.0 | 44.4 | 47.8 | 24.1 | 15.3 | 46.5 | 0.0 | 40.2 |
| LnGrp LOS | E | C | C | D | | D | D | C | B | D | | D |
| Approach Vol, veh/h | | 578 | | | 523 | | | 927 | | | 453 | |
| Approach Delay, s/veh | | 31.7 | | | 45.4 | | | 30.6 | | | 40.9 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.1 | 35.9 | 10.3 | 24.3 | 19.2 | 24.8 | 9.2 | 25.4 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 36.9 | 7.5 | 20.9 | 17.1 | 24.9 | 5.3 | 23.1 |
| Max Q Clear Time (g_c+I1), s | 4.1 | 22.6 | 6.1 | 12.0 | 14.1 | 18.7 | 5.3 | 19.7 |
| Green Ext Time (p_c), s | 0.0 | 3.1 | 0.0 | 1.8 | 0.2 | 1.2 | 0.0 | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 35.8 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 76 | 527 | 95 | 439 | 282 | 565 | 98 | 48 | 417 |
| v/c Ratio | 0.66 | 0.61 | 0.61 | 0.90 | 0.82 | 0.67 | 0.13 | 0.43 | 0.85 |
| Control Delay (s/veh) | 69.5 | 30.5 | 57.6 | 54.0 | 55.1 | 24.9 | 1.6 | 53.7 | 47.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 69.5 | 30.5 | 57.6 | 54.0 | 55.1 | 24.9 | 1.6 | 53.7 | 47.2 |
| Queue Length 50th (ft) | 43 | 131 | 53 | 240 | 156 | 265 | 0 | 27 | 217 |
| Queue Length 95th (ft) | #117 | 186 | #122 | #424 | #290 | 393 | 13 | #69 | #370 |
| Internal Link Dist (ft) | | 2553 | | 2529 | | 2558 | | | 2587 |
| Turn Bay Length (ft) | 235 | | 145 | | 200 | | | 85 | |
| Base Capacity (vph) | 116 | 907 | 163 | 524 | 373 | 880 | 790 | 111 | 563 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.66 | 0.58 | 0.58 | 0.84 | 0.76 | 0.64 | 0.12 | 0.43 | 0.74 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 113 | 309 | 167 | 68 | 265 | 29 | 195 | 868 | 138 | 28 | 499 | 68 |
| Future Volume (veh/h) | 113 | 309 | 167 | 68 | 265 | 29 | 195 | 868 | 138 | 28 | 499 | 68 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 118 | 322 | 140 | 71 | 276 | 24 | 203 | 904 | 116 | 29 | 520 | 57 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 154 | 445 | 372 | 105 | 748 | 329 | 258 | 1280 | 566 | 57 | 798 | 87 |
| Arrive On Green | 0.09 | 0.24 | 0.24 | 0.06 | 0.21 | 0.21 | 0.14 | 0.36 | 0.36 | 0.03 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1781 | 1870 | 1565 | 1781 | 3554 | 1562 | 1781 | 3554 | 1572 | 1781 | 3223 | 352 |
| Grp Volume(v), veh/h | 118 | 322 | 140 | 71 | 276 | 24 | 203 | 904 | 116 | 29 | 286 | 291 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1565 | 1781 | 1777 | 1562 | 1781 | 1777 | 1572 | 1781 | 1777 | 1798 |
| Q Serve(g_s), s | 3.7 | 9.1 | 4.3 | 2.2 | 3.8 | 0.7 | 6.3 | 12.5 | 2.9 | 0.9 | 8.3 | 8.3 |
| Cycle Q Clear(g_c), s | 3.7 | 9.1 | 4.3 | 2.2 | 3.8 | 0.7 | 6.3 | 12.5 | 2.9 | 0.9 | 8.3 | 8.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.20 |
| Lane Grp Cap(c), veh/h | 154 | 445 | 372 | 105 | 748 | 329 | 258 | 1280 | 566 | 57 | 440 | 445 |
| V/C Ratio(X) | 0.77 | 0.72 | 0.38 | 0.67 | 0.37 | 0.07 | 0.79 | 0.71 | 0.20 | 0.50 | 0.65 | 0.65 |
| Avail Cap(c_a), veh/h | 376 | 786 | 658 | 249 | 1240 | 545 | 528 | 2114 | 935 | 186 | 716 | 725 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.6 | 20.1 | 18.3 | 26.4 | 19.4 | 18.1 | 23.7 | 15.7 | 12.7 | 27.3 | 19.3 | 19.4 |
| Incr Delay (d2), s/veh | 7.8 | 2.2 | 0.6 | 7.3 | 0.3 | 0.1 | 5.3 | 0.7 | 0.2 | 6.7 | 1.6 | 1.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 3.6 | 1.4 | 1.1 | 1.4 | 0.2 | 2.7 | 4.1 | 0.9 | 0.5 | 3.1 | 3.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.4 | 22.4 | 18.9 | 33.7 | 19.7 | 18.2 | 28.9 | 16.5 | 12.8 | 34.0 | 21.0 | 21.0 |
| LnGrp LOS | C | C | B | C | B | B | C | B | B | C | C | C |
| Approach Vol, veh/h | | 580 | | | 371 | | | 1223 | | | 606 | |
| Approach Delay, s/veh | | 23.8 | | | 22.3 | | | 18.2 | | | 21.6 | |
| Approach LOS | | C | | | C | | | B | | | C | |

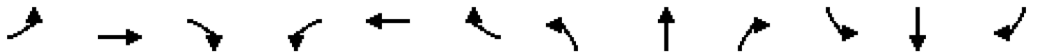
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.8 | 25.5 | 7.4 | 18.5 | 12.3 | 19.1 | 8.9 | 17.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 34.1 | 8.0 | 24.1 | 17.0 | 23.1 | 12.1 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 14.5 | 4.2 | 11.1 | 8.3 | 10.3 | 5.7 | 5.8 |
| Green Ext Time (p_c), s | 0.0 | 6.1 | 0.0 | 1.8 | 0.3 | 2.6 | 0.1 | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.6 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 118 | 322 | 174 | 71 | 276 | 30 | 203 | 904 | 144 | 29 | 591 |
| v/c Ratio | 0.49 | 0.70 | 0.34 | 0.39 | 0.36 | 0.06 | 0.62 | 0.57 | 0.18 | 0.19 | 0.69 |
| Control Delay (s/veh) | 41.5 | 36.4 | 6.6 | 43.1 | 28.5 | 0.2 | 40.4 | 19.6 | 2.9 | 41.4 | 30.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 41.5 | 36.4 | 6.6 | 43.1 | 28.5 | 0.2 | 40.4 | 19.6 | 2.9 | 41.4 | 30.7 |
| Queue Length 50th (ft) | 54 | 144 | 0 | 33 | 61 | 0 | 92 | 153 | 0 | 14 | 133 |
| Queue Length 95th (ft) | 118 | 253 | 47 | 82 | 106 | 0 | 179 | 288 | 27 | 44 | 211 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | |
| Base Capacity (vph) | 318 | 668 | 664 | 210 | 1053 | 611 | 447 | 1825 | 876 | 158 | 1199 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.37 | 0.48 | 0.26 | 0.34 | 0.26 | 0.05 | 0.45 | 0.50 | 0.16 | 0.18 | 0.49 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 164 | 0 | 18 | 529 | 1242 | 0 | 0 | 476 | 268 |
| Future Volume (veh/h) | 0 | 0 | 0 | 164 | 0 | 18 | 529 | 1242 | 0 | 0 | 476 | 268 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.98 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 1870 | 1870 | 0 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 174 | 0 | 15 | 563 | 1321 | 0 | 0 | 506 | 231 |
| Peak Hour Factor | | | | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 237 | 0 | 211 | 803 | 2317 | 0 | 0 | 784 | 356 |
| Arrive On Green | | | | 0.13 | 0.00 | 0.13 | 0.23 | 0.65 | 0.00 | 0.00 | 0.33 | 0.33 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 3456 | 3647 | 0 | 0 | 2455 | 1073 |
| Grp Volume(v), veh/h | | | | 174 | 0 | 15 | 563 | 1321 | 0 | 0 | 380 | 357 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 1728 | 1777 | 0 | 0 | 1777 | 1658 |
| Q Serve(g_s), s | | | | 4.3 | 0.0 | 0.4 | 6.8 | 9.4 | 0.0 | 0.0 | 8.3 | 8.4 |
| Cycle Q Clear(g_c), s | | | | 4.3 | 0.0 | 0.4 | 6.8 | 9.4 | 0.0 | 0.0 | 8.3 | 8.4 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 0.65 |
| Lane Grp Cap(c), veh/h | | | | 237 | 0 | 211 | 803 | 2317 | 0 | 0 | 590 | 551 |
| V/C Ratio(X) | | | | 0.73 | 0.00 | 0.07 | 0.70 | 0.57 | 0.00 | 0.00 | 0.64 | 0.65 |
| Avail Cap(c_a), veh/h | | | | 715 | 0 | 636 | 1819 | 4824 | 0 | 0 | 1321 | 1232 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 19.0 | 0.0 | 17.3 | 16.1 | 4.4 | 0.0 | 0.0 | 12.9 | 13.0 |
| Incr Delay (d2), s/veh | | | | 4.4 | 0.0 | 0.1 | 1.1 | 0.2 | 0.0 | 0.0 | 1.2 | 1.3 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 1.8 | 0.0 | 0.1 | 2.2 | 1.0 | 0.0 | 0.0 | 2.6 | 2.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 23.4 | 0.0 | 17.4 | 17.2 | 4.6 | 0.0 | 0.0 | 14.1 | 14.3 |
| LnGrp LOS | | | | C | | B | B | A | | | B | B |
| Approach Vol, veh/h | | | | | 189 | | | 1884 | | | 737 | |
| Approach Delay, s/veh | | | | | 22.9 | | | 8.4 | | | 14.2 | |
| Approach LOS | | | | | C | | | A | | | B | |

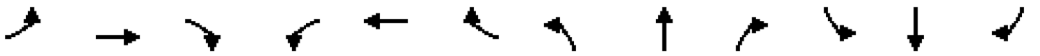
| Timer - Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 34.6 | | | 14.6 | 20.0 | | 11.0 | | | | |
| Change Period (Y+Rc), s | | 4.9 | | | 4.0 | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 61.9 | | | 24.0 | 33.9 | | 18.3 | | | | |
| Max Q Clear Time (g_c+I1), s | | 11.4 | | | 8.8 | 10.4 | | 6.3 | | | | |
| Green Ext Time (p_c), s | | 12.5 | | | 1.8 | 4.4 | | 0.4 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 10.9 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |



| Lane Group | WBL | WBR | NBL | NBT | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 174 | 19 | 563 | 1321 | 791 |
| v/c Ratio | 0.52 | 0.05 | 0.64 | 0.58 | 0.68 |
| Control Delay (s/veh) | 31.5 | 0.3 | 25.9 | 7.6 | 19.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 31.5 | 0.3 | 25.9 | 7.6 | 19.1 |
| Queue Length 50th (ft) | 58 | 0 | 95 | 120 | 106 |
| Queue Length 95th (ft) | 147 | 0 | 190 | 219 | 214 |
| Internal Link Dist (ft) | | | | 535 | 971 |
| Turn Bay Length (ft) | | | 260 | | |
| Base Capacity (vph) | 543 | 523 | 1383 | 3247 | 1947 |
| Starvation Cap Reductn | 0 | 0 | 0 | 119 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.32 | 0.04 | 0.41 | 0.42 | 0.41 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 588 | 0 | 635 | 0 | 0 | 0 | 0 | 1190 | 376 | 25 | 616 | 0 |
| Future Volume (veh/h) | 588 | 0 | 635 | 0 | 0 | 0 | 0 | 1190 | 376 | 25 | 616 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 612 | 0 | 529 | | | | 0 | 1240 | 316 | 26 | 642 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | | | | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 1189 | 0 | 545 | | | | 0 | 1341 | 336 | 46 | 1970 | 0 |
| Arrive On Green | 0.34 | 0.00 | 0.34 | | | | 0.00 | 0.48 | 0.48 | 0.03 | 0.55 | 0.00 |
| Sat Flow, veh/h | 3456 | 0 | 1585 | | | | 0 | 2901 | 704 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 612 | 0 | 529 | | | | 0 | 777 | 779 | 26 | 642 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 0 | 1585 | | | | 0 | 1777 | 1735 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 13.6 | 0.0 | 31.7 | | | | 0.0 | 39.2 | 41.1 | 1.4 | 9.5 | 0.0 |
| Cycle Q Clear(g_c), s | 13.6 | 0.0 | 31.7 | | | | 0.0 | 39.2 | 41.1 | 1.4 | 9.5 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.41 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 1189 | 0 | 545 | | | | 0 | 849 | 828 | 46 | 1970 | 0 |
| V/C Ratio(X) | 0.51 | 0.00 | 0.97 | | | | 0.00 | 0.92 | 0.94 | 0.56 | 0.33 | 0.00 |
| Avail Cap(c_a), veh/h | 1189 | 0 | 545 | | | | 0 | 866 | 845 | 94 | 2099 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 25.2 | 0.0 | 31.1 | | | | 0.0 | 23.4 | 23.9 | 46.4 | 11.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.0 | 30.9 | | | | 0.0 | 14.1 | 18.0 | 10.2 | 0.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.5 | 0.0 | 16.3 | | | | 0.0 | 17.8 | 18.9 | 0.7 | 3.3 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 25.6 | 0.0 | 62.0 | | | | 0.0 | 37.5 | 41.9 | 56.7 | 11.8 | 0.0 |
| LnGrp LOS | C | | E | | | | | D | D | E | B | |
| Approach Vol, veh/h | | 1141 | | | | | | 1556 | | | 668 | |
| Approach Delay, s/veh | | 42.5 | | | | | | 39.7 | | | 13.5 | |
| Approach LOS | | D | | | | | | D | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.4 | 51.0 | | 38.1 | | 58.4 |
| Change Period (Y+Rc), s | 4.9 | 4.9 | | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | 5.1 | 47.0 | | 33.2 | | 57.0 |
| Max Q Clear Time (g_c+I1), s | 3.4 | 43.1 | | 33.7 | | 11.5 |
| Green Ext Time (p_c), s | 0.0 | 3.0 | | 0.0 | | 4.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 35.5 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 613 | 661 | 1632 | 26 | 642 |
| v/c Ratio | 0.51 | 0.95 | 0.94 | 0.27 | 0.33 |
| Control Delay (s/veh) | 26.3 | 44.0 | 34.9 | 51.8 | 12.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 26.3 | 44.0 | 34.9 | 51.8 | 12.5 |
| Queue Length 50th (ft) | 135 | 243 | 408 | 14 | 106 |
| Queue Length 95th (ft) | 216 | #545 | #705 | 44 | 140 |
| Internal Link Dist (ft) | | | 824 | | 535 |
| Turn Bay Length (ft) | | | | 90 | |
| Base Capacity (vph) | 1216 | 699 | 1729 | 96 | 2153 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.95 | 0.94 | 0.27 | 0.30 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 437 | 4 | 37 | 317 | 5 | 53 |
| Future Vol, veh/h | 437 | 4 | 37 | 317 | 5 | 53 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 88 | 88 | 88 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 497 | 5 | 42 | 360 | 6 | 60 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 511 | 0 | 963 | 519 |
| Stage 1 | - | - | - | - | 509 | - |
| Stage 2 | - | - | - | - | 454 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1054 | - | 283 | 557 |
| Stage 1 | - | - | - | - | 604 | - |
| Stage 2 | - | - | - | - | 639 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1044 | - | 264 | 546 |
| Mov Cap-2 Maneuver | - | - | - | - | 264 | - |
| Stage 1 | - | - | - | - | 598 | - |
| Stage 2 | - | - | - | - | 601 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.9 | 13.28 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 500 | - | - | 188 | - |
| HCM Lane V/C Ratio | 0.132 | - | - | 0.04 | - |
| HCM Ctrl Dly (s/v) | 13.3 | - | - | 8.6 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.5 | - | - | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 57 | 645 | 720 | 7 | 0 | 46 |
| Future Vol, veh/h | 57 | 645 | 720 | 7 | 0 | 46 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 100 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 63 | 709 | 791 | 8 | 0 | 51 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 809 | 0 | - | 0 | 1295 | 815 |
| Stage 1 | - | - | - | - | 805 | - |
| Stage 2 | - | - | - | - | 490 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | 2.219 | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 815 | - | - | - | 166 | 376 |
| Stage 1 | - | - | - | - | 439 | - |
| Stage 2 | - | - | - | - | 582 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 807 | - | - | - | 150 | 369 |
| Mov Cap-2 Maneuver | - | - | - | - | 150 | - |
| Stage 1 | - | - | - | - | 401 | - |
| Stage 2 | - | - | - | - | 577 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.8 | 0 | 16.29 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 807 | - | - | - | 369 |
| HCM Lane V/C Ratio | 0.078 | - | - | - | 0.137 |
| HCM Ctrl Dly (s/v) | 9.8 | - | - | - | 16.3 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 0.5 |

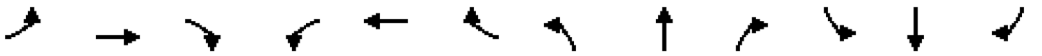
| Intersection | |
|---|---|
| Int Delay, s/veh | 1.8 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 592 | 62 | 12 | 656 | 47 | 12 |
| Future Vol, veh/h | 592 | 62 | 12 | 656 | 47 | 12 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | 110 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 623 | 65 | 13 | 691 | 49 | 13 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 698 | 0 | 1392 | 364 |
| Stage 1 | - | - | - | - | 666 | - |
| Stage 2 | - | - | - | - | 726 | - |
| Critical Hdwy | - | - | 4.13 | - | 6.63 | 6.93 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.83 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.43 | - |
| Follow-up Hdwy | - | - | 2.219 | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | - | - | 896 | - | 144 | 633 |
| Stage 1 | - | - | - | - | 473 | - |
| Stage 2 | - | - | - | - | 478 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 887 | - | 140 | 621 |
| Mov Cap-2 Maneuver | - | - | - | - | 140 | - |
| Stage 1 | - | - | - | - | 469 | - |
| Stage 2 | - | - | - | - | 467 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0.16 | 39.21 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 166 | - | - | 887 | - |
| HCM Lane V/C Ratio | 0.375 | - | - | 0.014 | - |
| HCM Ctrl Dly (s/v) | 39.2 | - | - | 9.1 | - |
| HCM Lane LOS | E | - | - | A | - |
| HCM 95th %tile Q(veh) | 1.6 | - | - | 0 | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 104 | 218 | 144 | 60 | 274 | 14 | 297 | 463 | 64 | 18 | 229 | 72 |
| Future Volume (veh/h) | 104 | 218 | 144 | 60 | 274 | 14 | 297 | 463 | 64 | 18 | 229 | 72 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 109 | 229 | 121 | 63 | 288 | 13 | 313 | 487 | 53 | 19 | 241 | 63 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 121 | 746 | 328 | 81 | 333 | 15 | 152 | 149 | 929 | 43 | 416 | 101 |
| Arrive On Green | 0.07 | 0.21 | 0.21 | 0.05 | 0.19 | 0.19 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 |
| Sat Flow, veh/h | 1781 | 3554 | 1562 | 1781 | 1773 | 80 | 163 | 253 | 1577 | 0 | 707 | 171 |
| Grp Volume(v), veh/h | 109 | 229 | 121 | 63 | 0 | 301 | 800 | 0 | 53 | 323 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1562 | 1781 | 0 | 1853 | 416 | 0 | 1577 | 878 | 0 | 0 |
| Q Serve(g_s), s | 5.4 | 4.8 | 5.9 | 3.1 | 0.0 | 14.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 5.4 | 4.8 | 5.9 | 3.1 | 0.0 | 14.0 | 52.2 | 0.0 | 1.3 | 52.2 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.04 | 0.39 | | 1.00 | 0.06 | | 0.20 |
| Lane Grp Cap(c), veh/h | 121 | 746 | 328 | 81 | 0 | 348 | 301 | 0 | 929 | 560 | 0 | 0 |
| V/C Ratio(X) | 0.90 | 0.31 | 0.37 | 0.78 | 0.00 | 0.86 | 2.65 | 0.00 | 0.06 | 0.58 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 121 | 746 | 328 | 119 | 0 | 376 | 301 | 0 | 929 | 560 | 0 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 41.0 | 29.6 | 30.0 | 41.9 | 0.0 | 34.9 | 23.1 | 0.0 | 7.8 | 20.9 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 53.4 | 0.2 | 0.7 | 17.6 | 0.0 | 17.6 | 754.2 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.0 | 1.9 | 2.1 | 1.7 | 0.0 | 7.5 | 69.4 | 0.0 | 0.4 | 4.4 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 94.5 | 29.8 | 30.7 | 59.5 | 0.0 | 52.5 | 777.3 | 0.0 | 7.8 | 22.4 | 0.0 | 0.0 |
| LnGrp LOS | F | C | C | E | | D | F | | A | C | | |
| Approach Vol, veh/h | | 459 | | | 364 | | | 853 | | | 323 | |
| Approach Delay, s/veh | | 45.4 | | | 53.7 | | | 729.5 | | | 22.4 | |
| Approach LOS | | D | | | D | | | F | | | C | |

| Timer - Assigned Phs | 2 | 3 | 4 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 57.1 | 8.0 | 23.5 | 57.1 | 10.0 | 21.5 |
| Change Period (Y+Rc), s | 4.9 | 4.0 | 4.9 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 52.2 | 5.9 | 18.1 | 52.2 | 6.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 54.2 | 5.1 | 7.9 | 54.2 | 7.4 | 16.0 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 335.1 |
| HCM 7th LOS | F |

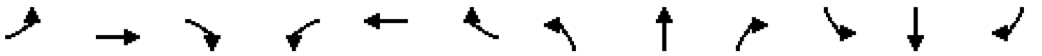


| Lane Group | EBL | EBT | EBR | WBL | WBT | NBT | NBR | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 109 | 229 | 152 | 63 | 303 | 800 | 67 | 336 |
| v/c Ratio | 0.92 | 0.30 | 0.34 | 0.54 | 0.85 | 1.02 | 0.07 | 0.34 |
| Control Delay (s/veh) | 106.9 | 31.4 | 7.7 | 59.1 | 57.6 | 59.1 | 2.2 | 9.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 106.9 | 31.4 | 7.7 | 59.1 | 57.6 | 59.1 | 2.2 | 9.9 |
| Queue Length 50th (ft) | 63 | 58 | 0 | 36 | 164 | ~493 | 0 | 83 |
| Queue Length 95th (ft) | #164 | 92 | 49 | #87 | #299 | #714 | 15 | 135 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | 2587 | | 894 |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | |
| Base Capacity (vph) | 119 | 764 | 452 | 117 | 375 | 782 | 933 | 1001 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.92 | 0.30 | 0.34 | 0.54 | 0.81 | 1.02 | 0.07 | 0.34 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 240 | 192 | 120 | 112 | 116 | 6 | 139 | 892 | 186 | 10 | 558 | 124 |
| Future Volume (veh/h) | 240 | 192 | 120 | 112 | 116 | 6 | 139 | 892 | 186 | 10 | 558 | 124 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 267 | 213 | 106 | 124 | 129 | 6 | 154 | 991 | 168 | 11 | 620 | 112 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 325 | 425 | 355 | 161 | 252 | 209 | 197 | 1321 | 581 | 25 | 977 | 428 |
| Arrive On Green | 0.18 | 0.23 | 0.23 | 0.09 | 0.13 | 0.13 | 0.11 | 0.37 | 0.37 | 0.01 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1781 | 1870 | 1564 | 1781 | 1870 | 1550 | 1781 | 3554 | 1564 | 1781 | 3554 | 1556 |
| Grp Volume(v), veh/h | 267 | 213 | 106 | 124 | 129 | 6 | 154 | 991 | 168 | 11 | 620 | 112 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1564 | 1781 | 1870 | 1550 | 1781 | 1777 | 1564 | 1781 | 1777 | 1556 |
| Q Serve(g_s), s | 8.6 | 6.0 | 3.4 | 4.1 | 3.8 | 0.2 | 5.0 | 14.6 | 4.5 | 0.4 | 9.2 | 3.4 |
| Cycle Q Clear(g_c), s | 8.6 | 6.0 | 3.4 | 4.1 | 3.8 | 0.2 | 5.0 | 14.6 | 4.5 | 0.4 | 9.2 | 3.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 325 | 425 | 355 | 161 | 252 | 209 | 197 | 1321 | 581 | 25 | 977 | 428 |
| V/C Ratio(X) | 0.82 | 0.50 | 0.30 | 0.77 | 0.51 | 0.03 | 0.78 | 0.75 | 0.29 | 0.44 | 0.63 | 0.26 |
| Avail Cap(c_a), veh/h | 535 | 730 | 610 | 374 | 561 | 465 | 356 | 1796 | 790 | 175 | 1434 | 628 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.6 | 20.2 | 19.2 | 26.7 | 24.1 | 22.5 | 26.0 | 16.4 | 13.3 | 29.3 | 19.1 | 17.0 |
| Incr Delay (d2), s/veh | 5.1 | 0.9 | 0.5 | 7.5 | 1.6 | 0.1 | 6.6 | 1.2 | 0.3 | 11.8 | 0.7 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.6 | 2.3 | 1.1 | 1.9 | 1.6 | 0.1 | 2.2 | 4.8 | 1.3 | 0.2 | 3.2 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 28.7 | 21.1 | 19.7 | 34.1 | 25.7 | 22.6 | 32.5 | 17.6 | 13.5 | 41.2 | 19.8 | 17.3 |
| LnGrp LOS | C | C | B | C | C | C | C | B | B | D | B | B |
| Approach Vol, veh/h | | 586 | | | 259 | | | 1313 | | | 743 | |
| Approach Delay, s/veh | | 24.3 | | | 29.7 | | | 18.8 | | | 19.7 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.8 | 27.2 | 9.4 | 18.5 | 10.6 | 21.4 | 15.0 | 13.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 30.3 | 12.6 | 23.4 | 12.0 | 24.2 | 18.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 16.6 | 6.1 | 8.0 | 7.0 | 11.2 | 10.6 | 5.8 |
| Green Ext Time (p_c), s | 0.0 | 5.7 | 0.1 | 1.2 | 0.1 | 3.3 | 0.4 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 21.1 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 267 | 213 | 133 | 124 | 129 | 7 | 154 | 991 | 207 | 11 | 620 | 138 |
| v/c Ratio | 0.69 | 0.51 | 0.28 | 0.49 | 0.46 | 0.02 | 0.57 | 0.62 | 0.27 | 0.07 | 0.66 | 0.25 |
| Control Delay (s/veh) | 39.8 | 32.1 | 4.2 | 39.7 | 37.0 | 0.0 | 42.5 | 19.7 | 5.9 | 38.4 | 29.0 | 1.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 39.8 | 32.1 | 4.2 | 39.7 | 37.0 | 0.0 | 42.5 | 19.7 | 5.9 | 38.4 | 29.0 | 1.7 |
| Queue Length 50th (ft) | 118 | 90 | 0 | 56 | 59 | 0 | 70 | 181 | 10 | 5 | 143 | 0 |
| Queue Length 95th (ft) | #250 | 169 | 27 | 119 | 117 | 0 | #159 | 338 | 62 | 22 | 216 | 8 |
| Internal Link Dist (ft) | | 2578 | | | 2549 | | | 1811 | | | 2540 | |
| Turn Bay Length (ft) | 240 | | 80 | 100 | | 25 | 240 | | 120 | 250 | | 95 |
| Base Capacity (vph) | 475 | 650 | 647 | 332 | 500 | 572 | 316 | 1727 | 824 | 155 | 1278 | 685 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.33 | 0.21 | 0.37 | 0.26 | 0.01 | 0.49 | 0.57 | 0.25 | 0.07 | 0.49 | 0.20 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# MOVEMENT SUMMARY

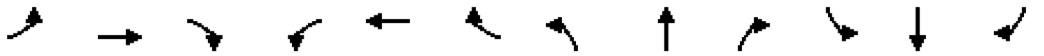
**Site: [1 (4)] Temperance - Alluvial NT+MP PM** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Temperance - Alluvial
Near-Term With Master Plan
PM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] ft | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Temperance Ave | | | | | | | | | | | | | | | |
| 3 | L2 | All MCs | 153 | 3.0 | 153 | 3.0 | 0.650 | 12.7 | LOS B | 8.3 | 211.6 | 0.78 | 0.62 | 1.00 | 28.3 |
| 8 | T1 | All MCs | 1076 | 3.0 | 1076 | 3.0 | 0.650 | 12.0 | LOS B | 8.3 | 211.6 | 0.77 | 0.60 | 0.95 | 30.0 |
| 18 | R2 | All MCs | 225 | 3.0 | 225 | 3.0 | 0.650 | 11.4 | LOS B | 8.0 | 205.3 | 0.76 | 0.57 | 0.91 | 30.2 |
| Approach | | | 1454 | 3.0 | 1454 | 3.0 | 0.650 | 12.0 | LOS B | 8.3 | 211.6 | 0.77 | 0.60 | 0.95 | 29.8 |
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 184 | 3.0 | 184 | 3.0 | 0.342 | 13.7 | LOS B | 1.8 | 47.0 | 0.81 | 0.80 | 0.89 | 25.2 |
| 6 | T1 | All MCs | 52 | 3.0 | 52 | 3.0 | 0.342 | 11.5 | LOS B | 1.8 | 47.0 | 0.82 | 0.78 | 0.88 | 32.4 |
| 16 | R2 | All MCs | 101 | 3.0 | 101 | 3.0 | 0.342 | 11.5 | LOS B | 1.8 | 47.0 | 0.82 | 0.78 | 0.88 | 32.1 |
| Approach | | | 337 | 3.0 | 337 | 3.0 | 0.342 | 12.7 | LOS B | 1.8 | 47.0 | 0.81 | 0.79 | 0.89 | 28.6 |
| North: Temperance Ave | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 77 | 3.0 | 77 | 3.0 | 0.471 | 9.4 | LOS A | 2.9 | 74.0 | 0.59 | 0.46 | 0.65 | 34.6 |
| 4 | T1 | All MCs | 733 | 3.0 | 733 | 3.0 | 0.471 | 9.2 | LOS A | 2.9 | 74.0 | 0.59 | 0.46 | 0.64 | 31.2 |
| 14 | R2 | All MCs | 105 | 3.0 | 105 | 3.0 | 0.471 | 9.1 | LOS A | 2.9 | 73.0 | 0.59 | 0.45 | 0.63 | 35.6 |
| Approach | | | 916 | 3.0 | 916 | 3.0 | 0.471 | 9.2 | LOS A | 2.9 | 74.0 | 0.59 | 0.46 | 0.64 | 32.2 |
| West: Alluvial Ave | | | | | | | | | | | | | | | |
| 5 | L2 | All MCs | 155 | 3.0 | 155 | 3.0 | 0.300 | 8.2 | LOS A | 1.4 | 36.2 | 0.69 | 0.61 | 0.69 | 32.1 |
| 2 | T1 | All MCs | 73 | 3.0 | 73 | 3.0 | 0.300 | 8.2 | LOS A | 1.4 | 36.2 | 0.69 | 0.61 | 0.69 | 32.8 |
| 12 | R2 | All MCs | 178 | 3.0 | 178 | 3.0 | 0.284 | 9.4 | LOS A | 1.3 | 32.1 | 0.69 | 0.63 | 0.69 | 29.7 |
| Approach | | | 406 | 3.0 | 406 | 3.0 | 0.300 | 8.7 | LOS A | 1.4 | 36.2 | 0.69 | 0.62 | 0.69 | 31.4 |
| All Vehicles | | | 3113 | 3.0 | 3113 | 3.0 | 0.650 | 10.8 | LOS B | 8.3 | 211.6 | 0.71 | 0.58 | 0.82 | 30.6 |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c >1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 63 | 0 | 41 | 0 | 1237 | 878 | 0 | 590 | 384 |
| Future Volume (veh/h) | 0 | 0 | 0 | 63 | 0 | 41 | 0 | 1237 | 878 | 0 | 590 | 384 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | | | | 1870 | 0 | 1870 | 0 | 1870 | 1870 | 0 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | | | 71 | 0 | 46 | 0 | 1390 | 0 | 0 | 663 | 349 |
| Peak Hour Factor | | | | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | | | | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Cap, veh/h | | | | 169 | 0 | 150 | 0 | 2273 | 1014 | 0 | 2273 | 1006 |
| Arrive On Green | | | | 0.09 | 0.00 | 0.09 | 0.00 | 0.64 | 0.00 | 0.00 | 0.64 | 0.64 |
| Sat Flow, veh/h | | | | 1781 | 0 | 1585 | 0 | 3647 | 1585 | 0 | 3647 | 1573 |
| Grp Volume(v), veh/h | | | | 71 | 0 | 46 | 0 | 1390 | 0 | 0 | 663 | 349 |
| Grp Sat Flow(s),veh/h/ln | | | | 1781 | 0 | 1585 | 0 | 1777 | 1585 | 0 | 1777 | 1573 |
| Q Serve(g_s), s | | | | 1.4 | 0.0 | 1.0 | 0.0 | 8.5 | 0.0 | 0.0 | 3.0 | 3.8 |
| Cycle Q Clear(g_c), s | | | | 1.4 | 0.0 | 1.0 | 0.0 | 8.5 | 0.0 | 0.0 | 3.0 | 3.8 |
| Prop In Lane | | | | 1.00 | | 1.00 | 0.00 | | 1.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 169 | 0 | 150 | 0 | 2273 | 1014 | 0 | 2273 | 1006 |
| V/C Ratio(X) | | | | 0.42 | 0.00 | 0.31 | 0.00 | 0.61 | 0.00 | 0.00 | 0.29 | 0.35 |
| Avail Cap(c_a), veh/h | | | | 874 | 0 | 778 | 0 | 5983 | 2668 | 0 | 5983 | 2648 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | | | 15.7 | 0.0 | 15.6 | 0.0 | 3.9 | 0.0 | 0.0 | 2.9 | 3.1 |
| Incr Delay (d2), s/veh | | | | 1.7 | 0.0 | 1.1 | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.2 |
| Initial Q Delay(d3), s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 0.5 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | | | | 17.4 | 0.0 | 16.7 | 0.0 | 4.2 | 0.0 | 0.0 | 3.0 | 3.3 |
| LnGrp LOS | | | | B | | B | | A | | | A | A |
| Approach Vol, veh/h | | | | | 117 | | | 1390 | | | 1012 | |
| Approach Delay, s/veh | | | | | 17.1 | | | 4.2 | | | 3.1 | |
| Approach LOS | | | | | B | | | A | | | A | |

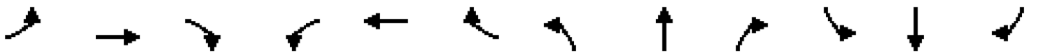
| Timer - Assigned Phs | 2 | | | 6 | | 8 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 28.5 | | | 28.5 | | 8.4 | | | | | | |
| Change Period (Y+Rc), s | 4.9 | | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 62.1 | | | 62.1 | | 18.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 10.5 | | | 5.8 | | 3.4 | | | | | | |
| Green Ext Time (p_c), s | 13.1 | | | 6.0 | | 0.2 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | 4.4 | | | | | | | | | | |
| HCM 7th LOS | | A | | | | | | | | | | |



| Lane Group | WBL | WBR | NBT | NBR | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 71 | 46 | 1390 | 987 | 663 | 431 |
| v/c Ratio | 0.32 | 0.20 | 0.49 | 0.70 | 0.23 | 0.33 |
| Control Delay (s/veh) | 35.6 | 12.7 | 4.3 | 3.3 | 3.0 | 1.0 |
| Queue Delay | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Total Delay (s/veh) | 35.6 | 12.7 | 4.4 | 3.5 | 3.0 | 1.0 |
| Queue Length 50th (ft) | 30 | 0 | 103 | 0 | 36 | 0 |
| Queue Length 95th (ft) | 72 | 29 | 165 | 24 | 62 | 18 |
| Internal Link Dist (ft) | | | 518 | | 438 | |
| Turn Bay Length (ft) | | | | | | 160 |
| Base Capacity (vph) | 495 | 464 | 3034 | 1438 | 3034 | 1382 |
| Starvation Cap Reductn | 0 | 0 | 432 | 49 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.14 | 0.10 | 0.53 | 0.71 | 0.22 | 0.31 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 547 | 0 | 965 | 0 | 0 | 0 | 0 | 1571 | 101 | 28 | 649 | 0 |
| Future Volume (veh/h) | 547 | 0 | 965 | 0 | 0 | 0 | 0 | 1571 | 101 | 28 | 649 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 608 | 0 | 858 | | | | 0 | 1746 | 91 | 31 | 721 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | | | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 845 | 0 | 752 | | | | 0 | 1400 | 72 | 43 | 1631 | 0 |
| Arrive On Green | 0.47 | 0.00 | 0.47 | | | | 0.00 | 0.41 | 0.41 | 0.02 | 0.46 | 0.00 |
| Sat Flow, veh/h | 1781 | 0 | 1585 | | | | 0 | 3528 | 178 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 608 | 0 | 858 | | | | 0 | 897 | 940 | 31 | 721 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1585 | | | | 0 | 1777 | 1836 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 40.2 | 0.0 | 70.1 | | | | 0.0 | 60.2 | 60.2 | 2.6 | 20.3 | 0.0 |
| Cycle Q Clear(g_c), s | 40.2 | 0.0 | 70.1 | | | | 0.0 | 60.2 | 60.2 | 2.6 | 20.3 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.10 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 845 | 0 | 752 | | | | 0 | 724 | 748 | 43 | 1631 | 0 |
| V/C Ratio(X) | 0.72 | 0.00 | 1.14 | | | | 0.00 | 1.24 | 1.26 | 0.71 | 0.44 | 0.00 |
| Avail Cap(c_a), veh/h | 845 | 0 | 752 | | | | 0 | 724 | 748 | 71 | 1687 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 30.9 | 0.0 | 38.8 | | | | 0.0 | 43.7 | 43.7 | 71.5 | 27.1 | 0.0 |
| Incr Delay (d2), s/veh | 3.0 | 0.0 | 78.8 | | | | 0.0 | 118.9 | 126.2 | 19.5 | 0.2 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 17.9 | 0.0 | 43.2 | | | | 0.0 | 49.0 | 52.2 | 1.4 | 8.4 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.9 | 0.0 | 117.6 | | | | 0.0 | 162.6 | 170.0 | 91.0 | 27.3 | 0.0 |
| LnGrp LOS | C | | F | | | | | F | F | F | C | |
| Approach Vol, veh/h | | 1466 | | | | | | 1837 | | | 752 | |
| Approach Delay, s/veh | | 82.9 | | | | | | 166.4 | | | 29.9 | |
| Approach LOS | | F | | | | | | F | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.6 | 65.1 | | 75.0 | | 72.7 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 5.9 | 60.2 | | 70.1 | | 70.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 4.6 | 62.2 | | 72.1 | | 22.3 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 0.0 | | 4.9 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 110.9 | | | | | | | | | |
| HCM 7th LOS | | | F | | | | | | | | | |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 608 | 1072 | 1858 | 31 | 721 |
| v/c Ratio | 0.72 | 1.33 | 1.28 | 0.44 | 0.45 |
| Control Delay (s/veh) | 36.6 | 188.1 | 169.6 | 89.6 | 28.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 36.6 | 188.1 | 169.6 | 89.6 | 28.4 |
| Queue Length 50th (ft) | 476 | ~1311 | ~1236 | 30 | 244 |
| Queue Length 95th (ft) | 632 | #1579 | #1374 | 68 | 298 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 850 | 803 | 1447 | 71 | 1700 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.72 | 1.33 | 1.28 | 0.44 | 0.42 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Intersection | |
|---|---|
| Int Delay, s/veh | 22.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 49 | 245 | 33 | 16 | 234 | 87 | 45 | 93 | 13 | 98 | 43 | 86 |
| Future Vol, veh/h | 49 | 245 | 33 | 16 | 234 | 87 | 45 | 93 | 13 | 98 | 43 | 86 |
| Conflicting Peds, #/hr | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 | 10 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 245 | - | - | 100 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 57 | 285 | 38 | 19 | 272 | 101 | 52 | 108 | 15 | 114 | 50 | 100 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 383 | 0 | 0 | 333 | 0 | 0 | 772 | 848 | 182 | 690 | 817 | 343 |
| Stage 1 | - | - | - | - | - | - | 428 | 428 | - | 370 | 370 | - |
| Stage 2 | - | - | - | - | - | - | 344 | 420 | - | 320 | 447 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.33 | 6.53 | 6.93 | 7.33 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.53 | 5.53 | - |
| Follow-up Hdwy | 2.219 | - | - | 2.219 | - | - | 3.519 | 4.019 | 3.319 | 3.519 | 4.019 | 3.319 |
| Pot Cap-1 Maneuver | 1173 | - | - | 1224 | - | - | 302 | 297 | 830 | 345 | 310 | 699 |
| Stage 1 | - | - | - | - | - | - | 576 | 584 | - | 649 | 619 | - |
| Stage 2 | - | - | - | - | - | - | 670 | 588 | - | 666 | 572 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1162 | - | - | 1213 | - | - | 198 | 273 | 815 | 193 | 285 | 686 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 198 | 273 | - | 193 | 285 | - |
| Stage 1 | - | - | - | - | - | - | 543 | 550 | - | 633 | 604 | - |
| Stage 2 | - | - | - | - | - | - | 512 | 574 | - | 495 | 539 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Ctrl Dly, s/v | 1.24 | 0.38 | 43.98 | 71.89 |
| HCM LOS | | | E | F |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 259 | 1162 | - | - | 1213 | - | - | 289 |
| HCM Lane V/C Ratio | 0.679 | 0.049 | - | - | 0.015 | - | - | 0.912 |
| HCM Ctrl Dly (s/v) | 44 | 8.3 | - | - | 8 | - | - | 71.9 |
| HCM Lane LOS | E | A | - | - | A | - | - | F |
| HCM 95th %tile Q(veh) | 4.4 | 0.2 | - | - | 0 | - | - | 8.5 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 11.9 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 364 | 9 | 4 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 6 | 195 |
| Future Vol, veh/h | 364 | 9 | 4 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 6 | 195 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 414 | 10 | 5 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 7 | 222 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 13.4 | 8 | 8.3 | 9.2 |
| HCM LOS | B | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 40% | 97% | 25% | 0% |
| Vol Thru, % | 40% | 2% | 50% | 3% |
| Vol Right, % | 20% | 1% | 25% | 97% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 5 | 377 | 4 | 202 |
| LT Vol | 2 | 364 | 1 | 1 |
| Through Vol | 2 | 9 | 2 | 6 |
| RT Vol | 1 | 4 | 1 | 195 |
| Lane Flow Rate | 6 | 428 | 5 | 230 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.008 | 0.554 | 0.006 | 0.282 |
| Departure Headway (Hd) | 5.243 | 4.655 | 4.875 | 4.427 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 680 | 775 | 730 | 813 |
| Service Time | 3.294 | 2.694 | 2.933 | 2.454 |
| HCM Lane V/C Ratio | 0.009 | 0.552 | 0.007 | 0.283 |
| HCM Control Delay, s/veh | 8.3 | 13.4 | 8 | 9.2 |
| HCM Lane LOS | A | B | A | A |
| HCM 95th-tile Q | 0 | 3.4 | 0 | 1.2 |



| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Traffic Volume (veh/h) | 0 | 156 | 163 | 6 | 219 | 174 | 6 |
| Future Volume (veh/h) | 0 | 156 | 163 | 6 | 219 | 174 | 6 |
| Initial Q (Qb), veh | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | | 0.98 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | | 197 | 168 | 8 | 277 | 220 | 7 |
| Peak Hour Factor | | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Percent Heavy Veh, % | | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | | 917 | 401 | 19 | 803 | 380 | 338 |
| Arrive On Green | | 0.26 | 0.26 | 0.01 | 0.43 | 0.21 | 0.21 |
| Sat Flow, veh/h | | 3647 | 1554 | 1781 | 1870 | 1781 | 1585 |
| Grp Volume(v), veh/h | | 197 | 168 | 8 | 277 | 220 | 7 |
| Grp Sat Flow(s),veh/h/ln | | 1777 | 1554 | 1781 | 1870 | 1781 | 1585 |
| Q Serve(g_s), s | | 1.1 | 2.2 | 0.1 | 2.5 | 2.8 | 0.1 |
| Cycle Q Clear(g_c), s | | 1.1 | 2.2 | 0.1 | 2.5 | 2.8 | 0.1 |
| Prop In Lane | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | | 917 | 401 | 19 | 803 | 380 | 338 |
| V/C Ratio(X) | | 0.21 | 0.42 | 0.42 | 0.34 | 0.58 | 0.02 |
| Avail Cap(c_a), veh/h | | 2854 | 1248 | 429 | 1510 | 1509 | 1343 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | | 7.3 | 7.7 | 12.2 | 4.8 | 8.8 | 7.7 |
| Incr Delay (d2), s/veh | | 0.1 | 0.7 | 13.6 | 0.3 | 1.4 | 0.0 |
| Initial Q Delay(d3), s/veh | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | 0.2 | 0.3 | 0.1 | 0.1 | 0.7 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | |
| LnGrp Delay(d), s/veh | | 7.4 | 8.4 | 25.9 | 5.0 | 10.2 | 7.8 |
| LnGrp LOS | | A | A | C | A | B | A |
| Approach Vol, veh/h | | 365 | | | 285 | 227 | |
| Approach Delay, s/veh | | 7.8 | | | 5.6 | 10.1 | |
| Approach LOS | | A | | | A | B | |

| Timer - Assigned Phs | 2 | 3 | 4 | | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.3 | 4.3 | 11.3 | | | 15.6 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.9 | | | 4.9 |
| Max Green Setting (Gmax), s | 21.1 | 6.0 | 20.0 | | | 20.1 |
| Max Q Clear Time (g_c+I1), s | 4.8 | 2.1 | 4.2 | | | 4.5 |
| Green Ext Time (p_c), s | 0.5 | 0.0 | 1.4 | | | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 7.7 |
| HCM 7th LOS | A |

| Notes |
|---|
| User approved ignoring U-Turning movement. |



| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 197 | 206 | 8 | 277 | 220 | 8 |
| v/c Ratio | 0.17 | 0.32 | 0.02 | 0.38 | 0.27 | 0.01 |
| Control Delay (s/veh) | 9.3 | 4.0 | 13.8 | 8.6 | 9.9 | 6.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 9.3 | 4.0 | 13.8 | 8.6 | 9.9 | 6.2 |
| Queue Length 50th (ft) | 8 | 0 | 1 | 27 | 22 | 0 |
| Queue Length 95th (ft) | 34 | 26 | 9 | 63 | 72 | 5 |
| Internal Link Dist (ft) | 2566 | | | 4832 | 3848 | |
| Turn Bay Length (ft) | | 115 | 255 | | 250 | |
| Base Capacity (vph) | 2590 | 1172 | 425 | 1376 | 1347 | 1181 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.08 | 0.18 | 0.02 | 0.20 | 0.16 | 0.01 |

Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 32.3 |
| Intersection LOS | D |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 30 | 34 | 569 | 324 | 8 |
| Future Vol, veh/h | 11 | 30 | 34 | 569 | 324 | 8 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 32 | 36 | 605 | 345 | 9 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 1 |

| Approach | EB | WB | SB |
|---|---|---|---|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 2 | 0 |
| Conflicting Approach Left | SB | | WB |
| Conflicting Lanes Left | 2 | 0 | 1 |
| Conflicting Approach Right | | SB | EB |
| Conflicting Lanes Right | 0 | 2 | 2 |
| HCM Control Delay, s/veh | 10 | 39.6 | 21.7 |
| HCM LOS | A | E | C |

| Lane | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 6% | 0% | 0% |
| Vol Right, % | 0% | 0% | 94% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 30 | 603 | 324 | 8 |
| LT Vol | 11 | 0 | 0 | 324 | 0 |
| Through Vol | 0 | 30 | 34 | 0 | 0 |
| RT Vol | 0 | 0 | 569 | 0 | 8 |
| Lane Flow Rate | 12 | 32 | 641 | 345 | 9 |
| Geometry Grp | 5 | 5 | 3b | 5 | 5 |
| Degree of Util (X) | 0.023 | 0.06 | 0.919 | 0.659 | 0.013 |
| Departure Headway (Hd) | 7.223 | 6.712 | 5.159 | 6.879 | 5.665 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 493 | 530 | 706 | 524 | 630 |
| Service Time | 5.004 | 4.492 | 3.159 | 4.629 | 3.414 |
| HCM Lane V/C Ratio | 0.024 | 0.06 | 0.908 | 0.658 | 0.014 |
| HCM Control Delay, s/veh | 10.2 | 9.9 | 39.6 | 22 | 8.5 |
| HCM Lane LOS | B | A | E | C | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 12.4 | 4.8 | 0 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 533 | 534 | 94 | 15 | 299 | 10 | 49 | 56 | 26 | 3 | 30 | 312 |
| Future Volume (veh/h) | 533 | 534 | 94 | 15 | 299 | 10 | 49 | 56 | 26 | 3 | 30 | 312 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 567 | 568 | 80 | 16 | 318 | 9 | 52 | 60 | 23 | 3 | 32 | 268 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 780 | 1355 | 596 | 35 | 623 | 270 | 90 | 990 | 437 | 7 | 435 | 364 |
| Arrive On Green | 0.23 | 0.38 | 0.38 | 0.02 | 0.18 | 0.18 | 0.05 | 0.28 | 0.28 | 0.00 | 0.23 | 0.23 |
| Sat Flow, veh/h | 3456 | 3554 | 1564 | 1781 | 3554 | 1540 | 1781 | 3554 | 1568 | 1781 | 1870 | 1565 |
| Grp Volume(v), veh/h | 567 | 568 | 80 | 16 | 318 | 9 | 52 | 60 | 23 | 3 | 32 | 268 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1564 | 1781 | 1777 | 1540 | 1781 | 1777 | 1568 | 1781 | 1870 | 1565 |
| Q Serve(g_s), s | 8.1 | 6.3 | 1.8 | 0.5 | 4.3 | 0.3 | 1.5 | 0.7 | 0.6 | 0.1 | 0.7 | 8.5 |
| Cycle Q Clear(g_c), s | 8.1 | 6.3 | 1.8 | 0.5 | 4.3 | 0.3 | 1.5 | 0.7 | 0.6 | 0.1 | 0.7 | 8.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 780 | 1355 | 596 | 35 | 623 | 270 | 90 | 990 | 437 | 7 | 435 | 364 |
| V/C Ratio(X) | 0.73 | 0.42 | 0.13 | 0.45 | 0.51 | 0.03 | 0.58 | 0.06 | 0.05 | 0.41 | 0.07 | 0.74 |
| Avail Cap(c_a), veh/h | 2199 | 3532 | 1555 | 233 | 1736 | 752 | 367 | 2395 | 1057 | 233 | 1120 | 937 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.2 | 12.2 | 10.8 | 25.9 | 19.9 | 18.3 | 24.8 | 14.1 | 14.1 | 26.5 | 16.0 | 19.0 |
| Incr Delay (d2), s/veh | 1.3 | 0.2 | 0.1 | 8.9 | 0.6 | 0.0 | 5.8 | 0.0 | 0.0 | 33.5 | 0.1 | 2.9 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.7 | 1.8 | 0.5 | 0.3 | 1.5 | 0.1 | 0.7 | 0.2 | 0.2 | 0.1 | 0.3 | 3.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 20.5 | 12.4 | 10.9 | 34.8 | 20.6 | 18.3 | 30.6 | 14.2 | 14.2 | 60.0 | 16.1 | 21.9 |
| LnGrp LOS | C | B | B | C | C | B | C | B | B | E | B | C |
| Approach Vol, veh/h | | 1215 | | | 343 | | | 135 | | | 303 | |
| Approach Delay, s/veh | | 16.1 | | | 21.2 | | | 20.5 | | | 21.7 | |
| Approach LOS | | B | | | C | | | C | | | C | |

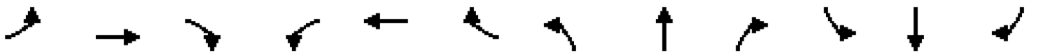
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.1 | 25.3 | 6.7 | 16.4 | 16.1 | 14.3 | 4.2 | 18.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 7.0 | 53.1 | 11.0 | 32.0 | 34.0 | 26.1 | 7.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 8.3 | 3.5 | 10.5 | 10.1 | 6.3 | 2.1 | 2.7 |
| Green Ext Time (p_c), s | 0.0 | 3.8 | 0.0 | 1.1 | 1.9 | 1.6 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 18.1 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 567 | 568 | 100 | 16 | 318 | 11 | 52 | 60 | 28 | 3 | 32 | 332 |
| v/c Ratio | 0.58 | 0.30 | 0.12 | 0.08 | 0.43 | 0.03 | 0.21 | 0.07 | 0.06 | 0.02 | 0.12 | 0.65 |
| Control Delay (s/veh) | 22.2 | 10.3 | 3.7 | 31.7 | 24.6 | 0.1 | 29.9 | 19.1 | 0.3 | 32.3 | 26.9 | 10.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.2 | 10.3 | 3.7 | 31.7 | 24.6 | 0.1 | 29.9 | 19.1 | 0.3 | 32.3 | 26.9 | 10.6 |
| Queue Length 50th (ft) | 87 | 51 | 0 | 5 | 51 | 0 | 16 | 7 | 0 | 1 | 10 | 0 |
| Queue Length 95th (ft) | 182 | 153 | 29 | 27 | 117 | 0 | 58 | 28 | 0 | 10 | 38 | 70 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 2253 | 3095 | 1324 | 239 | 1782 | 814 | 375 | 2453 | 1101 | 239 | 1150 | 1073 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.25 | 0.18 | 0.08 | 0.07 | 0.18 | 0.01 | 0.14 | 0.02 | 0.03 | 0.01 | 0.03 | 0.31 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 163 | 361 | 31 | 1 | 208 | 77 | 17 | 39 | 2 | 65 | 25 | 71 |
| Future Volume (veh/h) | 163 | 361 | 31 | 1 | 208 | 77 | 17 | 39 | 2 | 65 | 25 | 71 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.98 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 177 | 392 | 27 | 1 | 226 | 68 | 18 | 42 | 2 | 71 | 27 | 62 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 369 | 979 | 429 | 4 | 604 | 460 | 40 | 281 | 13 | 428 | 486 | 407 |
| Arrive On Green | 0.11 | 0.28 | 0.28 | 0.00 | 0.17 | 0.17 | 0.02 | 0.16 | 0.16 | 0.12 | 0.26 | 0.26 |
| Sat Flow, veh/h | 3456 | 3554 | 1556 | 1781 | 3554 | 2708 | 1781 | 1769 | 84 | 3456 | 1870 | 1567 |
| Grp Volume(v), veh/h | 177 | 392 | 27 | 1 | 226 | 68 | 18 | 0 | 44 | 71 | 27 | 62 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1556 | 1781 | 1777 | 1354 | 1781 | 0 | 1853 | 1728 | 1870 | 1567 |
| Q Serve(g_s), s | 1.9 | 3.6 | 0.5 | 0.0 | 2.3 | 0.9 | 0.4 | 0.0 | 0.8 | 0.7 | 0.4 | 1.2 |
| Cycle Q Clear(g_c), s | 1.9 | 3.6 | 0.5 | 0.0 | 2.3 | 0.9 | 0.4 | 0.0 | 0.8 | 0.7 | 0.4 | 1.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.05 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 369 | 979 | 429 | 4 | 604 | 460 | 40 | 0 | 294 | 428 | 486 | 407 |
| V/C Ratio(X) | 0.48 | 0.40 | 0.06 | 0.23 | 0.37 | 0.15 | 0.45 | 0.00 | 0.15 | 0.17 | 0.06 | 0.15 |
| Avail Cap(c_a), veh/h | 941 | 2209 | 967 | 265 | 1769 | 1348 | 309 | 0 | 1014 | 1626 | 1579 | 1323 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.0 | 11.9 | 10.8 | 20.1 | 14.9 | 14.3 | 19.5 | 0.0 | 14.6 | 15.8 | 11.2 | 11.5 |
| Incr Delay (d2), s/veh | 1.0 | 0.3 | 0.1 | 24.2 | 0.4 | 0.1 | 7.5 | 0.0 | 0.2 | 0.2 | 0.0 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.9 | 0.1 | 0.0 | 0.7 | 0.2 | 0.2 | 0.0 | 0.3 | 0.2 | 0.1 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 17.9 | 12.2 | 10.8 | 44.3 | 15.2 | 14.4 | 27.0 | 0.0 | 14.9 | 16.0 | 11.3 | 11.7 |
| LnGrp LOS | B | B | B | D | B | B | C | | B | B | B | B |
| Approach Vol, veh/h | | 596 | | | 295 | | | 62 | | | 160 | |
| Approach Delay, s/veh | | 13.8 | | | 15.1 | | | 18.4 | | | 13.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 11.3 | 4.1 | 16.0 | 4.9 | 15.4 | 8.3 | 11.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 19.0 | 22.1 | 6.0 | 25.1 | 7.0 | 34.1 | 11.0 | 20.1 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 2.8 | 2.0 | 5.6 | 2.4 | 3.2 | 3.9 | 4.3 |
| Green Ext Time (p_c), s | 0.1 | 0.1 | 0.0 | 2.1 | 0.0 | 0.3 | 0.3 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 14.4 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 177 | 392 | 34 | 1 | 226 | 84 | 18 | 44 | 71 | 27 | 77 |
| v/c Ratio | 0.31 | 0.28 | 0.05 | 0.00 | 0.36 | 0.13 | 0.08 | 0.17 | 0.15 | 0.05 | 0.13 |
| Control Delay (s/veh) | 19.8 | 11.7 | 0.1 | 21.0 | 19.6 | 0.4 | 21.1 | 20.4 | 20.3 | 15.2 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 19.8 | 11.7 | 0.1 | 21.0 | 19.6 | 0.4 | 21.1 | 20.4 | 20.3 | 15.2 | 0.4 |
| Queue Length 50th (ft) | 22 | 33 | 0 | 0 | 28 | 0 | 5 | 10 | 9 | 5 | 0 |
| Queue Length 95th (ft) | 48 | 86 | 0 | 4 | 60 | 0 | 21 | 35 | 25 | 25 | 2 |
| Internal Link Dist (ft) | | 3221 | | | 2598 | | | 468 | | 389 | |
| Turn Bay Length (ft) | 935 | | 470 | 450 | | 550 | 100 | | 635 | | |
| Base Capacity (vph) | 799 | 1880 | 882 | 224 | 1505 | 1257 | 262 | 865 | 1380 | 1344 | 1158 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.21 | 0.04 | 0.00 | 0.15 | 0.07 | 0.07 | 0.05 | 0.05 | 0.02 | 0.07 |

Intersection Summary

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 121 | 397 | 613 | 47 | 0 | 112 |
| Future Vol, veh/h | 121 | 397 | 613 | 47 | 0 | 112 |
| Conflicting Peds, #/hr | 10 | 0 | 0 | 10 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 132 | 432 | 666 | 51 | 0 | 122 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 727 | 0 | - | 0 | 1191 | 712 |
| Stage 1 | - | - | - | - | 702 | - |
| Stage 2 | - | - | - | - | 489 | - |
| Critical Hdwy | 4.13 | - | - | - | 6.63 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.43 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.83 | - |
| Follow-up Hdwy | 2.219 | - | - | - | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 874 | - | - | - | 193 | 432 |
| Stage 1 | - | - | - | - | 490 | - |
| Stage 2 | - | - | - | - | 583 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 866 | - | - | - | 157 | 423 |
| Mov Cap-2 Maneuver | - | - | - | - | 157 | - |
| Stage 1 | - | - | - | - | 402 | - |
| Stage 2 | - | - | - | - | 578 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 3.13 | 0 | 16.9 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 762 | - | - | - | 423 |
| HCM Lane V/C Ratio | 0.152 | - | - | - | 0.288 |
| HCM Ctrl Dly (s/v) | 9.9 | 1.1 | - | - | 16.9 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.5 | - | - | - | 1.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.3 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 259 | 0 | 0 | 174 | 0 |
| Future Vol, veh/h | 0 | 259 | 0 | 0 | 174 | 0 |
| Conflicting Peds, #/hr | 0 | 10 | 10 | 0 | 10 | 10 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 282 | 0 | 0 | 189 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 292 | 0 | 162 | 161 |
| Stage 1 | - | - | - | - | 151 | - |
| Stage 2 | - | - | - | - | 11 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1270 | - | 829 | 884 |
| Stage 1 | - | - | - | - | 877 | - |
| Stage 2 | - | - | - | - | 1012 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1258 | - | 813 | 867 |
| Mov Cap-2 Maneuver | - | - | - | - | 813 | - |
| Stage 1 | - | - | - | - | 869 | - |
| Stage 2 | - | - | - | - | 1002 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0 | 0 | 10.76 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 813 | - | - | 1258 | - |
| HCM Lane V/C Ratio | 0.233 | - | - | - | - |
| HCM Ctrl Dly (s/v) | 10.8 | - | - | 0 | - |
| HCM Lane LOS | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.9 | - | - | 0 | - |

**TABLE B-1**
**NEAR-TERM WITH PROJECT QUEUING SUMMARY**

| No. | Intersection | Scenario | Hour | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 1 | Willow Ave & International Avenue | Existing Storage | | 255 | - | - | 255 | - | 205 | 255 | - | - | 50 | - | 25 |
| | | Near-Term With Development Residential | AM | 183 | 152 | 0 | 71 | 135 | 27 | 34 | 71 | 30 | 23 | 209 | 0 |
| | | | PM | 127 | 197 | 0 | 104 | 99 | 25 | 26 | 88 | 32 | 35 | 88 | 12 |
| | | Near-Term With Master Plan Residential | AM | 184 | 153 | 0 | 71 | 136 | 27 | 34 | 72 | 30 | 23 | 212 | 0 |
| | | | PM | 128 | 201 | 0 | 109 | 99 | 25 | 27 | 95 | 31 | 37 | 89 | 14 |
| 2 | Willow Ave & Behymer Ave | Existing Storage | | 250 | - | 105 | 250 | - | 205 | 230 | - | - | 75 | - | |
| | | Near-Term With Development Residential | AM | 160 | 156 | 0 | 91 | 139 | 1 | 90 | 99 | 69 | **174** | 258 | |
| | | | PM | 124 | 186 | 43 | 118 | 134 | 0 | 32 | 92 | 42 | **122** | 164 | |
| | | Near-Term With Master Plan Residential | AM | 160 | 156 | 0 | 91 | 141 | 1 | 90 | 100 | 72 | **204** | 272 | |
| | | | PM | 124 | 187 | 46 | 119 | 134 | 0 | 32 | 97 | 42 | **139** | 168 | |
| 3 | Willow Ave & Shepherd Ave | Existing Storage | | 250 | - | 160 | 250 | - | 150 | 250 | - | 100 | 250 | - | 100 |
| | | Near-Term With Development Residential | AM | 71 | 141 | 39 | 84 | 308 | 57 | 62 | 110 | 43 | 106 | 116 | 49 |
| | | | PM | 98 | 268 | 90 | 118 | 221 | 44 | 112 | 143 | 50 | 112 | 134 | 69 |
| | | Near-Term With Master Plan Residential | AM | 71 | 141 | 40 | 84 | 312 | 58 | 63 | 110 | 44 | 123 | 116 | 49 |
| | | | PM | 98 | 274 | 98 | 119 | 224 | 45 | 114 | 144 | 50 | 120 | 134 | 71 |
| 4 | Minnewawa Ave & International Ave | Existing Storage | | | - | | | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | | 38 | | | 0 | | | 25 | | | 0 | |
| | | | PM | | 20 | | | 0 | | | 70 | | | 3 | |
| | | Near-Term With Master Plan Residential | AM | | 40 | | | 0 | | | 25 | | | 0 | |
| | | | PM | | 23 | | | 0 | | | 80 | | | 3 | |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | | | - | | | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | | 258 | | | 265 | | | 88 | | | **1,158** | |
| | | | PM | | 360 | | | 468 | | | 273 | | | **1,205** | |
| | | Near-Term With Master Plan Residential | AM | | 278 | | | 270 | | | 90 | | | **1,295** | |
| | | | PM | | 370 | | | 483 | | | 310 | | | **1,230** | |
| 6 | Minnewawa Ave & Shepherd Ave | Existing Storage | | 225 | - | - | 255 | - | 25 | 230 | - | 75 | 215 | - | 55 |
| | | Near-Term With Development Residential | AM | 155 | 184 | 10 | 186 | 301 | 0 | 52 | 192 | **103** | 119 | 369 | 40 |
| | | | PM | 222 | 369 | 34 | 183 | 319 | 0 | 51 | 207 | 43 | 81 | 434 | 37 |
| | | Near-Term With Master Plan Residential | AM | 155 | 188 | 14 | 188 | 307 | 0 | 53 | 195 | **105** | 132 | 398 | 42 |
| | | | PM | 222 | 380 | 38 | 191 | 334 | 0 | 53 | 213 | 43 | 88 | 464 | 40 |
| 9 | Clovis Ave & Shepherd Ave | Existing Storage | | 235 | - | - | 250 | - | 100 | 240 | - | 50 | 245 | - | 175 |
| | | Near-Term With Development Residential | AM | 115 | 26 | 35 | 13 | 33 | 0 | 20 | 187 | 180 | 111 | 121 | 0 |
| | | | PM | **320** | 19 | 35 | 9 | 17 | 0 | 24 | 222 | 73 | 123 | 158 | 0 |
| | | Near-Term With Master Plan Residential | AM | 115 | 26 | 38 | 13 | 33 | 0 | 20 | 193 | **180** | 117 | 130 | 0 |
| | | | PM | **320** | 19 | 36 | 9 | 17 | 0 | 24 | 253 | 73 | 135 | 170 | 0 |
| 10 | Clovis Ave & Nees Ave | Existing Storage | | 330 | - | 95 | 265 | - | 145 | 230 | - | - | 55 | - | 60 |
| | | Near-Term With Development Residential | AM | 120 | 158 | 0 | 128 | 328 | 0 | 60 | 601 | 41 | 67 | 407 | 63 |
| | | | PM | 167 | 279 | 0 | 93 | 173 | 0 | 68 | 543 | 46 | 52 | 522 | 34 |
| | | Near-Term With Master Plan Residential | AM | 120 | 162 | 0 | 129 | 338 | 0 | 62 | 607 | 41 | 70 | 432 | 64 |
| | | | PM | 167 | 289 | 0 | 93 | 178 | 0 | 73 | 562 | 49 | 53 | 530 | 35 |
| 11 | Clovis Ave & Alluvial Ave | Existing Storage | | 230 | - | | 240 | - | | 150 | - | 100 | 165 | - | 105 |
| | | Near-Term With Development Residential | AM | 219 | 294 | | **282** | 435 | | 39 | 347 | 106 | 78 | 788 | 17 |
| | | | PM | 240 | 398 | | 130 | 242 | | 44 | 519 | 110 | 58 | 259 | 7 |
| | | Near-Term With Master Plan Residential | AM | 219 | 308 | | **282** | 450 | | 41 | 353 | 107 | 80 | 801 | 17 |
| | | | PM | 240 | 413 | | 130 | 248 | | 45 | 537 | 110 | 58 | 263 | 7 |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | | 200 | - | | 230 | - | 185 | 240 | - | 240 | 250 | - | 150 |
| | | Near-Term With Development Residential | AM | 118 | 104 | | 141 | 140 | **201** | 134 | 284 | 55 | 106 | 420 | 119 |
| | | | PM | **318** | 302 | | 230 | 134 | 47 | **400** | 541 | 129 | 219 | 549 | 80 |
| | | Near-Term With Master Plan Residential | AM | 118 | 106 | | 141 | 141 | **203** | 136 | 287 | 56 | 109 | 430 | 122 |
| | | | PM | **306** | 261 | | 217 | 123 | 44 | **390** | 551 | 121 | 234 | 545 | 69 |
| 13 | SR 168 EB Ramps & Herndon Ave | Existing Storage | | 410 | | 410 | | | | | 700 | 600 | | 450 | 450 |
| | | Near-Term With Development Residential | AM | 89 | | 164 | | | | | 127 | 32 | | 188 | 17 |
| | | | PM | 85 | | **531** | | | | | 368 | 71 | | 298 | 49 |
| | | Near-Term With Master Plan Residential | AM | 89 | | 168 | | | | | 129 | 32 | | 194 | 17 |
| | | | PM | 85 | | **550** | | | | | 378 | 71 | | 303 | 50 |
| 14 | SR 168 WB Ramps & Herndon Ave | Existing Storage | | | | | 230 | | 240 | | 500 | 360 | | 700 | 100 |
| | | Near-Term With Development Residential | AM | | | | 31 | | 311 | | 166 | 58 | | 397 | 0 |
| | | | PM | | | | 31 | | 163 | | 199 | 39 | | 252 | 0 |
| | | Near-Term With Master Plan Residential | AM | | | | 31 | | 320 | | 168 | 58 | | 402 | 0 |
| | | | PM | | | | 32 | | 168 | | 207 | 39 | | 262 | 0 |

**TABLE B-1**
**NEAR-TERM WITH PROJECT QUEUING SUMMARY**

| No. | Intersection | Scenario | Hour | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 16 | Sunnyside Ave & Shepherd Ave | Existing Storage | | 85 | - | 50 | 175 | - | 105 | 275 | - | 50 | 150 | - | 50 |
| | | Near-Term With Development Residential | AM | 64 | 43 | 0 | 7 | 114 | 11 | 33 | 500 | 33 | 33 | 542 | 0 |
| | | | PM | **126** | 143 | 23 | 12 | 72 | 0 | 48 | 641 | 9 | 74 | 402 | 0 |
| | | Near-Term With Master Plan Residential | AM | 79 | 48 | 0 | 8 | 130 | 17 | 36 | 506 | 32 | 98 | 610 | 0 |
| | | | PM | **126** | 143 | 31 | 12 | 72 | 0 | 48 | 715 | 9 | 82 | 458 | 0 |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | | - | | - | - | | | 50 | - | - | 65 | - | |
| | | Near-Term With Development Residential | AM | 143 | | 8 | 605 | | | 5 | 138 | 465 | 15 | 553 | |
| | | | PM | 775 | | 18 | 138 | | | 23 | 228 | 170 | 15 | **928** | |
| | | Near-Term With Master Plan Residential | AM | 143 | | 8 | 625 | | | 5 | 140 | 463 | 15 | 593 | |
| | | | PM | 800 | | 20 | 143 | | | 23 | 248 | 180 | 15 | **955** | |
| 18 | Sunnyside Ave & Alluvial Ave | Existing Storage | | 115 | - | | 140 | - | | 100 | - | 100 | 140 | - | 50 |
| | | Near-Term With Development Residential | AM | **269** | 134 | | **221** | 444 | | **276** | 346 | 87 | 114 | **1,170** | 19 |
| | | | PM | 120 | 241 | | 75 | 112 | | 87 | 333 | 84 | 72 | 296 | 0 |
| | | Near-Term With Master Plan Residential | AM | **269** | 134 | | **221** | 453 | | **278** | 351 | 88 | 121 | **1,189** | 19 |
| | | | PM | 120 | 247 | | 75 | 114 | | 92 | 342 | 84 | 76 | 301 | 0 |
| 19 | Sunnyside Ave & Herndon Ave | Existing Storage | | 150 | - | 60 | 180 | - | 75 | 200 | - | 100 | 300 | - | 100 |
| | | Near-Term With Development Residential | AM | **286** | 58 | 23 | 96 | 139 | 77 | 41 | 178 | 69 | 61 | 369 | 3 |
| | | | PM | **321** | 130 | 53 | 114 | 104 | 53 | 144 | 376 | **332** | 80 | 277 | 15 |
| | | Near-Term With Master Plan Residential | AM | **286** | 59 | 24 | 96 | 142 | 80 | 42 | 180 | 72 | 62 | 378 | 3 |
| | | | PM | **321** | 133 | 54 | 114 | 106 | 53 | 146 | 386 | **335** | 82 | 282 | 16 |
| 20 | Fowler Ave & Behymer Ave | Existing Storage | | - | | | - | | | - | | | - | | |
| | | Near-Term With Development Residential | AM | **870** | | | 15 | | | 108 | | | 55 | | |
| | | | PM | **1,215** | | | 20 | | | 465 | | | 43 | | |
| | | Near-Term With Master Plan Residential | AM | **958** | | | 15 | | | 115 | | | 73 | | |
| | | | PM | **1,290** | | | 20 | | | 563 | | | 53 | | |
| 21 | Fowler Ave & Perrin Ave | Existing Storage | | | - | | - | | | | | | - | | - |
| | | Near-Term With Development Residential | AM | | Does not stop | | 3 | | | | | | 510 | | Shared |
| | | | PM | | Does not stop | | 5 | | | | | | 575 | | Shared |
| | | Near-Term With Master Plan Residential | AM | | Does not stop | | 3 | | | | | | 678 | | Shared |
| | | | PM | | Does not stop | | 8 | | | | | | 775 | | Shared |
| 22 | Fowler Ave & Shepherd Ave | Existing Storage | | 280 | - | - | 230 | - | | 150 | - | | 260 | - | 55 |
| | | Near-Term With Development Residential | AM | 200 | 163 | 0 | **271** | 395 | | 134 | 266 | | 165 | 429 | **245** |
| | | | PM | 169 | 360 | 21 | 199 | 275 | | **195** | 224 | | 101 | 369 | **178** |
| | | Near-Term With Master Plan Residential | AM | 204 | 176 | 0 | **276** | 462 | | 156 | 286 | | 188 | 468 | **247** |
| | | | PM | 173 | 417 | 23 | 202 | 344 | | **234** | 241 | | 107 | 405 | **184** |
| 23 | Fowler Ave & Teague Ave | Existing Storage | | 100 | - | | 255 | - | | - | | | - | | |
| | | Near-Term With Development Residential | AM | 0 | Does not stop | | 3 | Does not stop | | 5 | | | 23 | | |
| | | | PM | 0 | Does not stop | | 0 | Does not stop | | 5 | | | 15 | | |
| | | Near-Term With Master Plan Residential | AM | 0 | Does not stop | | 3 | Does not stop | | 5 | | | 25 | | |
| | | | PM | 0 | Does not stop | | 0 | Does not stop | | 5 | | | 18 | | |
| 24 | Fowler Ave & Nees Ave | Existing Storage | | 200 | - | - | 85 | - | | 235 | - | | 145 | - | |
| | | Near-Term With Development Residential | AM | 152 | 154 | 0 | 54 | 415 | | 59 | 162 | | 148 | 381 | |
| | | | PM | **290** | 359 | 10 | 66 | 341 | | 109 | 178 | | 119 | 409 | |
| | | Near-Term With Master Plan Residential | AM | 152 | 166 | 0 | 57 | 459 | | 64 | 164 | | 155 | 401 | |
| | | | PM | **290** | 393 | 13 | 69 | 370 | | 117 | 186 | | 122 | 424 | |
| 25 | Fowler Ave & Alluvial Ave | Existing Storage | | 230 | - | 100 | 135 | - | | 130 | - | 135 | 145 | - | 70 |
| | | Near-Term With Development Residential | AM | **610** | 113 | 11 | 91 | 472 | | 74 | 345 | 113 | **223** | 192 | 0 |
| | | | PM | 179 | 276 | 26 | 44 | 204 | | 110 | 245 | 47 | 80 | 105 | 0 |
| | | Near-Term With Master Plan Residential | AM | **610** | 118 | 11 | 92 | 500 | | 84 | 349 | 116 | **230** | 195 | 0 |
| | | | PM | 179 | 288 | 27 | 44 | 211 | | 118 | 253 | 47 | 82 | 106 | 0 |
| 26 | Fowler Ave & SR 168 WB Ramps | Existing Storage | | 260 | 480 | | | - | | | | | 1,400 | | 1,400 |
| | | Near-Term With Development Residential | AM | 270 | 130 | | | 332 | | | | | 215 | | 6 |
| | | | PM | 188 | 210 | | | 210 | | | | | 140 | | 0 |
| | | Near-Term With Master Plan Residential | AM | 270 | 133 | | | 347 | | | | | 238 | | 6 |
| | | | PM | 190 | 219 | | | 214 | | | | | 147 | | 0 |
| 27 | Fowler Ave & SR 168 EB Ramps | Existing Storage | | | - | | 90 | - | | 1,300 | | 1,300 | | | |
| | | Near-Term With Development Residential | AM | | 461 | | 34 | 142 | | 86 | | 239 | | | |
| | | | PM | | 688 | | 44 | 137 | | 207 | | 538 | | | |
| | | Near-Term With Master Plan Residential | AM | | 469 | | 34 | 145 | | 89 | | 248 | | | |
| | | | PM | | 705 | | 44 | 140 | | 216 | | 545 | | | |

**TABLE B-1**
**NEAR-TERM WITH PROJECT QUEUING SUMMARY**

| No. | Intersection | Scenario | Hour | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 28 | Perrin Rd & Burgan Ave | Existing Storage | | - | | - | | | | | - | | | - | |
| | | Near-Term With Development Residential | AM | 3 | | Shared | | | | | Does not stop | | | 3 | |
| | | | PM | 8 | | Shared | | | | | Does not stop | | | 3 | |
| | | Near-Term With Master Plan Residential | AM | 5 | | Shared | | | | | Does not stop | | | 3 | |
| | | | PM | 13 | | Shared | | | | | Does not stop | | | 3 | |
| 29 | Burgan Ave & Shepherd Ave | Existing Storage | | | | | - | | - | 100 | - | | | - | |
| | | Near-Term With Development Residential | AM | | | | 18 | | Shared | 3 | Does not stop | | | Does not stop | |
| | | | PM | | | | 10 | | Shared | 5 | Does not stop | | | Does not stop | |
| | | Near-Term With Master Plan Residential | AM | | | | 23 | | Shared | 3 | Does not stop | | | Does not stop | |
| | | | PM | | | | 13 | | Shared | 8 | Does not stop | | | Does not stop | |
| 30 | Armstrong Ave & Shepherd Ave | Existing Storage | | - | | - | | | | | - | | 110 | - | |
| | | Near-Term With Development Residential | AM | 260 | | Shared | | | | | Does not stop | | 0 | Does not stop | |
| | | | PM | 35 | | Shared | | | | | Does not stop | | 0 | Does not stop | |
| | | Near-Term With Master Plan Residential | AM | 280 | | Shared | | | | | Does not stop | | 0 | Does not stop | |
| | | | PM | 40 | | Shared | | | | | Does not stop | | 0 | Does not stop | |
| 31 | Temperance Ave & Shepherd Ave | Existing Storage | | - | | - | | - | | 280 | - | 130 | 100 | - | |
| | | Near-Term With Development Residential | AM | 378 | | 9 | | 229 | | 57 | 104 | 48 | 100 | 395 | |
| | | | PM | 620 | | 15 | | 112 | | 138 | 92 | 49 | 76 | 295 | |
| | | Near-Term With Master Plan Residential | AM | 424 | | 9 | | 287 | | 64 | 104 | 83 | 124 | 397 | |
| | | | PM | 715 | | 15 | | 135 | | 164 | 92 | 49 | 87 | 299 | |
| 32 | Nees Ave & Temperance Ave | Existing Storage | | 240 | - | 120 | 250 | - | 95 | 240 | - | 80 | 100 | - | 25 |
| | | Near-Term With Development Residential | AM | 144 | 95 | 0 | 8 | 354 | 118 | 119 | 89 | 66 | **273** | 185 | 0 |
| | | | PM | 157 | 310 | 56 | 22 | 200 | 3 | 226 | 164 | 27 | 115 | 115 | 0 |
| | | Near-Term With Master Plan Residential | AM | 145 | 100 | 0 | 8 | 416 | **128** | 125 | 89 | 66 | **285** | 188 | 0 |
| | | | PM | 159 | 338 | 62 | 22 | 216 | 8 | 250 | 169 | 27 | 119 | 117 | 0 |
| 33 | Temperance Ave & Alluvial Ave | Existing Storage | | | - | | | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | | 68 | | | 354 | | | 32 | 47 | 29 | 29 | |
| | | | PM | | 174 | | | 65 | | | 33 | 31 | 42 | 42 | |
| | | Near-Term With Master Plan Residential | AM | | 70 | | | 407 | | | 36 | 51 | 29 | 29 | |
| | | | PM | | 212 | | | 74 | | | 37 | 33 | 47 | 47 | |
| 34 | Temperance Ave & SR 168 WB Ramps | Existing Storage | | | 550 | - | | 410 | 160 | | | | 1,400 | | 1,400 |
| | | Near-Term With Development Residential | AM | | 76 | 29 | | 102 | 26 | | | | 88 | | 50 |
| | | | PM | | 154 | 24 | | 61 | 18 | | | | 71 | | 28 |
| | | Near-Term With Master Plan Residential | AM | | 79 | 29 | | 104 | 27 | | | | 89 | | 50 |
| | | | PM | | 165 | 24 | | 62 | 18 | | | | 72 | | 29 |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | | - | | 260 | 550 | | 1,550 | | 1,550 | | | |
| | | Near-Term With Development Residential | AM | | **1,061** | | 71 | 447 | | 211 | | 1,414 | | | |
| | | | PM | | **1,350** | | 68 | 294 | | 575 | | **1,563** | | | |
| | | Near-Term With Master Plan Residential | AM | | **1,068** | | 71 | 456 | | 218 | | 1,421 | | | |
| | | | PM | | **1,373** | | 68 | 298 | | 632 | | **1,570** | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | | | - | | | - | | 245 | - | | 100 | - | |
| | | Near-Term With Development Residential | AM | | 145 | | | 303 | | 3 | Does not stop | | 0 | Does not stop | |
| | | | PM | | 80 | | | 118 | | 3 | Does not stop | | 0 | Does not stop | |
| | | Near-Term With Master Plan Residential | AM | | 178 | | | 445 | | 3 | Does not stop | | 0 | Does not stop | |
| | | | PM | | 110 | | | 213 | | 5 | Does not stop | | 0 | Does not stop | |
| 37 | Locan Ave & Nees Ave | Existing Storage | | | - | | | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | | 3 | | | 105 | | | 25 | | | 0 | |
| | | | PM | | 0 | | | 28 | | | 78 | | | 0 | |
| | | Near-Term With Master Plan Residential | AM | | 3 | | | 110 | | | 28 | | | 0 | |
| | | | PM | | 0 | | | 30 | | | 85 | | | 0 | |
| 39 | De Wolf Ave & Shepherd Ave | Existing Storage | | 250 | | - | | | | 240 | - | 115 | 255 | - | |
| | | Near-Term With Development Residential | AM | 82 | | 8 | | | | 3 | 50 | 18 | 9 | 104 | |
| | | | PM | 66 | | 5 | | | | 0 | 33 | 25 | 9 | 60 | |
| | | Near-Term With Master Plan Residential | AM | 84 | | 8 | | | | 3 | 52 | 19 | 9 | 106 | |
| | | | PM | 72 | | 5 | | | | 0 | 34 | 26 | 9 | 63 | |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | | - | | 60 | 190 | - | | | - | |
| | | Near-Term With Development Residential | AM | | | | 830 | | 0 | 3 | 10 | | | 38 | |
| | | | PM | | | | 108 | | 0 | 3 | 5 | | | 278 | |
| | | Near-Term With Master Plan Residential | AM | | | | 885 | | 0 | 3 | 10 | | | 38 | |
| | | | PM | | | | 120 | | 0 | 3 | 5 | | | 310 | |

**TABLE B-1**
**NEAR-TERM WITH PROJECT QUEUING SUMMARY**

| No. | Intersection | Scenario | Hour | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 41 | Owens Mountain Pkwy & SR 168 | Existing Storage | | - | - | - | 415 | - | 415 | 850 | - | 525 | 575 | - | 450 |
| | | Near-Term With Development Residential | AM | 124 | 13 | 0 | 21 | 70 | **640** | 122 | 115 | 0 | 63 | 315 | 0 |
| | | | PM | 58 | 27 | 0 | 10 | 38 | 68 | 177 | 154 | 23 | 26 | 116 | 0 |
| | | Near-Term With Master Plan Residential | AM | 207 | 12 | 0 | 21 | 68 | **652** | 122 | 116 | 0 | 63 | 320 | 0 |
| | | | PM | 59 | 28 | 0 | 10 | 39 | 70 | 186 | 156 | 20 | 27 | 120 | 0 |
| 42 | Shepherd Ave & SR 168 | Existing Storage | | 100 | - | | 635 | - | - | 935 | - | 470 | 450 | - | 550 |
| | | Near-Term With Development Residential | AM | 33 | 48 | | 36 | 71 | 39 | 24 | 51 | 0 | 4 | 90 | 3 |
| | | | PM | 21 | 35 | | 24 | 25 | 1 | 48 | 86 | 0 | 4 | 59 | 0 |
| | | Near-Term With Master Plan Residential | AM | 33 | 48 | | 37 | 71 | 40 | 24 | 51 | 0 | 4 | 90 | 3 |
| | | | PM | 21 | 35 | | 25 | 25 | 2 | 48 | 86 | 0 | 4 | 60 | 0 |
| 43 | Shepherd Ave & Project Access South | Existing Storage | | | | | - | | - | - | | | | - | |
| | | Near-Term With Development Residential | AM | | | | 38 | | Shared | 3 | | | | Does not stop | |
| | | | PM | | | | 23 | | Shared | 10 | | | | Does not stop | |
| | | Near-Term With Master Plan Residential | AM | | | | 50 | | Shared | 5 | | | | Does not stop | |
| | | | PM | | | | 30 | | Shared | 13 | | | | Does not stop | |
| 44 | Behymer Ave & Project Access North | Existing Storage | | - | | - | | | | | - | | - | | |
| | | Near-Term With Development Residential | AM | 23 | | Shared | | | | | Does not stop | | 0 | | |
| | | | PM | 18 | | Shared | | | | | Does not stop | | 0 | | |
| | | Near-Term With Master Plan Residential | AM | 28 | | Shared | | | | | Does not stop | | 0 | | |
| | | | PM | 23 | | Shared | | | | | Does not stop | | 0 | | |

# APPENDIX C

## INTERSECTION ANALYSIS SHEETS
## IMPROVED CONDITIONS

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 21.4 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 0 | 111 | 0 | 1 | 0 | 318 | 183 | 0 | 0 | 296 | 8 |
| Future Vol, veh/h | 2 | 0 | 111 | 0 | 1 | 0 | 318 | 183 | 0 | 0 | 296 | 8 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 2 | 0 | 135 | 0 | 1 | 0 | 388 | 223 | 0 | 0 | 361 | 10 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 10.4 | 9.8 | 28.4 | 14 |
| HCM LOS | B | A | D | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 63% | 2% | 0% | 0% |
| Vol Thru, % | 37% | 0% | 100% | 97% |
| Vol Right, % | 0% | 98% | 0% | 3% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 501 | 113 | 1 | 304 |
| LT Vol | 318 | 2 | 0 | 0 |
| Through Vol | 183 | 0 | 1 | 296 |
| RT Vol | 0 | 111 | 0 | 8 |
| Lane Flow Rate | 611 | 138 | 1 | 371 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.838 | 0.22 | 0.002 | 0.534 |
| Departure Headway (Hd) | 5.045 | 5.755 | 6.748 | 5.184 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 721 | 626 | 531 | 701 |
| Service Time | 3.045 | 3.772 | 4.777 | 3.184 |
| HCM Lane V/C Ratio | 0.847 | 0.22 | 0.002 | 0.529 |
| HCM Control Delay, s/veh | 28.4 | 10.4 | 9.8 | 14 |
| HCM Lane LOS | D | B | A | B |
| HCM 95th-tile Q | 9.4 | 0.8 | 0 | 3.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 3 | 150 | 61 | 51 | 372 | 291 | 145 | 217 | 20 | 164 | 218 | 4 |
| Future Volume (veh/h) | 3 | 150 | 61 | 51 | 372 | 291 | 145 | 217 | 20 | 164 | 218 | 4 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 0.99 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 160 | 63 | 54 | 396 | 248 | 154 | 231 | 20 | 174 | 232 | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 59 | 595 | 231 | 99 | 475 | 283 | 195 | 320 | 28 | 218 | 371 | 5 |
| Arrive On Green | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.11 | 0.19 | 0.19 | 0.12 | 0.20 | 0.20 |
| Sat Flow, veh/h | 4 | 1261 | 489 | 82 | 1007 | 600 | 1767 | 1681 | 146 | 1767 | 1827 | 24 |
| Grp Volume(v), veh/h | 226 | 0 | 0 | 698 | 0 | 0 | 154 | 0 | 251 | 174 | 0 | 235 |
| Grp Sat Flow(s),veh/h/ln | 1755 | 0 | 0 | 1689 | 0 | 0 | 1767 | 0 | 1827 | 1767 | 0 | 1851 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 12.7 | 0.0 | 0.0 | 5.5 | 0.0 | 8.3 | 6.2 | 0.0 | 7.4 |
| Cycle Q Clear(g_c), s | 5.0 | 0.0 | 0.0 | 23.7 | 0.0 | 0.0 | 5.5 | 0.0 | 8.3 | 6.2 | 0.0 | 7.4 |
| Prop In Lane | 0.01 | | 0.28 | 0.08 | | 0.36 | 1.00 | | 0.08 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 885 | 0 | 0 | 857 | 0 | 0 | 195 | 0 | 348 | 218 | 0 | 376 |
| V/C Ratio(X) | 0.26 | 0.00 | 0.00 | 0.81 | 0.00 | 0.00 | 0.79 | 0.00 | 0.72 | 0.80 | 0.00 | 0.62 |
| Avail Cap(c_a), veh/h | 1283 | 0 | 0 | 1239 | 0 | 0 | 308 | 0 | 543 | 330 | 0 | 573 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 10.3 | 0.0 | 0.0 | 15.1 | 0.0 | 0.0 | 27.9 | 0.0 | 24.4 | 27.4 | 0.0 | 23.4 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 7.0 | 0.0 | 2.8 | 7.8 | 0.0 | 1.7 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | 2.5 | 0.0 | 3.4 | 2.8 | 0.0 | 3.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 10.4 | 0.0 | 0.0 | 17.9 | 0.0 | 0.0 | 34.8 | 0.0 | 27.3 | 35.2 | 0.0 | 25.1 |
| LnGrp LOS | B | | | B | | | C | | C | D | | C |
| Approach Vol, veh/h | | 226 | | | 698 | | | 405 | | | 409 | |
| Approach Delay, s/veh | | 10.4 | | | 17.9 | | | 30.1 | | | 29.4 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.9 | 17.1 | | 35.2 | 11.1 | 18.0 | | 35.2 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | 12.0 | 19.1 | | 45.1 | 11.2 | 19.9 | | 45.1 | | | | |
| Max Q Clear Time (g_c+I1), s | 8.2 | 10.3 | | 7.0 | 7.5 | 9.4 | | 25.7 | | | | |
| Green Ext Time (p_c), s | 0.1 | 0.8 | | 1.3 | 0.1 | 0.8 | | 4.6 | | | | |

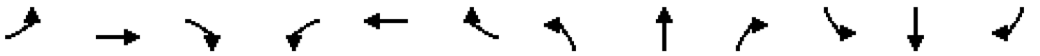
| Intersection Summary | | | |
|---|---|---|---|
| HCM 7th Control Delay, s/veh | | 22.5 | |
| HCM 7th LOS | | C | |



| Lane Group | EBT | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 228 | 760 | 154 | 252 | 174 | 236 |
| v/c Ratio | 0.26 | 0.91 | 0.67 | 0.71 | 0.71 | 0.63 |
| Control Delay (s/veh) | 11.5 | 35.3 | 52.2 | 43.3 | 52.9 | 39.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 11.5 | 35.3 | 52.2 | 43.3 | 52.9 | 39.1 |
| Queue Length 50th (ft) | 56 | 331 | 83 | 129 | 94 | 120 |
| Queue Length 95th (ft) | 105 | #602 | #174 | 210 | #195 | 196 |
| Internal Link Dist (ft) | 5389 | 1817 | | 2563 | | 2549 |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 1024 | 979 | 253 | 450 | 271 | 472 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.78 | 0.61 | 0.56 | 0.64 | 0.50 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 22 | 378 | 328 | 49 | 440 | 15 | 137 | 92 | 26 | 56 | 341 | 71 |
| Future Volume (veh/h) | 22 | 378 | 328 | 49 | 440 | 15 | 137 | 92 | 26 | 56 | 341 | 71 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 24 | 406 | 288 | 53 | 473 | 13 | 147 | 99 | 20 | 60 | 367 | 61 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 47 | 519 | 364 | 84 | 995 | 27 | 187 | 637 | 535 | 90 | 446 | 74 |
| Arrive On Green | 0.03 | 0.27 | 0.27 | 0.05 | 0.29 | 0.29 | 0.11 | 0.35 | 0.35 | 0.05 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1739 | 1938 | 1360 | 1739 | 3447 | 95 | 1739 | 1826 | 1534 | 1739 | 1522 | 253 |
| Grp Volume(v), veh/h | 24 | 363 | 331 | 53 | 238 | 248 | 147 | 99 | 20 | 60 | 0 | 428 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1563 | 1739 | 1735 | 1807 | 1739 | 1826 | 1534 | 1739 | 0 | 1775 |
| Q Serve(g_s), s | 0.9 | 12.2 | 12.4 | 1.9 | 7.1 | 7.1 | 5.2 | 2.3 | 0.5 | 2.1 | 0.0 | 14.1 |
| Cycle Q Clear(g_c), s | 0.9 | 12.2 | 12.4 | 1.9 | 7.1 | 7.1 | 5.2 | 2.3 | 0.5 | 2.1 | 0.0 | 14.1 |
| Prop In Lane | 1.00 | | 0.87 | 1.00 | | 0.05 | 1.00 | | 1.00 | 1.00 | | 0.14 |
| Lane Grp Cap(c), veh/h | 47 | 465 | 419 | 84 | 501 | 522 | 187 | 637 | 535 | 90 | 0 | 520 |
| V/C Ratio(X) | 0.51 | 0.78 | 0.79 | 0.63 | 0.47 | 0.48 | 0.79 | 0.16 | 0.04 | 0.67 | 0.00 | 0.82 |
| Avail Cap(c_a), veh/h | 166 | 583 | 525 | 166 | 583 | 607 | 332 | 1050 | 882 | 249 | 0 | 936 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.1 | 21.3 | 21.3 | 29.3 | 18.4 | 18.4 | 27.3 | 14.1 | 13.5 | 29.2 | 0.0 | 20.7 |
| Incr Delay (d2), s/veh | 8.1 | 5.4 | 6.4 | 7.7 | 0.7 | 0.7 | 7.1 | 0.1 | 0.0 | 8.2 | 0.0 | 3.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 4.9 | 4.6 | 0.9 | 2.5 | 2.6 | 2.3 | 0.9 | 0.2 | 1.0 | 0.0 | 5.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 38.3 | 26.6 | 27.7 | 37.1 | 19.1 | 19.1 | 34.4 | 14.2 | 13.5 | 37.5 | 0.0 | 24.0 |
| LnGrp LOS | D | C | C | D | B | B | C | B | B | D | | C |
| Approach Vol, veh/h | | 718 | | | 539 | | | 266 | | | 488 | |
| Approach Delay, s/veh | | 27.5 | | | 20.9 | | | 25.3 | | | 25.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.2 | 26.8 | 7.0 | 21.7 | 10.8 | 23.3 | 5.7 | 23.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 9.0 | 36.1 | 6.0 | 21.1 | 12.0 | 33.1 | 6.0 | 21.1 |
| Max Q Clear Time (g_c+I1), s | 4.1 | 4.3 | 3.9 | 14.4 | 7.2 | 16.1 | 2.9 | 9.1 |
| Green Ext Time (p_c), s | 0.0 | 0.5 | 0.0 | 2.2 | 0.1 | 2.3 | 0.0 | 2.0 |

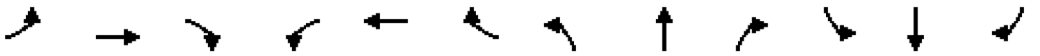
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 25.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 24 | 759 | 53 | 489 | 147 | 99 | 28 | 60 | 443 |
| v/c Ratio | 0.16 | 0.79 | 0.35 | 0.52 | 0.57 | 0.12 | 0.04 | 0.32 | 0.78 |
| Control Delay (s/veh) | 40.9 | 26.0 | 44.7 | 26.2 | 43.5 | 16.9 | 0.1 | 40.3 | 33.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.9 | 26.0 | 44.7 | 26.2 | 43.5 | 16.9 | 0.1 | 40.3 | 33.1 |
| Queue Length 50th (ft) | 12 | 133 | 27 | 92 | 71 | 34 | 0 | 29 | 203 |
| Queue Length 95th (ft) | 38 | #247 | #68 | 182 | #157 | 68 | 0 | 71 | 312 |
| Internal Link Dist (ft) | | 3072 | | 2553 | | 2230 | | | 5241 |
| Turn Bay Length (ft) | 50 | | 65 | | | | | | |
| Base Capacity (vph) | 155 | 1160 | 155 | 1172 | 310 | 985 | 869 | 233 | 879 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.15 | 0.65 | 0.34 | 0.42 | 0.47 | 0.10 | 0.03 | 0.26 | 0.50 |

Intersection Summary

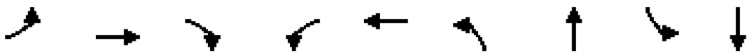
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 12 | 24 | 299 | 61 | 144 | 1 | 547 | 125 | 51 | 1 | 59 | 16 |
| Future Volume (veh/h) | 12 | 24 | 299 | 61 | 144 | 1 | 547 | 125 | 51 | 1 | 59 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 13 | 26 | 264 | 67 | 158 | 1 | 601 | 137 | 45 | 4 | 65 | 15 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.25 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 28 | 386 | 323 | 92 | 450 | 3 | 652 | 627 | 206 | 9 | 154 | 36 |
| Arrive On Green | 0.02 | 0.21 | 0.21 | 0.05 | 0.25 | 0.25 | 0.37 | 0.47 | 0.47 | 0.01 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1753 | 1841 | 1538 | 1753 | 1827 | 12 | 1753 | 1323 | 434 | 1753 | 1432 | 330 |
| Grp Volume(v), veh/h | 13 | 26 | 264 | 67 | 0 | 159 | 601 | 0 | 182 | 4 | 0 | 80 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 1841 | 1538 | 1753 | 0 | 1838 | 1753 | 0 | 1757 | 1753 | 0 | 1762 |
| Q Serve(g_s), s | 0.5 | 0.8 | 11.3 | 2.6 | 0.0 | 4.9 | 22.6 | 0.0 | 4.2 | 0.2 | 0.0 | 2.9 |
| Cycle Q Clear(g_c), s | 0.5 | 0.8 | 11.3 | 2.6 | 0.0 | 4.9 | 22.6 | 0.0 | 4.2 | 0.2 | 0.0 | 2.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.01 | 1.00 | | 0.25 | 1.00 | | 0.19 |
| Lane Grp Cap(c), veh/h | 28 | 386 | 323 | 92 | 0 | 453 | 652 | 0 | 833 | 9 | 0 | 190 |
| V/C Ratio(X) | 0.46 | 0.07 | 0.82 | 0.73 | 0.00 | 0.35 | 0.92 | 0.00 | 0.22 | 0.43 | 0.00 | 0.42 |
| Avail Cap(c_a), veh/h | 150 | 480 | 401 | 150 | 0 | 480 | 762 | 0 | 1080 | 150 | 0 | 467 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 33.7 | 21.8 | 26.0 | 32.2 | 0.0 | 21.5 | 20.7 | 0.0 | 10.6 | 34.2 | 0.0 | 28.8 |
| Incr Delay (d2), s/veh | 11.5 | 0.1 | 10.3 | 10.5 | 0.0 | 0.5 | 15.2 | 0.0 | 0.1 | 27.9 | 0.0 | 1.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.3 | 4.6 | 1.3 | 0.0 | 2.0 | 10.5 | 0.0 | 1.4 | 0.1 | 0.0 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 45.1 | 21.9 | 36.3 | 42.7 | 0.0 | 21.9 | 35.9 | 0.0 | 10.8 | 62.1 | 0.0 | 30.3 |
| LnGrp LOS | D | C | D | D | | C | D | | B | E | | C |
| Approach Vol, veh/h | | 303 | | | 226 | | | 783 | | | 84 | |
| Approach Delay, s/veh | | 35.5 | | | 28.1 | | | 30.0 | | | 31.8 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.4 | 37.6 | 7.6 | 19.4 | 29.7 | 12.3 | 5.1 | 21.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 42.4 | 5.9 | 18.0 | 30.0 | 18.3 | 5.9 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.2 | 6.2 | 4.6 | 13.3 | 24.6 | 4.9 | 2.5 | 6.9 |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 0.4 | 1.1 | 0.2 | 0.0 | 0.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 31.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 13 | 26 | 329 | 67 | 159 | 601 | 193 | 4 | 83 |
| v/c Ratio | 0.09 | 0.11 | 0.69 | 0.45 | 0.41 | 0.79 | 0.19 | 0.03 | 0.38 |
| Control Delay (s/veh) | 34.7 | 28.7 | 11.9 | 44.0 | 27.9 | 28.6 | 8.1 | 34.0 | 30.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.7 | 28.7 | 11.9 | 44.0 | 27.9 | 28.6 | 8.1 | 34.0 | 30.8 |
| Queue Length 50th (ft) | 5 | 10 | 0 | 27 | 55 | 205 | 25 | 2 | 27 |
| Queue Length 95th (ft) | 24 | 32 | 67 | #85 | 129 | #508 | 94 | 3 | 74 |
| Internal Link Dist (ft) | | 5959 | | | 1494 | | 2586 | | 3233 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 150 | 483 | 641 | 150 | 487 | 765 | 1090 | 150 | 480 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.09 | 0.05 | 0.51 | 0.45 | 0.33 | 0.79 | 0.18 | 0.03 | 0.17 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 221 | 59 | 599 | 130 | 15 | 512 |
| Future Volume (veh/h) | 221 | 59 | 599 | 130 | 15 | 512 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | | 0.99 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | No | | | No |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 240 | 51 | 651 | 113 | 16 | 557 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 308 | 66 | 779 | 135 | 35 | 1120 |
| Arrive On Green | 0.22 | 0.22 | 0.50 | 0.50 | 0.02 | 0.60 |
| Sat Flow, veh/h | 1429 | 304 | 1550 | 269 | 1781 | 1870 |
| Grp Volume(v), veh/h | 292 | 0 | 0 | 764 | 16 | 557 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 0 | 0 | 1819 | 1781 | 1870 |
| Q Serve(g_s), s | 8.3 | 0.0 | 0.0 | 19.0 | 0.5 | 9.0 |
| Cycle Q Clear(g_c), s | 8.3 | 0.0 | 0.0 | 19.0 | 0.5 | 9.0 |
| Prop In Lane | 0.82 | 0.17 | | 0.15 | 1.00 | |
| Lane Grp Cap(c), veh/h | 375 | 0 | 0 | 915 | 35 | 1120 |
| V/C Ratio(X) | 0.78 | 0.00 | 0.00 | 0.84 | 0.45 | 0.50 |
| Avail Cap(c_a), veh/h | 695 | 0 | 0 | 1692 | 203 | 2095 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.5 | 0.0 | 0.0 | 11.2 | 25.6 | 6.1 |
| Incr Delay (d2), s/veh | 3.5 | 0.0 | 0.0 | 2.1 | 8.8 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.4 | 0.0 | 0.0 | 5.4 | 0.3 | 1.9 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 23.0 | 0.0 | 0.0 | 13.3 | 34.4 | 6.4 |
| LnGrp LOS | C | | | B | C | A |
| Approach Vol, veh/h | 292 | | 764 | | | 573 |
| Approach Delay, s/veh | 23.0 | | 13.3 | | | 7.2 |
| Approach LOS | C | | B | | | A |

| Timer - Assigned Phs | 1 | 2 | | | | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.0 | 31.4 | | | | 36.5 | 16.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | | | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 49.1 | | | | 59.1 | 21.1 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 21.0 | | | | 11.0 | 10.3 |
| Green Ext Time (p_c), s | 0.0 | 5.5 | | | | 3.6 | 0.7 |

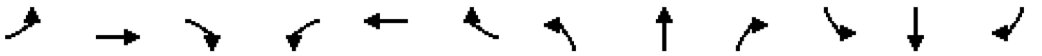
| Intersection Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 12.9 | | | | |
| HCM 7th LOS | | | B | | | | |



| Lane Group | WBL | NBT | SBL | SBT |
|---|---|---|---|---|
| Lane Group Flow (vph) | 304 | 792 | 16 | 557 |
| v/c Ratio | 0.65 | 0.80 | 0.09 | 0.53 |
| Control Delay (s/veh) | 29.6 | 19.7 | 35.3 | 10.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 29.6 | 19.7 | 35.3 | 10.4 |
| Queue Length 50th (ft) | 89 | 196 | 5 | 114 |
| Queue Length 95th (ft) | #267 | 505 | 29 | 205 |
| Internal Link Dist (ft) | 907 | 2558 | | 2586 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 640 | 1470 | 183 | 1671 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.54 | 0.09 | 0.33 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 42 | 249 | 318 | 132 | 375 | 41 | 495 | 363 | 60 | 61 | 714 | 115 |
| Future Volume (veh/h) | 42 | 249 | 318 | 132 | 375 | 41 | 495 | 363 | 60 | 61 | 714 | 115 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 49 | 293 | 262 | 155 | 441 | 39 | 582 | 427 | 57 | 72 | 840 | 94 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 63 | 306 | 254 | 164 | 782 | 344 | 579 | 1863 | 826 | 92 | 892 | 390 |
| Arrive On Green | 0.04 | 0.16 | 0.16 | 0.09 | 0.22 | 0.22 | 0.33 | 0.53 | 0.53 | 0.05 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1767 | 1856 | 1544 | 1767 | 3526 | 1551 | 1767 | 3526 | 1564 | 1767 | 3526 | 1541 |
| Grp Volume(v), veh/h | 49 | 293 | 262 | 155 | 441 | 39 | 582 | 427 | 57 | 72 | 840 | 94 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1544 | 1767 | 1763 | 1551 | 1767 | 1763 | 1564 | 1767 | 1763 | 1541 |
| Q Serve(g_s), s | 3.0 | 17.2 | 18.1 | 9.6 | 12.2 | 2.2 | 36.0 | 7.1 | 2.0 | 4.4 | 25.7 | 5.3 |
| Cycle Q Clear(g_c), s | 3.0 | 17.2 | 18.1 | 9.6 | 12.2 | 2.2 | 36.0 | 7.1 | 2.0 | 4.4 | 25.7 | 5.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 63 | 306 | 254 | 164 | 782 | 344 | 579 | 1863 | 826 | 92 | 892 | 390 |
| V/C Ratio(X) | 0.78 | 0.96 | 1.03 | 0.95 | 0.56 | 0.11 | 1.01 | 0.23 | 0.07 | 0.78 | 0.94 | 0.24 |
| Avail Cap(c_a), veh/h | 117 | 306 | 254 | 164 | 782 | 344 | 579 | 1863 | 826 | 162 | 895 | 391 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.6 | 45.5 | 45.9 | 49.6 | 38.0 | 34.1 | 37.0 | 13.9 | 12.7 | 51.5 | 40.3 | 32.7 |
| Incr Delay (d2), s/veh | 18.5 | 40.4 | 64.6 | 54.1 | 0.9 | 0.1 | 38.8 | 0.1 | 0.0 | 13.2 | 17.6 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 11.1 | 11.2 | 6.6 | 5.2 | 0.8 | 20.8 | 2.6 | 0.6 | 2.2 | 12.8 | 2.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 71.1 | 85.9 | 110.5 | 103.7 | 39.0 | 34.3 | 75.7 | 14.0 | 12.7 | 64.6 | 57.9 | 33.0 |
| LnGrp LOS | E | F | F | F | D | C | F | B | B | E | E | C |
| Approach Vol, veh/h | | 604 | | | 635 | | | 1066 | | | 1006 | |
| Approach Delay, s/veh | | 95.4 | | | 54.5 | | | 47.6 | | | 56.0 | |
| Approach LOS | | F | | | D | | | D | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.7 | 63.0 | 14.2 | 23.0 | 40.0 | 32.7 | 7.9 | 29.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 10.1 | 53.8 | 10.2 | 18.1 | 36.0 | 27.9 | 7.3 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.4 | 9.1 | 11.6 | 20.1 | 38.0 | 27.7 | 5.0 | 14.2 |
| Green Ext Time (p_c), s | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 60.2 |
| HCM 7th LOS | E |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 49 | 293 | 374 | 155 | 441 | 48 | 582 | 427 | 71 | 72 | 840 | 135 |
| v/c Ratio | 0.45 | 0.97 | 0.72 | 0.96 | 0.59 | 0.11 | 1.02 | 0.24 | 0.09 | 0.51 | 0.95 | 0.28 |
| Control Delay (s/veh) | 62.6 | 90.6 | 17.0 | 111.0 | 43.8 | 0.5 | 79.2 | 15.7 | 1.7 | 60.9 | 60.5 | 6.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 62.6 | 90.6 | 17.0 | 111.0 | 43.8 | 0.5 | 79.2 | 15.7 | 1.7 | 60.9 | 60.5 | 6.9 |
| Queue Length 50th (ft) | 34 | 208 | 33 | 111 | 153 | 0 | ~421 | 88 | 0 | 49 | 307 | 0 |
| Queue Length 95th (ft) | 70 | #345 | 113 | #221 | 195 | 0 | #591 | 114 | 11 | 91 | #388 | 38 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 | |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | | |
| Base Capacity (vph) | 116 | 303 | 517 | 162 | 742 | 431 | 573 | 1816 | 835 | 160 | 888 | 480 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.42 | 0.97 | 0.72 | 0.96 | 0.59 | 0.11 | 1.02 | 0.24 | 0.09 | 0.45 | 0.95 | 0.28 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 628 | 37 | 5 | 726 | 81 | 20 |
| Future Volume (veh/h) | 628 | 37 | 5 | 726 | 81 | 20 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | 0.99 | 1.00 | | 1.00 | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 826 | 40 | 7 | 955 | 107 | 21 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 1767 | 86 | 17 | 1159 | 204 | 40 |
| Arrive On Green | 0.51 | 0.51 | 0.01 | 0.62 | 0.14 | 0.14 |
| Sat Flow, veh/h | 3542 | 167 | 1781 | 1870 | 1443 | 283 |
| Grp Volume(v), veh/h | 426 | 440 | 7 | 955 | 129 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1777 | 1838 | 1781 | 1870 | 1740 | 0 |
| Q Serve(g_s), s | 6.3 | 6.3 | 0.2 | 16.3 | 2.8 | 0.0 |
| Cycle Q Clear(g_c), s | 6.3 | 6.3 | 0.2 | 16.3 | 2.8 | 0.0 |
| Prop In Lane | | 0.09 | 1.00 | | 0.83 | 0.16 |
| Lane Grp Cap(c), veh/h | 911 | 942 | 17 | 1159 | 246 | 0 |
| V/C Ratio(X) | 0.47 | 0.47 | 0.42 | 0.82 | 0.52 | 0.00 |
| Avail Cap(c_a), veh/h | 1395 | 1444 | 256 | 1921 | 768 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 6.4 | 6.4 | 20.2 | 6.1 | 16.3 | 0.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.4 | 16.0 | 1.5 | 1.7 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 1.1 | 0.1 | 1.6 | 1.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 6.8 | 6.8 | 36.2 | 7.6 | 18.0 | 0.0 |
| LnGrp LOS | A | A | D | A | B | |
| Approach Vol, veh/h | 866 | | | 962 | 129 | |
| Approach Delay, s/veh | 6.8 | | | 7.8 | 18.0 | |
| Approach LOS | A | | | A | B | |

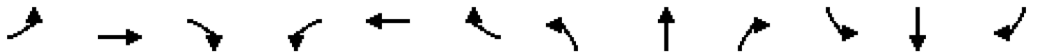
| Timer - Assigned Phs | | 2 | 3 | 4 | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 10.7 | 4.4 | 25.9 | | 30.3 |
| Change Period (Y+Rc), s | | 4.9 | 4.0 | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | | 18.1 | 5.9 | 32.2 | | 42.1 |
| Max Q Clear Time (g_c+I1), s | | 4.8 | 2.2 | 8.3 | | 18.3 |
| Green Ext Time (p_c), s | | 0.3 | 0.0 | 5.0 | | 7.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 8.0 |
| HCM 7th LOS | A |



| Lane Group | EBT | WBL | WBT | NBL |
|---|---|---|---|---|
| Lane Group Flow (vph) | 875 | 7 | 955 | 133 |
| v/c Ratio | 0.42 | 0.03 | 0.83 | 0.41 |
| Control Delay (s/veh) | 7.3 | 26.6 | 15.6 | 23.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 7.3 | 26.6 | 15.6 | 23.2 |
| Queue Length 50th (ft) | 55 | 2 | 180 | 32 |
| Queue Length 95th (ft) | 125 | 11 | 267 | 68 |
| Internal Link Dist (ft) | 1220 | | 700 | 608 |
| Turn Bay Length (ft) | | 110 | | |
| Base Capacity (vph) | 2449 | 214 | 1521 | 656 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.03 | 0.63 | 0.20 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 41 | 264 | 319 | 88 | 402 | 9 | 143 | 266 | 42 | 24 | 277 | 92 |
| Future Volume (veh/h) | 41 | 264 | 319 | 88 | 402 | 9 | 143 | 266 | 42 | 24 | 277 | 92 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 53 | 343 | 291 | 114 | 522 | 9 | 186 | 345 | 45 | 31 | 360 | 96 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 84 | 885 | 390 | 149 | 1013 | 444 | 237 | 654 | 549 | 59 | 467 | 388 |
| Arrive On Green | 0.05 | 0.25 | 0.25 | 0.08 | 0.29 | 0.29 | 0.13 | 0.35 | 0.35 | 0.03 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1767 | 3526 | 1554 | 1767 | 3526 | 1545 | 1767 | 1856 | 1559 | 1767 | 1856 | 1541 |
| Grp Volume(v), veh/h | 53 | 343 | 291 | 114 | 522 | 9 | 186 | 345 | 45 | 31 | 360 | 96 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1554 | 1767 | 1763 | 1545 | 1767 | 1856 | 1559 | 1767 | 1856 | 1541 |
| Q Serve(g_s), s | 1.9 | 5.1 | 11.0 | 4.0 | 7.9 | 0.3 | 6.5 | 9.4 | 1.2 | 1.1 | 11.5 | 3.2 |
| Cycle Q Clear(g_c), s | 1.9 | 5.1 | 11.0 | 4.0 | 7.9 | 0.3 | 6.5 | 9.4 | 1.2 | 1.1 | 11.5 | 3.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 84 | 885 | 390 | 149 | 1013 | 444 | 237 | 654 | 549 | 59 | 467 | 388 |
| V/C Ratio(X) | 0.63 | 0.39 | 0.75 | 0.77 | 0.52 | 0.02 | 0.79 | 0.53 | 0.08 | 0.53 | 0.77 | 0.25 |
| Avail Cap(c_a), veh/h | 255 | 1555 | 685 | 427 | 1898 | 832 | 602 | 1523 | 1280 | 177 | 1077 | 895 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.8 | 19.8 | 22.0 | 28.6 | 19.0 | 16.3 | 26.7 | 16.4 | 13.8 | 30.3 | 22.1 | 19.0 |
| Incr Delay (d2), s/veh | 7.4 | 0.3 | 2.9 | 8.0 | 0.4 | 0.0 | 5.7 | 0.7 | 0.1 | 7.2 | 2.7 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 1.8 | 3.7 | 1.8 | 2.8 | 0.1 | 2.8 | 3.4 | 0.4 | 0.5 | 4.6 | 1.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 37.2 | 20.1 | 24.9 | 36.6 | 19.4 | 16.3 | 32.4 | 17.1 | 13.8 | 37.5 | 24.9 | 19.4 |
| LnGrp LOS | D | C | C | D | B | B | C | B | B | D | C | B |
| Approach Vol, veh/h | | 687 | | | 645 | | | 576 | | | 487 | |
| Approach Delay, s/veh | | 23.4 | | | 22.4 | | | 21.8 | | | 24.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

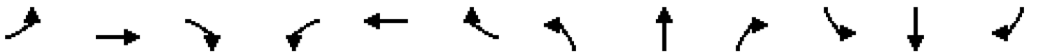
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.1 | 27.4 | 9.4 | 20.9 | 12.5 | 20.9 | 7.0 | 23.2 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.4 | 52.3 | 15.4 | 28.1 | 21.7 | 37.0 | 9.2 | 34.3 |
| Max Q Clear Time (g_c+I1), s | 3.1 | 11.4 | 6.0 | 13.0 | 8.5 | 13.5 | 3.9 | 9.9 |
| Green Ext Time (p_c), s | 0.0 | 2.0 | 0.2 | 2.6 | 0.4 | 2.2 | 0.0 | 3.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 23.0 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 53 | 343 | 414 | 114 | 522 | 12 | 186 | 345 | 55 | 31 | 360 | 119 |
| v/c Ratio | 0.30 | 0.49 | 0.65 | 0.47 | 0.56 | 0.02 | 0.58 | 0.41 | 0.07 | 0.22 | 0.69 | 0.22 |
| Control Delay (s/veh) | 46.9 | 35.0 | 9.4 | 45.3 | 31.3 | 0.1 | 42.8 | 19.9 | 0.2 | 48.3 | 36.2 | 2.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 46.9 | 35.0 | 9.4 | 45.3 | 31.3 | 0.1 | 42.8 | 19.9 | 0.2 | 48.3 | 36.2 | 2.7 |
| Queue Length 50th (ft) | 25 | 82 | 0 | 54 | 125 | 0 | 87 | 131 | 0 | 15 | 164 | 0 |
| Queue Length 95th (ft) | 67 | 138 | 30 | 116 | 193 | 0 | 167 | 200 | 0 | 46 | 266 | 3 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | | | 2587 | | | 894 | |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | | | | | |
| Base Capacity (vph) | 219 | 1340 | 836 | 367 | 1636 | 760 | 517 | 1258 | 1075 | 152 | 929 | 828 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.26 | 0.50 | 0.31 | 0.32 | 0.02 | 0.36 | 0.27 | 0.05 | 0.20 | 0.39 | 0.14 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 243 | 0 | 898 | 0 | 0 | 0 | 0 | 1333 | 38 | 29 | 862 | 0 |
| Future Volume (veh/h) | 243 | 0 | 898 | 0 | 0 | 0 | 0 | 1333 | 38 | 29 | 862 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 0 | 1856 | | | | 0 | 1856 | 1856 | 1856 | 1856 | 0 |
| Adj Flow Rate, veh/h | 264 | 0 | 780 | | | | 0 | 1449 | 32 | 32 | 937 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 0 | 3 | | | | 0 | 3 | 3 | 3 | 3 | 0 |
| Cap, veh/h | 620 | 0 | 971 | | | | 0 | 2125 | 47 | 59 | 1790 | 0 |
| Arrive On Green | 0.35 | 0.00 | 0.35 | | | | 0.00 | 0.42 | 0.42 | 0.03 | 0.51 | 0.00 |
| Sat Flow, veh/h | 1767 | 0 | 2768 | | | | 0 | 5265 | 113 | 1767 | 3618 | 0 |
| Grp Volume(v), veh/h | 264 | 0 | 780 | | | | 0 | 960 | 521 | 32 | 937 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1384 | | | | 0 | 1689 | 1834 | 1767 | 1763 | 0 |
| Q Serve(g_s), s | 7.9 | 0.0 | 17.7 | | | | 0.0 | 16.1 | 16.1 | 1.2 | 12.4 | 0.0 |
| Cycle Q Clear(g_c), s | 7.9 | 0.0 | 17.7 | | | | 0.0 | 16.1 | 16.1 | 1.2 | 12.4 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.06 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 620 | 0 | 971 | | | | 0 | 1408 | 764 | 59 | 1790 | 0 |
| V/C Ratio(X) | 0.43 | 0.00 | 0.80 | | | | 0.00 | 0.68 | 0.68 | 0.55 | 0.52 | 0.00 |
| Avail Cap(c_a), veh/h | 1354 | 0 | 2120 | | | | 0 | 2285 | 1241 | 158 | 2904 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 17.2 | 0.0 | 20.3 | | | | 0.0 | 16.5 | 16.5 | 33.0 | 11.4 | 0.0 |
| Incr Delay (d2), s/veh | 0.5 | 0.0 | 1.6 | | | | 0.0 | 0.6 | 1.1 | 7.7 | 0.2 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.1 | 0.0 | 5.4 | | | | 0.0 | 5.1 | 5.6 | 0.6 | 3.7 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 17.6 | 0.0 | 21.9 | | | | 0.0 | 17.1 | 17.6 | 40.7 | 11.7 | 0.0 |
| LnGrp LOS | B | | C | | | | | B | B | D | B | |
| Approach Vol, veh/h | | 1044 | | | | | | 1481 | | | 969 | |
| Approach Delay, s/veh | | 20.8 | | | | | | 17.2 | | | 12.6 | |
| Approach LOS | | C | | | | | | B | | | B | |

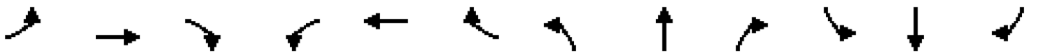
| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.3 | 33.8 | | 29.2 | | 40.1 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 6.2 | 46.9 | | 53.1 | | 57.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 3.2 | 18.1 | | 19.7 | | 14.4 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 10.8 | | 4.7 | | 6.9 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 17.0 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 264 | 976 | 1490 | 32 | 937 |
| v/c Ratio | 0.36 | 0.83 | 0.73 | 0.26 | 0.58 |
| Control Delay (s/veh) | 21.7 | 29.0 | 27.1 | 56.3 | 20.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Total Delay (s/veh) | 21.7 | 29.0 | 27.1 | 56.3 | 20.2 |
| Queue Length 50th (ft) | 116 | 281 | 295 | 20 | 208 |
| Queue Length 95th (ft) | 198 | 418 | 420 | 59 | 330 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 1109 | 1704 | 2805 | 129 | 2355 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 256 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.57 | 0.53 | 0.25 | 0.45 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 18 | 258 | 36 | 9 | 348 | 35 | 64 | 8 | 23 | 102 | 63 | 77 |
| Future Volume (veh/h) | 18 | 258 | 36 | 9 | 348 | 35 | 64 | 8 | 23 | 102 | 63 | 77 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 0.99 | | 0.99 | 0.99 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 24 | 344 | 41 | 12 | 464 | 40 | 85 | 11 | 26 | 136 | 84 | 90 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 52 | 978 | 429 | 27 | 929 | 407 | 321 | 54 | 51 | 404 | 198 | 395 |
| Arrive On Green | 0.03 | 0.28 | 0.28 | 0.02 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1739 | 3469 | 1520 | 1739 | 3469 | 1518 | 528 | 208 | 199 | 883 | 767 | 1529 |
| Grp Volume(v), veh/h | 24 | 344 | 41 | 12 | 464 | 40 | 122 | 0 | 0 | 220 | 0 | 90 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1520 | 1739 | 1735 | 1518 | 935 | 0 | 0 | 1650 | 0 | 1529 |
| Q Serve(g_s), s | 0.4 | 2.6 | 0.7 | 0.2 | 3.7 | 0.7 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 |
| Cycle Q Clear(g_c), s | 0.4 | 2.6 | 0.7 | 0.2 | 3.7 | 0.7 | 5.1 | 0.0 | 0.0 | 3.5 | 0.0 | 1.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.70 | | 0.21 | 0.62 | | 1.00 |
| Lane Grp Cap(c), veh/h | 52 | 978 | 429 | 27 | 929 | 407 | 426 | 0 | 0 | 602 | 0 | 395 |
| V/C Ratio(X) | 0.46 | 0.35 | 0.10 | 0.44 | 0.50 | 0.10 | 0.29 | 0.00 | 0.00 | 0.37 | 0.00 | 0.23 |
| Avail Cap(c_a), veh/h | 268 | 1895 | 830 | 268 | 1895 | 830 | 948 | 0 | 0 | 1208 | 0 | 1020 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.8 | 9.5 | 8.8 | 16.2 | 10.2 | 9.1 | 11.1 | 0.0 | 0.0 | 10.4 | 0.0 | 9.7 |
| Incr Delay (d2), s/veh | 6.2 | 0.2 | 0.1 | 10.6 | 0.4 | 0.1 | 0.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.6 | 0.1 | 0.1 | 0.8 | 0.1 | 0.6 | 0.0 | 0.0 | 0.9 | 0.0 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 22.1 | 9.7 | 8.9 | 26.7 | 10.7 | 9.2 | 11.5 | 0.0 | 0.0 | 10.8 | 0.0 | 10.0 |
| LnGrp LOS | C | A | A | C | B | A | B | | | B | | A |
| Approach Vol, veh/h | | 409 | | | 516 | | | 122 | | | 310 | |
| Approach Delay, s/veh | | 10.3 | | | 10.9 | | | 11.5 | | | 10.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 13.5 | 5.4 | 14.2 | | 13.5 | 5.9 | 13.8 | | | | |
| Change Period (Y+Rc), s | | 4.9 | 4.9 | 4.9 | | 4.9 | 4.9 | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 22.1 | 5.1 | 18.1 | | 22.1 | 5.1 | 18.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 7.1 | 2.2 | 4.6 | | 5.5 | 2.4 | 5.7 | | | | |
| Green Ext Time (p_c), s | | 0.5 | 0.0 | 1.7 | | 1.3 | 0.0 | 2.2 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 10.7 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 24 | 344 | 48 | 12 | 464 | 47 | 127 | 220 | 103 |
| v/c Ratio | 0.09 | 0.32 | 0.09 | 0.04 | 0.43 | 0.09 | 0.30 | 0.49 | 0.17 |
| Control Delay (s/veh) | 19.6 | 11.3 | 0.3 | 19.4 | 12.0 | 0.3 | 10.2 | 14.7 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 19.6 | 11.3 | 0.3 | 19.4 | 12.0 | 0.3 | 10.2 | 14.7 | 3.1 |
| Queue Length 50th (ft) | 3 | 20 | 0 | 2 | 27 | 0 | 10 | 24 | 0 |
| Queue Length 95th (ft) | 23 | 64 | 0 | 14 | 85 | 0 | 45 | 89 | 12 |
| Internal Link Dist (ft) | | 2570 | | | 2566 | | 2887 | 505 | |
| Turn Bay Length (ft) | 245 | | | 100 | | | | | |
| Base Capacity (vph) | 280 | 1989 | 909 | 280 | 1989 | 909 | 841 | 939 | 1099 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.09 | 0.17 | 0.05 | 0.04 | 0.23 | 0.05 | 0.15 | 0.23 | 0.09 |

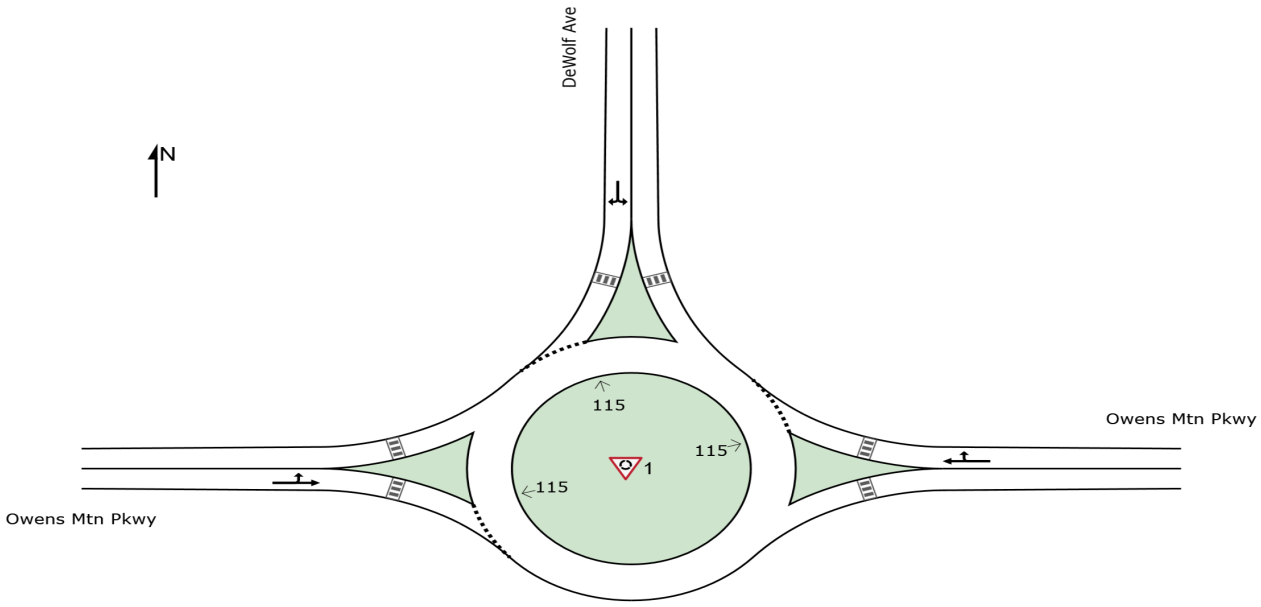
Intersection Summary

# SITE LAYOUT

## Site: [1] DeWolf-Owns Mt Pkwy  NT+Dev (Mitigated) AM
(Folder1)

DeWolf & Owens Mt. Pkwy
Near-Term With Development (Mitigated)
AM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.




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# LANE SUMMARY

## Site: [1] DeWolf-Owns Mt Pkwy NT+Dev (Mitigated) AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

DeWolf & Owens Mt. Pkwy
Near-Term With Development (Mitigated)
AM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 209 | 5.0 | 209 | 5.0 | 1267 | 0.165 | 100 | 3.9 | LOS A | 1.1 | 27.4 | Full | 1600 | 0.0 | 0.0 |
| Approach | 209 | 5.0 | 209 | 5.0 | | 0.165 | | 3.9 | LOS A | 1.1 | 27.4 | | | | |
| North: DeWolf Ave | | | | | | | | | | | | | | | |
| Lane 1[d] | 815 | 5.0 | 815 | 5.0 | 1273 | 0.640 | 100 | 8.2 | LOS A | 7.1 | 185.6 | Full | 1600 | 0.0 | 0.0 |
| Approach | 815 | 5.0 | 815 | 5.0 | | 0.640 | | 8.2 | LOS A | 7.1 | 185.6 | | | | |
| West: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 78 | 5.0 | 78 | 5.0 | 599 | 0.130 | 100 | 7.5 | LOS A | 0.7 | 19.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 78 | 5.0 | 78 | 5.0 | | 0.130 | | 7.5 | LOS A | 0.7 | 19.0 | | | | |
| All Vehicles | 1101 | 5.0 | 1101 | 5.0 | | 0.640 | | 7.3 | LOS A | 7.1 | 185.6 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

East: Owens Mtn Pkwy

| Mov. From E To Exit: | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 14 | 195 | 209 | 5.0 | 1267 | 0.165 | 100 | NA | NA |
| Approach | 14 | 195 | 209 | 5.0 | | 0.165 | | | |

North: DeWolf Ave

| Mov. From N | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|

| To Exit: | E | W | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 805 | 10 | 815 | 5.0 | 1273 | 0.640 | 100 | NA | NA |
| Approach | 805 | 10 | 815 | 5.0 | | 0.640 | | | |

West: Owens Mtn Pkwy

| Mov. From W To Exit: | L2 N | T1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 15 | 63 | 78 | 5.0 | 599 | 0.130 | 100 | NA | NA |
| Approach | 15 | 63 | 78 | 5.0 | | 0.130 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 1101 | 5.0 | 0.640 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

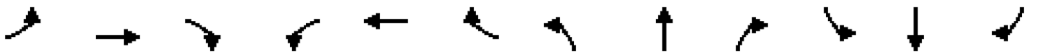
## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: DeWolf Ave | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 158 | 216 | 51 | 35 | 591 | 18 | 124 | 25 | 12 | 7 | 81 | 654 |
| Future Volume (veh/h) | 158 | 216 | 51 | 35 | 591 | 18 | 124 | 25 | 12 | 7 | 81 | 654 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 203 | 277 | 52 | 45 | 758 | 18 | 159 | 32 | 12 | 9 | 104 | 587 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 298 | 1163 | 511 | 72 | 999 | 438 | 201 | 1314 | 581 | 20 | 501 | 734 |
| Arrive On Green | 0.09 | 0.34 | 0.34 | 0.04 | 0.29 | 0.29 | 0.12 | 0.38 | 0.38 | 0.01 | 0.27 | 0.27 |
| Sat Flow, veh/h | 3374 | 3469 | 1524 | 1739 | 3469 | 1521 | 1739 | 3469 | 1535 | 1739 | 1826 | 2674 |
| Grp Volume(v), veh/h | 203 | 277 | 52 | 45 | 758 | 18 | 159 | 32 | 12 | 9 | 104 | 587 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1735 | 1524 | 1739 | 1735 | 1521 | 1739 | 1735 | 1535 | 1739 | 1826 | 1337 |
| Q Serve(g_s), s | 4.2 | 4.2 | 1.7 | 1.8 | 14.4 | 0.6 | 6.4 | 0.4 | 0.4 | 0.4 | 3.2 | 14.8 |
| Cycle Q Clear(g_c), s | 4.2 | 4.2 | 1.7 | 1.8 | 14.4 | 0.6 | 6.4 | 0.4 | 0.4 | 0.4 | 3.2 | 14.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 298 | 1163 | 511 | 72 | 999 | 438 | 201 | 1314 | 581 | 20 | 501 | 734 |
| V/C Ratio(X) | 0.68 | 0.24 | 0.10 | 0.63 | 0.76 | 0.04 | 0.79 | 0.02 | 0.02 | 0.45 | 0.21 | 0.80 |
| Avail Cap(c_a), veh/h | 559 | 1883 | 827 | 211 | 1730 | 758 | 432 | 2348 | 1039 | 144 | 933 | 1366 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 32.0 | 17.4 | 16.6 | 34.2 | 23.5 | 18.6 | 31.2 | 14.1 | 14.1 | 35.6 | 20.2 | 24.4 |
| Incr Delay (d2), s/veh | 2.7 | 0.1 | 0.1 | 8.8 | 1.2 | 0.0 | 6.9 | 0.0 | 0.0 | 15.2 | 0.2 | 2.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 1.4 | 0.6 | 0.9 | 5.2 | 0.2 | 3.0 | 0.2 | 0.1 | 0.2 | 1.3 | 4.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 34.7 | 17.5 | 16.6 | 42.9 | 24.7 | 18.6 | 38.0 | 14.1 | 14.1 | 50.8 | 20.4 | 26.5 |
| LnGrp LOS | C | B | B | D | C | B | D | B | B | D | C | C |
| Approach Vol, veh/h | | 532 | | | 821 | | | 203 | | | 700 | |
| Approach Delay, s/veh | | 24.0 | | | 25.6 | | | 32.8 | | | 25.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.0 | 29.2 | 12.4 | 23.9 | 10.4 | 25.8 | 4.8 | 31.4 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.8 | 39.3 | 18.0 | 37.0 | 12.0 | 36.1 | 6.0 | 49.0 |
| Max Q Clear Time (g_c+I1), s | 3.8 | 6.2 | 8.4 | 16.8 | 6.2 | 16.4 | 2.4 | 2.4 |
| Green Ext Time (p_c), s | 0.0 | 1.7 | 0.3 | 3.1 | 0.3 | 4.4 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 25.9 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 203 | 277 | 65 | 45 | 758 | 23 | 159 | 32 | 15 | 9 | 104 | 838 |
| v/c Ratio | 0.55 | 0.22 | 0.11 | 0.33 | 0.78 | 0.05 | 0.64 | 0.02 | 0.02 | 0.08 | 0.21 | 0.83 |
| Control Delay (s/veh) | 51.3 | 25.2 | 0.7 | 56.3 | 39.6 | 0.2 | 55.9 | 17.6 | 0.1 | 54.6 | 30.2 | 24.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.3 | 25.2 | 0.7 | 56.3 | 39.6 | 0.2 | 55.9 | 17.6 | 0.1 | 54.6 | 30.2 | 24.6 |
| Queue Length 50th (ft) | 63 | 68 | 0 | 28 | 234 | 0 | 97 | 5 | 0 | 6 | 51 | 147 |
| Queue Length 95th (ft) | 102 | 100 | 0 | 63 | 289 | 0 | 162 | 15 | 0 | 21 | 89 | 185 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 436 | 1471 | 691 | 164 | 1351 | 644 | 337 | 1889 | 859 | 112 | 729 | 1282 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.47 | 0.19 | 0.09 | 0.27 | 0.56 | 0.04 | 0.47 | 0.02 | 0.02 | 0.08 | 0.14 | 0.65 |

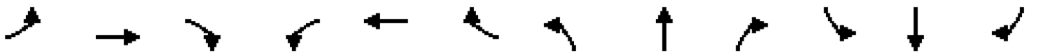
Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 28.9 |
| Intersection LOS | D |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 0 | 189 | 2 | 0 | 0 | 205 | 301 | 2 | 1 | 323 | 5 |
| Future Vol, veh/h | 11 | 0 | 189 | 2 | 0 | 0 | 205 | 301 | 2 | 1 | 323 | 5 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 0 | 230 | 2 | 0 | 0 | 250 | 367 | 2 | 1 | 394 | 6 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 13 | 10.7 | 42.6 | 17.6 |
| HCM LOS | B | B | E | C |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 40% | 6% | 100% | 0% |
| Vol Thru, % | 59% | 0% | 0% | 98% |
| Vol Right, % | 0% | 95% | 0% | 2% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 508 | 200 | 2 | 329 |
| LT Vol | 205 | 11 | 2 | 1 |
| Through Vol | 301 | 0 | 0 | 323 |
| RT Vol | 2 | 189 | 0 | 5 |
| Lane Flow Rate | 620 | 244 | 2 | 401 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.928 | 0.403 | 0.005 | 0.624 |
| Departure Headway (Hd) | 5.392 | 5.943 | 7.616 | 5.601 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 669 | 602 | 473 | 642 |
| Service Time | 3.444 | 4.017 | 5.616 | 3.664 |
| HCM Lane V/C Ratio | 0.927 | 0.405 | 0.004 | 0.625 |
| HCM Control Delay, s/veh | 42.6 | 13 | 10.7 | 17.6 |
| HCM Lane LOS | E | B | B | C |
| HCM 95th-tile Q | 12.5 | 1.9 | 0 | 4.3 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 2 | 294 | 85 | 44 | 349 | 361 | 94 | 285 | 47 | 249 | 221 | 3 |
| Future Volume (veh/h) | 2 | 294 | 85 | 44 | 349 | 361 | 94 | 285 | 47 | 249 | 221 | 3 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 2 | 313 | 72 | 47 | 371 | 307 | 100 | 303 | 40 | 265 | 235 | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 41 | 686 | 157 | 76 | 417 | 331 | 128 | 341 | 45 | 300 | 566 | 7 |
| Arrive On Green | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.07 | 0.21 | 0.21 | 0.17 | 0.31 | 0.31 |
| Sat Flow, veh/h | 2 | 1469 | 336 | 70 | 894 | 708 | 1781 | 1615 | 213 | 1781 | 1842 | 24 |
| Grp Volume(v), veh/h | 387 | 0 | 0 | 725 | 0 | 0 | 100 | 0 | 343 | 265 | 0 | 238 |
| Grp Sat Flow(s),veh/h/ln | 1806 | 0 | 0 | 1672 | 0 | 0 | 1781 | 0 | 1828 | 1781 | 0 | 1866 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 22.3 | 0.0 | 0.0 | 5.0 | 0.0 | 16.4 | 13.0 | 0.0 | 9.1 |
| Cycle Q Clear(g_c), s | 13.1 | 0.0 | 0.0 | 36.5 | 0.0 | 0.0 | 5.0 | 0.0 | 16.4 | 13.0 | 0.0 | 9.1 |
| Prop In Lane | 0.01 | | 0.19 | 0.06 | | 0.42 | 1.00 | | 0.12 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 884 | 0 | 0 | 824 | 0 | 0 | 128 | 0 | 386 | 300 | 0 | 574 |
| V/C Ratio(X) | 0.44 | 0.00 | 0.00 | 0.88 | 0.00 | 0.00 | 0.78 | 0.00 | 0.89 | 0.88 | 0.00 | 0.41 |
| Avail Cap(c_a), veh/h | 1011 | 0 | 0 | 940 | 0 | 0 | 242 | 0 | 442 | 321 | 0 | 574 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.2 | 0.0 | 0.0 | 22.3 | 0.0 | 0.0 | 41.0 | 0.0 | 34.4 | 36.5 | 0.0 | 24.7 |
| Incr Delay (d2), s/veh | 0.3 | 0.0 | 0.0 | 8.9 | 0.0 | 0.0 | 9.8 | 0.0 | 17.9 | 22.9 | 0.0 | 0.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.9 | 0.0 | 0.0 | 14.4 | 0.0 | 0.0 | 2.4 | 0.0 | 8.7 | 7.3 | 0.0 | 3.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 16.6 | 0.0 | 0.0 | 31.1 | 0.0 | 0.0 | 50.8 | 0.0 | 52.3 | 59.4 | 0.0 | 25.2 |
| LnGrp LOS | B | | | C | | | D | | D | E | | C |
| Approach Vol, veh/h | | 387 | | | 725 | | | 443 | | | 503 | |
| Approach Delay, s/veh | | 16.6 | | | 31.1 | | | 52.0 | | | 43.2 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 19.1 | 23.8 | | 46.8 | 10.5 | 32.5 | | 46.8 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | 16.2 | 21.7 | | 48.3 | 12.2 | 25.7 | | 48.3 | | | | |
| Max Q Clear Time (g_c+I1), s | 15.0 | 18.4 | | 15.1 | 7.0 | 11.1 | | 38.5 | | | | |
| Green Ext Time (p_c), s | 0.1 | 0.6 | | 2.3 | 0.1 | 1.0 | | 3.5 | | | | |

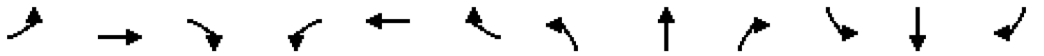
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 35.8 | | | | | | | | | |
| HCM 7th LOS | | | D | | | | | | | | | |



| Lane Group | EBT | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 405 | 802 | 100 | 353 | 265 | 238 |
| v/c Ratio | 0.46 | 0.98 | 0.55 | 0.91 | 0.92 | 0.43 |
| Control Delay (s/veh) | 18.3 | 50.7 | 53.7 | 65.3 | 77.9 | 32.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 18.3 | 50.7 | 53.7 | 65.3 | 77.9 | 32.9 |
| Queue Length 50th (ft) | 157 | 457 | 61 | 215 | 168 | 126 |
| Queue Length 95th (ft) | 238 | #735 | 113 | #377 | #320 | 205 |
| Internal Link Dist (ft) | 5389 | 1817 | | 2563 | | 2549 |
| Turn Bay Length (ft) | | | 250 | | 250 | |
| Base Capacity (vph) | 883 | 828 | 218 | 405 | 290 | 548 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.46 | 0.97 | 0.46 | 0.87 | 0.91 | 0.43 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 76 | 479 | 128 | 48 | 572 | 15 | 194 | 335 | 67 | 17 | 180 | 30 |
| Future Volume (veh/h) | 76 | 479 | 128 | 48 | 572 | 15 | 194 | 335 | 67 | 17 | 180 | 30 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 83 | 521 | 111 | 52 | 622 | 13 | 211 | 364 | 51 | 18 | 196 | 26 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 118 | 802 | 170 | 90 | 924 | 19 | 271 | 598 | 502 | 39 | 306 | 41 |
| Arrive On Green | 0.07 | 0.28 | 0.28 | 0.05 | 0.26 | 0.26 | 0.15 | 0.32 | 0.32 | 0.02 | 0.19 | 0.19 |
| Sat Flow, veh/h | 1781 | 2911 | 617 | 1781 | 3558 | 74 | 1781 | 1870 | 1570 | 1781 | 1611 | 214 |
| Grp Volume(v), veh/h | 83 | 317 | 315 | 52 | 310 | 325 | 211 | 364 | 51 | 18 | 0 | 222 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1751 | 1781 | 1777 | 1855 | 1781 | 1870 | 1570 | 1781 | 0 | 1825 |
| Q Serve(g_s), s | 2.4 | 8.4 | 8.5 | 1.5 | 8.4 | 8.4 | 6.1 | 8.8 | 1.2 | 0.5 | 0.0 | 6.0 |
| Cycle Q Clear(g_c), s | 2.4 | 8.4 | 8.5 | 1.5 | 8.4 | 8.4 | 6.1 | 8.8 | 1.2 | 0.5 | 0.0 | 6.0 |
| Prop In Lane | 1.00 | | 0.35 | 1.00 | | 0.04 | 1.00 | | 1.00 | 1.00 | | 0.12 |
| Lane Grp Cap(c), veh/h | 118 | 490 | 483 | 90 | 461 | 482 | 271 | 598 | 502 | 39 | 0 | 346 |
| V/C Ratio(X) | 0.70 | 0.65 | 0.65 | 0.58 | 0.67 | 0.67 | 0.78 | 0.61 | 0.10 | 0.46 | 0.00 | 0.64 |
| Avail Cap(c_a), veh/h | 319 | 859 | 847 | 233 | 773 | 807 | 619 | 1163 | 976 | 200 | 0 | 705 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.5 | 17.1 | 17.1 | 24.9 | 17.8 | 17.8 | 21.8 | 15.4 | 12.8 | 25.9 | 0.0 | 20.0 |
| Incr Delay (d2), s/veh | 7.4 | 1.4 | 1.5 | 5.8 | 1.7 | 1.6 | 4.8 | 1.0 | 0.1 | 8.2 | 0.0 | 2.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 3.0 | 3.0 | 0.7 | 3.0 | 3.1 | 2.6 | 3.2 | 0.4 | 0.3 | 0.0 | 2.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 31.9 | 18.5 | 18.6 | 30.7 | 19.5 | 19.4 | 26.7 | 16.4 | 12.9 | 34.1 | 0.0 | 22.0 |
| LnGrp LOS | C | B | B | C | B | B | C | B | B | C | | C |
| Approach Vol, veh/h | | 715 | | | 687 | | | 626 | | | 240 | |
| Approach Delay, s/veh | | 20.1 | | | 20.3 | | | 19.6 | | | 22.9 | |
| Approach LOS | | C | | | C | | | B | | | C | |

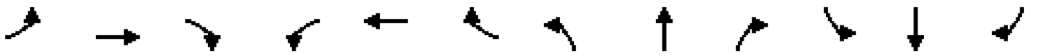
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.2 | 22.0 | 6.7 | 19.7 | 12.1 | 15.1 | 7.5 | 18.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 33.3 | 7.0 | 25.9 | 18.6 | 20.7 | 9.6 | 23.3 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 10.8 | 3.5 | 10.5 | 8.1 | 8.0 | 4.4 | 10.4 |
| Green Ext Time (p_c), s | 0.0 | 2.2 | 0.0 | 3.1 | 0.4 | 0.9 | 0.1 | 2.8 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 83 | 660 | 52 | 638 | 211 | 364 | 73 | 18 | 229 |
| v/c Ratio | 0.40 | 0.60 | 0.30 | 0.69 | 0.61 | 0.47 | 0.10 | 0.12 | 0.61 |
| Control Delay (s/veh) | 40.7 | 24.2 | 41.4 | 30.2 | 38.1 | 21.2 | 1.4 | 39.6 | 35.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.7 | 24.2 | 41.4 | 30.2 | 38.1 | 21.2 | 1.4 | 39.6 | 35.7 |
| Queue Length 50th (ft) | 37 | 134 | 23 | 142 | 92 | 115 | 0 | 8 | 96 |
| Queue Length 95th (ft) | 91 | 223 | 65 | 232 | 182 | 245 | 9 | 31 | 184 |
| Internal Link Dist (ft) | | 3072 | | 2553 | | 2230 | | | 5241 |
| Turn Bay Length (ft) | 50 | | 65 | | | | | | |
| Base Capacity (vph) | 259 | 1392 | 189 | 1255 | 502 | 947 | 842 | 162 | 578 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.32 | 0.47 | 0.28 | 0.51 | 0.42 | 0.38 | 0.09 | 0.11 | 0.40 |

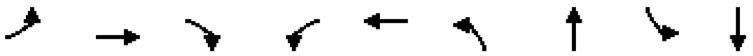
Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 19 | 179 | 366 | 45 | 105 | 1 | 643 | 83 | 46 | 1 | 62 | 21 |
| Future Volume (veh/h) | 19 | 179 | 366 | 45 | 105 | 1 | 643 | 83 | 46 | 1 | 62 | 21 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 22 | 208 | 298 | 52 | 122 | 1 | 748 | 97 | 43 | 1 | 72 | 19 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 42 | 386 | 319 | 73 | 414 | 3 | 801 | 675 | 299 | 2 | 145 | 38 |
| Arrive On Green | 0.02 | 0.21 | 0.21 | 0.04 | 0.22 | 0.22 | 0.45 | 0.55 | 0.55 | 0.00 | 0.10 | 0.10 |
| Sat Flow, veh/h | 1781 | 1870 | 1547 | 1781 | 1852 | 15 | 1781 | 1224 | 543 | 1781 | 1409 | 372 |
| Grp Volume(v), veh/h | 22 | 208 | 298 | 52 | 0 | 123 | 748 | 0 | 140 | 1 | 0 | 91 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1547 | 1781 | 0 | 1867 | 1781 | 0 | 1767 | 1781 | 0 | 1781 |
| Q Serve(g_s), s | 1.1 | 8.8 | 16.8 | 2.6 | 0.0 | 4.9 | 35.3 | 0.0 | 3.4 | 0.0 | 0.0 | 4.3 |
| Cycle Q Clear(g_c), s | 1.1 | 8.8 | 16.8 | 2.6 | 0.0 | 4.9 | 35.3 | 0.0 | 3.4 | 0.0 | 0.0 | 4.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.01 | 1.00 | | 0.31 | 1.00 | | 0.21 |
| Lane Grp Cap(c), veh/h | 42 | 386 | 319 | 73 | 0 | 417 | 801 | 0 | 974 | 2 | 0 | 183 |
| V/C Ratio(X) | 0.52 | 0.54 | 0.93 | 0.72 | 0.00 | 0.29 | 0.93 | 0.00 | 0.14 | 0.41 | 0.00 | 0.50 |
| Avail Cap(c_a), veh/h | 118 | 386 | 319 | 124 | 0 | 417 | 1165 | 0 | 1430 | 118 | 0 | 395 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 42.8 | 31.4 | 34.6 | 42.0 | 0.0 | 28.6 | 23.1 | 0.0 | 9.7 | 44.3 | 0.0 | 37.7 |
| Incr Delay (d2), s/veh | 9.7 | 1.5 | 33.6 | 12.4 | 0.0 | 0.4 | 10.3 | 0.0 | 0.1 | 83.8 | 0.0 | 2.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 3.9 | 8.9 | 1.3 | 0.0 | 2.1 | 15.2 | 0.0 | 1.2 | 0.1 | 0.0 | 1.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 52.6 | 32.9 | 68.2 | 54.4 | 0.0 | 29.0 | 33.5 | 0.0 | 9.8 | 128.1 | 0.0 | 39.7 |
| LnGrp LOS | D | C | E | D | | C | C | | A | F | | D |
| Approach Vol, veh/h | | 528 | | | 175 | | | 888 | | | 92 | |
| Approach Delay, s/veh | | 53.7 | | | 36.6 | | | 29.7 | | | 40.7 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 4.1 | 53.8 | 7.6 | 23.2 | 43.9 | 14.0 | 6.1 | 24.7 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 71.8 | 6.2 | 18.3 | 58.0 | 19.7 | 5.9 | 18.6 |
| Max Q Clear Time (g_c+I1), s | 2.0 | 5.4 | 4.6 | 18.8 | 37.3 | 6.3 | 3.1 | 6.9 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 0.0 | 2.6 | 0.3 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 38.5 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 22 | 208 | 426 | 52 | 123 | 748 | 150 | 1 | 96 |
| v/c Ratio | 0.19 | 0.66 | 0.70 | 0.42 | 0.31 | 0.88 | 0.14 | 0.01 | 0.46 |
| Control Delay (s/veh) | 54.2 | 52.1 | 11.3 | 60.8 | 39.5 | 36.3 | 6.8 | 51.0 | 47.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 54.2 | 52.1 | 11.3 | 60.8 | 39.5 | 36.3 | 6.8 | 51.0 | 47.5 |
| Queue Length 50th (ft) | 14 | 125 | 0 | 33 | 61 | 422 | 26 | 1 | 52 |
| Queue Length 95th (ft) | 42 | 220 | 74 | #83 | 137 | 599 | 60 | 7 | 106 |
| Internal Link Dist (ft) | | 5959 | | | 1494 | | 2586 | | 3233 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 121 | 395 | 654 | 127 | 462 | 1156 | 1335 | 121 | 413 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.53 | 0.65 | 0.41 | 0.27 | 0.65 | 0.11 | 0.01 | 0.23 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 220 | 62 | 520 | 341 | 49 | 466 |
| Future Volume (veh/h) | 220 | 62 | 520 | 341 | 49 | 466 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | | 0.99 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | No | | | No |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 239 | 54 | 565 | 297 | 53 | 507 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 286 | 65 | 634 | 333 | 82 | 1226 |
| Arrive On Green | 0.20 | 0.20 | 0.55 | 0.55 | 0.05 | 0.66 |
| Sat Flow, veh/h | 1412 | 319 | 1150 | 605 | 1781 | 1870 |
| Grp Volume(v), veh/h | 294 | 0 | 0 | 862 | 53 | 507 |
| Grp Sat Flow(s),veh/h/ln | 1737 | 0 | 0 | 1755 | 1781 | 1870 |
| Q Serve(g_s), s | 11.2 | 0.0 | 0.0 | 29.9 | 2.0 | 8.9 |
| Cycle Q Clear(g_c), s | 11.2 | 0.0 | 0.0 | 29.9 | 2.0 | 8.9 |
| Prop In Lane | 0.81 | 0.18 | | 0.34 | 1.00 | |
| Lane Grp Cap(c), veh/h | 352 | 0 | 0 | 968 | 82 | 1226 |
| V/C Ratio(X) | 0.83 | 0.00 | 0.00 | 0.89 | 0.64 | 0.41 |
| Avail Cap(c_a), veh/h | 460 | 0 | 0 | 1318 | 155 | 1676 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.4 | 0.0 | 0.0 | 13.7 | 32.4 | 5.6 |
| Incr Delay (d2), s/veh | 9.9 | 0.0 | 0.0 | 6.2 | 8.1 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.4 | 0.0 | 0.0 | 10.3 | 1.0 | 2.2 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 36.3 | 0.0 | 0.0 | 19.8 | 40.5 | 5.9 |
| LnGrp LOS | D | | | B | D | A |
| Approach Vol, veh/h | 294 | | 862 | | | 560 |
| Approach Delay, s/veh | 36.3 | | 19.8 | | | 9.1 |
| Approach LOS | D | | B | | | A |

| Timer - Assigned Phs | 1 | 2 | | | | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.2 | 43.0 | | | | 50.2 | 18.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | | | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 51.9 | | | | 61.9 | 18.3 |
| Max Q Clear Time (g_c+I1), s | 4.0 | 31.9 | | | | 10.9 | 13.2 |
| Green Ext Time (p_c), s | 0.0 | 6.2 | | | | 3.2 | 0.4 |

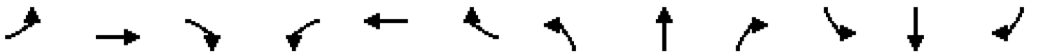
| Intersection Summary | | | |
|---|---|---|---|
| HCM 7th Control Delay, s/veh | | 19.2 | |
| HCM 7th LOS | | B | |



| Lane Group | WBL | NBT | SBL | SBT |
|---|---|---|---|---|
| Lane Group Flow (vph) | 306 | 936 | 53 | 507 |
| v/c Ratio | 0.79 | 0.90 | 0.38 | 0.42 |
| Control Delay (s/veh) | 46.9 | 28.4 | 47.8 | 7.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 46.9 | 28.4 | 47.8 | 7.5 |
| Queue Length 50th (ft) | 161 | 419 | 30 | 107 |
| Queue Length 95th (ft) | #303 | #724 | 67 | 160 |
| Internal Link Dist (ft) | 907 | 2558 | | 2586 |
| Turn Bay Length (ft) | | | 250 | |
| Base Capacity (vph) | 433 | 1221 | 142 | 1489 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.71 | 0.77 | 0.37 | 0.34 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 105 | 301 | 167 | 65 | 261 | 28 | 195 | 837 | 135 | 28 | 484 | 64 |
| Future Volume (veh/h) | 105 | 301 | 167 | 65 | 261 | 28 | 195 | 837 | 135 | 28 | 484 | 64 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 109 | 314 | 140 | 68 | 272 | 23 | 203 | 872 | 113 | 29 | 504 | 53 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 142 | 444 | 371 | 104 | 767 | 337 | 260 | 1248 | 552 | 58 | 845 | 369 |
| Arrive On Green | 0.08 | 0.24 | 0.24 | 0.06 | 0.22 | 0.22 | 0.15 | 0.35 | 0.35 | 0.03 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1565 | 1781 | 3554 | 1563 | 1781 | 3554 | 1572 | 1781 | 3554 | 1552 |
| Grp Volume(v), veh/h | 109 | 314 | 140 | 68 | 272 | 23 | 203 | 872 | 113 | 29 | 504 | 53 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1565 | 1781 | 1777 | 1563 | 1781 | 1777 | 1572 | 1781 | 1777 | 1552 |
| Q Serve(g_s), s | 3.3 | 8.5 | 4.2 | 2.1 | 3.6 | 0.7 | 6.1 | 11.7 | 2.8 | 0.9 | 7.0 | 1.5 |
| Cycle Q Clear(g_c), s | 3.3 | 8.5 | 4.2 | 2.1 | 3.6 | 0.7 | 6.1 | 11.7 | 2.8 | 0.9 | 7.0 | 1.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 142 | 444 | 371 | 104 | 767 | 337 | 260 | 1248 | 552 | 58 | 845 | 369 |
| V/C Ratio(X) | 0.77 | 0.71 | 0.38 | 0.65 | 0.35 | 0.07 | 0.78 | 0.70 | 0.20 | 0.50 | 0.60 | 0.14 |
| Avail Cap(c_a), veh/h | 388 | 835 | 699 | 289 | 1389 | 611 | 594 | 2080 | 920 | 189 | 1274 | 556 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.0 | 19.4 | 17.7 | 25.6 | 18.5 | 17.3 | 22.9 | 15.5 | 12.6 | 26.4 | 18.8 | 16.7 |
| Incr Delay (d2), s/veh | 8.3 | 2.1 | 0.6 | 6.7 | 0.3 | 0.1 | 5.1 | 0.7 | 0.2 | 6.6 | 0.7 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 3.3 | 1.3 | 1.0 | 1.3 | 0.2 | 2.6 | 3.8 | 0.8 | 0.4 | 2.5 | 0.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.4 | 21.5 | 18.4 | 32.3 | 18.8 | 17.4 | 27.9 | 16.2 | 12.8 | 33.0 | 19.5 | 16.9 |
| LnGrp LOS | C | C | B | C | B | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 563 | | | 363 | | | 1188 | | | 586 | |
| Approach Delay, s/veh | | 23.0 | | | 21.2 | | | 17.9 | | | 19.9 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.8 | 24.4 | 7.2 | 18.1 | 12.1 | 18.1 | 8.4 | 16.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 32.5 | 9.0 | 24.8 | 18.5 | 19.9 | 12.1 | 21.7 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 13.7 | 4.1 | 10.5 | 8.1 | 9.0 | 5.3 | 5.6 |
| Green Ext Time (p_c), s | 0.0 | 5.8 | 0.0 | 1.8 | 0.4 | 2.4 | 0.1 | 1.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 19.8 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 109 | 314 | 174 | 68 | 272 | 29 | 203 | 872 | 141 | 29 | 504 | 67 |
| v/c Ratio | 0.45 | 0.68 | 0.34 | 0.34 | 0.34 | 0.06 | 0.60 | 0.57 | 0.19 | 0.19 | 0.64 | 0.14 |
| Control Delay (s/veh) | 39.7 | 34.9 | 6.5 | 40.3 | 27.1 | 0.3 | 37.9 | 20.1 | 6.3 | 40.7 | 31.6 | 0.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 39.7 | 34.9 | 6.5 | 40.3 | 27.1 | 0.3 | 37.9 | 20.1 | 6.3 | 40.7 | 31.6 | 0.6 |
| Queue Length 50th (ft) | 48 | 135 | 0 | 30 | 57 | 0 | 88 | 145 | 5 | 13 | 112 | 0 |
| Queue Length 95th (ft) | 110 | 243 | 47 | 79 | 102 | 0 | 175 | 285 | 46 | 44 | 191 | 0 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 | |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | | |
| Base Capacity (vph) | 328 | 707 | 693 | 244 | 1176 | 624 | 501 | 1786 | 837 | 160 | 1079 | 578 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.33 | 0.44 | 0.25 | 0.28 | 0.23 | 0.05 | 0.41 | 0.49 | 0.17 | 0.18 | 0.47 | 0.12 |

Intersection Summary

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 555 | 62 | 12 | 629 | 47 | 12 |
| Future Volume (veh/h) | 555 | 62 | 12 | 629 | 47 | 12 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | 0.99 | 1.00 | | 1.00 | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 584 | 52 | 13 | 662 | 49 | 11 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 1113 | 99 | 30 | 955 | 247 | 56 |
| Arrive On Green | 0.34 | 0.34 | 0.02 | 0.51 | 0.18 | 0.18 |
| Sat Flow, veh/h | 3390 | 293 | 1781 | 1870 | 1396 | 313 |
| Grp Volume(v), veh/h | 314 | 322 | 13 | 662 | 61 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1777 | 1812 | 1781 | 1870 | 1738 | 0 |
| Q Serve(g_s), s | 4.5 | 4.5 | 0.2 | 8.4 | 0.9 | 0.0 |
| Cycle Q Clear(g_c), s | 4.5 | 4.5 | 0.2 | 8.4 | 0.9 | 0.0 |
| Prop In Lane | | 0.16 | 1.00 | | 0.80 | 0.18 |
| Lane Grp Cap(c), veh/h | 600 | 612 | 30 | 955 | 308 | 0 |
| V/C Ratio(X) | 0.52 | 0.53 | 0.43 | 0.69 | 0.20 | 0.00 |
| Avail Cap(c_a), veh/h | 1759 | 1794 | 289 | 2447 | 1057 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 8.4 | 8.4 | 15.3 | 5.8 | 11.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.7 | 0.7 | 9.2 | 0.9 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 0.9 | 0.1 | 0.7 | 0.3 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 9.1 | 9.1 | 24.5 | 6.7 | 11.3 | 0.0 |
| LnGrp LOS | A | A | C | A | B | |
| Approach Vol, veh/h | 636 | | | 675 | 61 | |
| Approach Delay, s/veh | 9.1 | | | 7.1 | 11.3 | |
| Approach LOS | A | | | A | B | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 10.5 | 5.4 | 15.5 | | 20.9 |
| Change Period (Y+Rc), s | | 4.9 | 4.9 | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | | 19.1 | 5.1 | 31.1 | | 41.1 |
| Max Q Clear Time (g_c+I1), s | | 2.9 | 2.2 | 6.5 | | 10.4 |
| Green Ext Time (p_c), s | | 0.1 | 0.0 | 3.4 | | 4.3 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 8.2 |
| HCM 7th LOS | A |



| Lane Group | EBT | WBL | WBT | NBL |
|---|---|---|---|---|
| Lane Group Flow (vph) | 649 | 13 | 662 | 62 |
| v/c Ratio | 0.40 | 0.05 | 0.70 | 0.18 |
| Control Delay (s/veh) | 7.5 | 17.0 | 10.9 | 13.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 7.5 | 17.0 | 10.9 | 13.1 |
| Queue Length 50th (ft) | 28 | 2 | 73 | 7 |
| Queue Length 95th (ft) | 101 | 15 | 167 | 35 |
| Internal Link Dist (ft) | 1220 | | 700 | 608 |
| Turn Bay Length (ft) | | 110 | | |
| Base Capacity (vph) | 3071 | 270 | 1816 | 995 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.21 | 0.05 | 0.36 | 0.06 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 88 | 216 | 144 | 54 | 273 | 12 | 291 | 406 | 63 | 16 | 194 | 61 |
| Future Volume (veh/h) | 88 | 216 | 144 | 54 | 273 | 12 | 291 | 406 | 63 | 16 | 194 | 61 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 93 | 227 | 121 | 57 | 287 | 11 | 306 | 427 | 52 | 17 | 204 | 51 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 130 | 661 | 290 | 98 | 597 | 258 | 383 | 707 | 594 | 38 | 344 | 284 |
| Arrive On Green | 0.07 | 0.19 | 0.19 | 0.05 | 0.17 | 0.17 | 0.22 | 0.38 | 0.38 | 0.02 | 0.18 | 0.18 |
| Sat Flow, veh/h | 1781 | 3554 | 1559 | 1781 | 3554 | 1538 | 1781 | 1870 | 1572 | 1781 | 1870 | 1542 |
| Grp Volume(v), veh/h | 93 | 227 | 121 | 57 | 287 | 11 | 306 | 427 | 52 | 17 | 204 | 51 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1559 | 1781 | 1777 | 1538 | 1781 | 1870 | 1572 | 1781 | 1870 | 1542 |
| Q Serve(g_s), s | 2.5 | 2.7 | 3.4 | 1.5 | 3.6 | 0.3 | 8.0 | 9.1 | 1.1 | 0.5 | 4.9 | 1.4 |
| Cycle Q Clear(g_c), s | 2.5 | 2.7 | 3.4 | 1.5 | 3.6 | 0.3 | 8.0 | 9.1 | 1.1 | 0.5 | 4.9 | 1.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 130 | 661 | 290 | 98 | 597 | 258 | 383 | 707 | 594 | 38 | 344 | 284 |
| V/C Ratio(X) | 0.72 | 0.34 | 0.42 | 0.58 | 0.48 | 0.04 | 0.80 | 0.60 | 0.09 | 0.45 | 0.59 | 0.18 |
| Avail Cap(c_a), veh/h | 371 | 1517 | 666 | 259 | 1294 | 560 | 926 | 1438 | 1209 | 213 | 689 | 568 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.4 | 17.5 | 17.8 | 22.8 | 18.6 | 17.2 | 18.4 | 12.4 | 9.9 | 23.9 | 18.5 | 17.0 |
| Incr Delay (d2), s/veh | 7.1 | 0.3 | 1.0 | 5.4 | 0.6 | 0.1 | 3.9 | 0.8 | 0.1 | 8.3 | 1.6 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 0.9 | 1.0 | 0.7 | 1.2 | 0.1 | 3.0 | 2.8 | 0.3 | 0.3 | 1.9 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 29.6 | 17.8 | 18.7 | 28.2 | 19.2 | 17.3 | 22.2 | 13.2 | 10.0 | 32.2 | 20.1 | 17.3 |
| LnGrp LOS | C | B | B | C | B | B | C | B | A | C | C | B |
| Approach Vol, veh/h | | 441 | | | 355 | | | 785 | | | 272 | |
| Approach Delay, s/veh | | 20.5 | | | 20.6 | | | 16.5 | | | 20.3 | |
| Approach LOS | | C | | | C | | | B | | | C | |

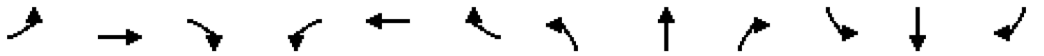
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.0 | 23.6 | 6.7 | 14.1 | 14.6 | 14.0 | 7.6 | 13.2 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 38.0 | 7.2 | 21.1 | 25.7 | 18.2 | 10.3 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 11.1 | 3.5 | 5.4 | 10.0 | 6.9 | 4.5 | 5.6 |
| Green Ext Time (p_c), s | 0.0 | 2.5 | 0.0 | 1.4 | 0.7 | 0.8 | 0.1 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 18.8 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 93 | 227 | 152 | 57 | 287 | 13 | 306 | 427 | 66 | 17 | 204 | 64 |
| v/c Ratio | 0.39 | 0.28 | 0.31 | 0.30 | 0.47 | 0.03 | 0.67 | 0.46 | 0.08 | 0.10 | 0.56 | 0.15 |
| Control Delay (s/veh) | 36.9 | 25.3 | 6.2 | 38.1 | 30.7 | 0.2 | 32.1 | 14.9 | 0.7 | 37.0 | 34.1 | 0.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 36.9 | 25.3 | 6.2 | 38.1 | 30.7 | 0.2 | 32.1 | 14.9 | 0.7 | 37.0 | 34.1 | 0.7 |
| Queue Length 50th (ft) | 36 | 43 | 0 | 23 | 58 | 0 | 116 | 108 | 0 | 7 | 78 | 0 |
| Queue Length 95th (ft) | 97 | 88 | 40 | 68 | 114 | 0 | 228 | 256 | 5 | 29 | 170 | 0 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | | | 2587 | | | 894 | |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | | | | | |
| Base Capacity (vph) | 301 | 1234 | 646 | 210 | 1053 | 568 | 752 | 1175 | 1016 | 172 | 560 | 572 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.31 | 0.18 | 0.24 | 0.27 | 0.27 | 0.02 | 0.41 | 0.36 | 0.06 | 0.10 | 0.36 | 0.11 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 513 | 0 | 963 | 0 | 0 | 0 | 0 | 1556 | 97 | 28 | 640 | 0 |
| Future Volume (veh/h) | 513 | 0 | 963 | 0 | 0 | 0 | 0 | 1556 | 97 | 28 | 640 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 570 | 0 | 750 | | | | 0 | 1729 | 87 | 31 | 711 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | | | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 670 | 0 | 1049 | | | | 0 | 2211 | 111 | 53 | 1839 | 0 |
| Arrive On Green | 0.38 | 0.00 | 0.38 | | | | 0.00 | 0.44 | 0.44 | 0.03 | 0.52 | 0.00 |
| Sat Flow, veh/h | 1781 | 0 | 2790 | | | | 0 | 5144 | 250 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 570 | 0 | 750 | | | | 0 | 1182 | 634 | 31 | 711 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1395 | | | | 0 | 1702 | 1822 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 27.0 | 0.0 | 21.1 | | | | 0.0 | 27.2 | 27.3 | 1.6 | 11.1 | 0.0 |
| Cycle Q Clear(g_c), s | 27.0 | 0.0 | 21.1 | | | | 0.0 | 27.2 | 27.3 | 1.6 | 11.1 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.14 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 670 | 0 | 1049 | | | | 0 | 1512 | 810 | 53 | 1839 | 0 |
| V/C Ratio(X) | 0.85 | 0.00 | 0.71 | | | | 0.00 | 0.78 | 0.78 | 0.59 | 0.39 | 0.00 |
| Avail Cap(c_a), veh/h | 988 | 0 | 1548 | | | | 0 | 1815 | 971 | 116 | 2280 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 26.4 | 0.0 | 24.5 | | | | 0.0 | 21.8 | 21.8 | 44.1 | 13.4 | 0.0 |
| Incr Delay (d2), s/veh | 4.8 | 0.0 | 0.9 | | | | 0.0 | 1.9 | 3.5 | 9.9 | 0.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 11.9 | 0.0 | 6.8 | | | | 0.0 | 9.9 | 10.9 | 0.8 | 3.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 31.2 | 0.0 | 25.4 | | | | 0.0 | 23.7 | 25.3 | 54.0 | 13.5 | 0.0 |
| LnGrp LOS | C | | C | | | | | C | C | D | B | |
| Approach Vol, veh/h | | 1320 | | | | | | 1816 | | | 742 | |
| Approach Delay, s/veh | | 27.9 | | | | | | 24.3 | | | 15.2 | |
| Approach LOS | | C | | | | | | C | | | B | |

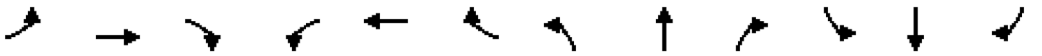
| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.7 | 45.8 | | 39.5 | | 52.6 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 49.1 | | 51.1 | | 59.1 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 29.3 | | 29.0 | | 13.1 |
| Green Ext Time (p_c), s | 0.0 | 11.6 | | 5.6 | | 4.9 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 23.8 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 570 | 1070 | 1837 | 31 | 711 |
| v/c Ratio | 0.80 | 0.88 | 0.82 | 0.29 | 0.40 |
| Control Delay (s/veh) | 37.7 | 30.4 | 30.1 | 60.3 | 17.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 37.7 | 30.4 | 30.1 | 60.3 | 17.5 |
| Queue Length 50th (ft) | 368 | 322 | 423 | 22 | 155 |
| Queue Length 95th (ft) | 514 | 432 | 546 | 57 | 226 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 945 | 1537 | 2586 | 110 | 2186 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.60 | 0.70 | 0.71 | 0.28 | 0.33 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 42 | 245 | 33 | 16 | 232 | 74 | 43 | 79 | 13 | 83 | 36 | 73 |
| Future Volume (veh/h) | 42 | 245 | 33 | 16 | 232 | 74 | 43 | 79 | 13 | 83 | 36 | 73 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 0.99 | | 0.99 | 0.99 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 49 | 285 | 33 | 19 | 270 | 74 | 50 | 92 | 14 | 97 | 42 | 73 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 101 | 932 | 408 | 44 | 818 | 357 | 249 | 247 | 32 | 415 | 141 | 337 |
| Arrive On Green | 0.06 | 0.26 | 0.26 | 0.02 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| Sat Flow, veh/h | 1781 | 3554 | 1555 | 1781 | 3554 | 1551 | 359 | 1145 | 148 | 904 | 654 | 1563 |
| Grp Volume(v), veh/h | 49 | 285 | 33 | 19 | 270 | 74 | 156 | 0 | 0 | 139 | 0 | 73 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1555 | 1781 | 1777 | 1551 | 1652 | 0 | 0 | 1558 | 0 | 1563 |
| Q Serve(g_s), s | 0.7 | 1.8 | 0.4 | 0.3 | 1.8 | 1.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 |
| Cycle Q Clear(g_c), s | 0.7 | 1.8 | 0.4 | 0.3 | 1.8 | 1.1 | 2.1 | 0.0 | 0.0 | 1.8 | 0.0 | 1.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.32 | | 0.09 | 0.70 | | 1.00 |
| Lane Grp Cap(c), veh/h | 101 | 932 | 408 | 44 | 818 | 357 | 528 | 0 | 0 | 556 | 0 | 337 |
| V/C Ratio(X) | 0.49 | 0.31 | 0.08 | 0.43 | 0.33 | 0.21 | 0.30 | 0.00 | 0.00 | 0.25 | 0.00 | 0.22 |
| Avail Cap(c_a), veh/h | 899 | 4113 | 1799 | 642 | 3600 | 1571 | 2146 | 0 | 0 | 1987 | 0 | 1922 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 12.7 | 8.2 | 7.7 | 13.3 | 8.9 | 8.6 | 9.3 | 0.0 | 0.0 | 9.2 | 0.0 | 8.9 |
| Incr Delay (d2), s/veh | 3.6 | 0.2 | 0.1 | 6.7 | 0.2 | 0.3 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.3 | 0.1 | 0.2 | 0.3 | 0.2 | 0.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 16.3 | 8.4 | 7.8 | 20.0 | 9.1 | 8.9 | 9.6 | 0.0 | 0.0 | 9.5 | 0.0 | 9.3 |
| LnGrp LOS | B | A | A | B | A | A | A | | | A | | A |
| Approach Vol, veh/h | | 367 | | | 363 | | | 156 | | | 212 | |
| Approach Delay, s/veh | | 9.4 | | | 9.7 | | | 9.6 | | | 9.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 10.9 | 4.7 | 12.2 | | 10.9 | 5.6 | 11.3 | | | | |
| Change Period (Y+Rc), s | | 4.9 | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 34.1 | 10.0 | 32.1 | | 34.1 | 14.0 | 28.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 4.1 | 2.3 | 3.8 | | 3.8 | 2.7 | 3.8 | | | | |
| Green Ext Time (p_c), s | | 0.8 | 0.0 | 1.7 | | 1.0 | 0.1 | 1.7 | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 9.5 | | | | | | | | | |
| HCM 7th LOS | | | A | | | | | | | | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 49 | 285 | 38 | 19 | 270 | 86 | 157 | 139 | 85 |
| v/c Ratio | 0.13 | 0.25 | 0.07 | 0.05 | 0.28 | 0.18 | 0.34 | 0.37 | 0.17 |
| Control Delay (s/veh) | 15.0 | 9.7 | 2.3 | 15.9 | 12.4 | 5.6 | 13.0 | 14.5 | 4.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 15.0 | 9.7 | 2.3 | 15.9 | 12.4 | 5.6 | 13.0 | 14.5 | 4.8 |
| Queue Length 50th (ft) | 5 | 14 | 0 | 2 | 14 | 0 | 14 | 13 | 0 |
| Queue Length 95th (ft) | 32 | 54 | 8 | 18 | 54 | 23 | 66 | 64 | 21 |
| Internal Link Dist (ft) | | 2570 | | | 2566 | | 2887 | 505 | |
| Turn Bay Length (ft) | 245 | | | 100 | | | | | |
| Base Capacity (vph) | 834 | 3153 | 1356 | 595 | 3025 | 1306 | 1415 | 1171 | 1409 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.06 | 0.09 | 0.03 | 0.03 | 0.09 | 0.07 | 0.11 | 0.12 | 0.06 |

Intersection Summary

# LANE SUMMARY

## Site: [1 (3)] DeWolf-Owns Mt Pkwy NT+Dev (Mitigated) PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

DeWolf & Owens Mt. Pkwy
Near-Term With Development (Mitigated)
PM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 626 | 4.0 | 626 | 4.0 | 1284 | 0.487 | 100 | 6.4 | LOS A | 4.4 | 114.4 | Full | 1600 | 0.0 | 0.0 |
| Approach | 626 | 4.0 | 626 | 4.0 | | 0.487 | | 6.4 | LOS A | 4.4 | 114.4 | | | | |
| North: DeWolf Ave | | | | | | | | | | | | | | | |
| Lane 1[d] | 341 | 4.0 | 341 | 4.0 | 1254 | 0.272 | 100 | 5.1 | LOS A | 1.6 | 42.4 | Full | 1600 | 0.0 | 0.0 |
| Approach | 341 | 4.0 | 341 | 4.0 | | 0.272 | | 5.1 | LOS A | 1.6 | 42.4 | | | | |
| West: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 44 | 4.0 | 44 | 4.0 | 952 | 0.046 | 100 | 4.2 | LOS A | 0.2 | 5.8 | Full | 1600 | 0.0 | 0.0 |
| Approach | 44 | 4.0 | 44 | 4.0 | | 0.046 | | 4.2 | LOS A | 0.2 | 5.8 | | | | |
| All Vehicles | 1011 | 4.0 | 1011 | 4.0 | | 0.487 | | 5.8 | LOS A | 4.4 | 114.4 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

East: Owens Mtn Pkwy

| Mov. From E To Exit: | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 36 | 589 | 626 | 4.0 | 1284 | 0.487 | 100 | NA | NA |
| Approach | 36 | 589 | 626 | 4.0 | | 0.487 | | | |

North: DeWolf Ave

| Mov. From N | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|

| To Exit: | E | W | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 333 | 9 | 341 | 4.0 | 1254 | 0.272 | 100 | NA | NA |
| Approach | 333 | 9 | 341 | 4.0 | | 0.272 | | | |

West: Owens Mtn Pkwy

| Mov. From W To Exit: | L2 N | T1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 12 | 32 | 44 | 4.0 | 952 | 0.046 | 100 | NA | NA |
| Approach | 12 | 32 | 44 | 4.0 | | 0.046 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 1011 | 4.0 | 0.487 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

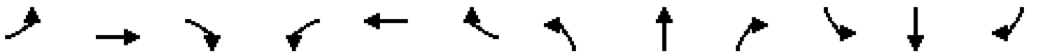
| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Critical Gap pcu/h | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: DeWolf Ave | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

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Project: S:\2025\25-010\Analysis\Sidra\Owens Mtn-DeWolf.sipx



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 519 | 534 | 94 | 15 | 299 | 9 | 49 | 55 | 26 | 3 | 30 | 301 |
| Future Volume (veh/h) | 519 | 534 | 94 | 15 | 299 | 9 | 49 | 55 | 26 | 3 | 30 | 301 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 552 | 568 | 80 | 16 | 318 | 8 | 52 | 59 | 23 | 3 | 32 | 256 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 790 | 1401 | 617 | 36 | 659 | 286 | 93 | 805 | 354 | 7 | 334 | 484 |
| Arrive On Green | 0.23 | 0.39 | 0.39 | 0.02 | 0.19 | 0.19 | 0.05 | 0.23 | 0.23 | 0.00 | 0.18 | 0.18 |
| Sat Flow, veh/h | 3456 | 3554 | 1565 | 1781 | 3554 | 1542 | 1781 | 3554 | 1564 | 1781 | 1870 | 2712 |
| Grp Volume(v), veh/h | 552 | 568 | 80 | 16 | 318 | 8 | 52 | 59 | 23 | 3 | 32 | 256 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1565 | 1781 | 1777 | 1542 | 1781 | 1777 | 1564 | 1781 | 1870 | 1356 |
| Q Serve(g_s), s | 7.0 | 5.5 | 1.6 | 0.4 | 3.8 | 0.2 | 1.4 | 0.6 | 0.5 | 0.1 | 0.7 | 4.1 |
| Cycle Q Clear(g_c), s | 7.0 | 5.5 | 1.6 | 0.4 | 3.8 | 0.2 | 1.4 | 0.6 | 0.5 | 0.1 | 0.7 | 4.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 790 | 1401 | 617 | 36 | 659 | 286 | 93 | 805 | 354 | 7 | 334 | 484 |
| V/C Ratio(X) | 0.70 | 0.41 | 0.13 | 0.45 | 0.48 | 0.03 | 0.56 | 0.07 | 0.06 | 0.41 | 0.10 | 0.53 |
| Avail Cap(c_a), veh/h | 2760 | 4339 | 1911 | 299 | 2098 | 911 | 487 | 2240 | 986 | 262 | 943 | 1368 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.8 | 10.4 | 9.2 | 23.1 | 17.3 | 15.9 | 22.0 | 14.5 | 14.4 | 23.6 | 16.3 | 17.7 |
| Incr Delay (d2), s/veh | 1.1 | 0.2 | 0.1 | 8.6 | 0.5 | 0.0 | 5.2 | 0.0 | 0.1 | 33.3 | 0.1 | 0.9 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.2 | 1.4 | 0.4 | 0.2 | 1.2 | 0.1 | 0.7 | 0.2 | 0.2 | 0.1 | 0.3 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 18.0 | 10.6 | 9.3 | 31.6 | 17.9 | 15.9 | 27.2 | 14.5 | 14.5 | 56.9 | 16.5 | 18.6 |
| LnGrp LOS | B | B | A | C | B | B | C | B | B | E | B | B |
| Approach Vol, veh/h | | 1200 | | | 342 | | | 134 | | | 291 | |
| Approach Delay, s/veh | | 13.9 | | | 18.5 | | | 19.4 | | | 18.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.0 | 23.7 | 6.5 | 12.5 | 14.9 | 13.7 | 4.2 | 14.8 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.0 | 58.1 | 13.0 | 24.0 | 38.0 | 28.1 | 7.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 7.5 | 3.4 | 6.1 | 9.0 | 5.8 | 2.1 | 2.6 |
| Green Ext Time (p_c), s | 0.0 | 3.8 | 0.1 | 1.1 | 1.9 | 1.7 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 15.8 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 552 | 568 | 100 | 16 | 318 | 10 | 52 | 59 | 28 | 3 | 32 | 320 |
| v/c Ratio | 0.57 | 0.30 | 0.12 | 0.08 | 0.43 | 0.02 | 0.21 | 0.07 | 0.06 | 0.02 | 0.13 | 0.51 |
| Control Delay (s/veh) | 21.0 | 9.8 | 2.7 | 28.9 | 23.2 | 0.1 | 27.9 | 19.3 | 0.3 | 29.7 | 27.3 | 7.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 21.0 | 9.8 | 2.7 | 28.9 | 23.2 | 0.1 | 27.9 | 19.3 | 0.3 | 29.7 | 27.3 | 7.1 |
| Queue Length 50th (ft) | 85 | 51 | 0 | 5 | 51 | 0 | 16 | 7 | 0 | 1 | 10 | 0 |
| Queue Length 95th (ft) | 160 | 139 | 22 | 25 | 106 | 0 | 54 | 27 | 0 | 9 | 37 | 37 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 2531 | 3322 | 1415 | 279 | 1966 | 902 | 455 | 2099 | 960 | 244 | 884 | 1421 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.17 | 0.07 | 0.06 | 0.16 | 0.01 | 0.11 | 0.03 | 0.03 | 0.01 | 0.04 | 0.23 |

Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 23.7 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 2 | 0 | 112 | 0 | 1 | 0 | 325 | 185 | 0 | 0 | 297 | 8 |
| Future Vol, veh/h | 2 | 0 | 112 | 0 | 1 | 0 | 325 | 185 | 0 | 0 | 297 | 8 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 2 | 0 | 137 | 0 | 1 | 0 | 396 | 226 | 0 | 0 | 362 | 10 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 10.5 | 9.9 | 32.4 | 14.1 |
| HCM LOS | B | A | D | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 64% | 2% | 0% | 0% |
| Vol Thru, % | 36% | 0% | 100% | 97% |
| Vol Right, % | 0% | 98% | 0% | 3% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 510 | 114 | 1 | 305 |
| LT Vol | 325 | 2 | 0 | 0 |
| Through Vol | 185 | 0 | 1 | 297 |
| RT Vol | 0 | 112 | 0 | 8 |
| Lane Flow Rate | 622 | 139 | 1 | 372 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.873 | 0.223 | 0.002 | 0.537 |
| Departure Headway (Hd) | 5.055 | 5.786 | 6.789 | 5.194 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 721 | 620 | 526 | 696 |
| Service Time | 3.055 | 3.831 | 4.85 | 3.224 |
| HCM Lane V/C Ratio | 0.863 | 0.224 | 0.002 | 0.534 |
| HCM Control Delay, s/veh | 32.4 | 10.5 | 9.9 | 14.1 |
| HCM Lane LOS | D | B | A | B |
| HCM 95th-tile Q | 10.6 | 0.8 | 0 | 3.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 3 | 151 | 62 | 57 | 396 | 298 | 156 | 219 | 20 | 166 | 218 | 4 |
| Future Volume (veh/h) | 3 | 151 | 62 | 57 | 396 | 298 | 156 | 219 | 20 | 166 | 218 | 4 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 0.99 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 161 | 64 | 61 | 421 | 255 | 166 | 233 | 20 | 177 | 232 | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 55 | 615 | 241 | 102 | 494 | 285 | 207 | 314 | 27 | 219 | 354 | 5 |
| Arrive On Green | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.12 | 0.19 | 0.19 | 0.12 | 0.19 | 0.19 |
| Sat Flow, veh/h | 4 | 1258 | 493 | 92 | 1010 | 583 | 1767 | 1682 | 144 | 1767 | 1827 | 24 |
| Grp Volume(v), veh/h | 228 | 0 | 0 | 737 | 0 | 0 | 166 | 0 | 253 | 177 | 0 | 235 |
| Grp Sat Flow(s),veh/h/ln | 1755 | 0 | 0 | 1686 | 0 | 0 | 1767 | 0 | 1827 | 1767 | 0 | 1851 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 16.1 | 0.0 | 0.0 | 6.3 | 0.0 | 9.0 | 6.7 | 0.0 | 8.1 |
| Cycle Q Clear(g_c), s | 5.2 | 0.0 | 0.0 | 27.2 | 0.0 | 0.0 | 6.3 | 0.0 | 9.0 | 6.7 | 0.0 | 8.1 |
| Prop In Lane | 0.01 | | 0.28 | 0.08 | | 0.35 | 1.00 | | 0.08 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 911 | 0 | 0 | 881 | 0 | 0 | 207 | 0 | 341 | 219 | 0 | 359 |
| V/C Ratio(X) | 0.25 | 0.00 | 0.00 | 0.84 | 0.00 | 0.00 | 0.80 | 0.00 | 0.74 | 0.81 | 0.00 | 0.66 |
| Avail Cap(c_a), veh/h | 1196 | 0 | 0 | 1154 | 0 | 0 | 287 | 0 | 506 | 307 | 0 | 534 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 10.3 | 0.0 | 0.0 | 15.8 | 0.0 | 0.0 | 29.7 | 0.0 | 26.5 | 29.4 | 0.0 | 25.7 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 10.7 | 0.0 | 3.2 | 10.3 | 0.0 | 2.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 3.1 | 0.0 | 3.8 | 3.2 | 0.0 | 3.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 10.5 | 0.0 | 0.0 | 20.1 | 0.0 | 0.0 | 40.4 | 0.0 | 29.7 | 39.7 | 0.0 | 27.7 |
| LnGrp LOS | B | | | C | | | D | | C | D | | C |
| Approach Vol, veh/h | | 228 | | | 737 | | | 419 | | | 412 | |
| Approach Delay, s/veh | | 10.5 | | | 20.1 | | | 33.9 | | | 32.9 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.6 | 17.8 | | 38.6 | 12.1 | 18.3 | | 38.6 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | 12.0 | 19.1 | | 45.1 | 11.2 | 19.9 | | 45.1 | | | | |
| Max Q Clear Time (g_c+I1), s | 8.7 | 11.0 | | 7.2 | 8.3 | 10.1 | | 29.2 | | | | |
| Green Ext Time (p_c), s | 0.1 | 0.8 | | 1.3 | 0.1 | 0.8 | | 4.5 | | | | |

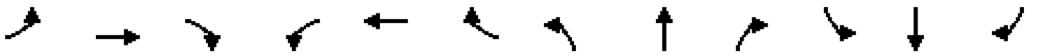
| Intersection Summary | | | |
|---|---|---|---|
| HCM 7th Control Delay, s/veh | | 25.0 | |
| HCM 7th LOS | | C | |



| Lane Group | EBT | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 230 | 799 | 166 | 254 | 177 | 236 |
| v/c Ratio | 0.26 | 0.93 | 0.74 | 0.73 | 0.74 | 0.65 |
| Control Delay (s/veh) | 11.3 | 38.5 | 58.0 | 45.3 | 56.7 | 40.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 11.3 | 38.5 | 58.0 | 45.3 | 56.7 | 40.7 |
| Queue Length 50th (ft) | 57 | 369 | 90 | 130 | 96 | 120 |
| Queue Length 95th (ft) | 106 | #656 | #192 | 212 | #200 | 196 |
| Internal Link Dist (ft) | 5389 | 1817 | | 2563 | | 2549 |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 971 | 927 | 239 | 427 | 256 | 447 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.86 | 0.69 | 0.59 | 0.69 | 0.53 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 238 | 1042 | 264 | 188 | 1423 | 259 | 203 | 275 | 152 | 258 | 476 | 669 |
| Future Volume (veh/h) | 238 | 1042 | 264 | 188 | 1423 | 259 | 203 | 275 | 152 | 258 | 476 | 669 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 256 | 1120 | 227 | 202 | 1530 | 222 | 218 | 296 | 114 | 277 | 512 | 576 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 328 | 1953 | 602 | 274 | 1874 | 577 | 289 | 826 | 364 | 354 | 1284 | 693 |
| Arrive On Green | 0.10 | 0.39 | 0.39 | 0.08 | 0.38 | 0.38 | 0.09 | 0.24 | 0.24 | 0.11 | 0.26 | 0.26 |
| Sat Flow, veh/h | 3374 | 4985 | 1536 | 3374 | 4985 | 1535 | 3374 | 3469 | 1528 | 3374 | 4985 | 2692 |
| Grp Volume(v), veh/h | 256 | 1120 | 227 | 202 | 1530 | 222 | 218 | 296 | 114 | 277 | 512 | 576 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1662 | 1536 | 1687 | 1662 | 1535 | 1687 | 1735 | 1528 | 1687 | 1662 | 1346 |
| Q Serve(g_s), s | 7.2 | 17.1 | 10.2 | 5.7 | 26.8 | 10.2 | 6.1 | 6.9 | 5.9 | 7.7 | 8.2 | 19.6 |
| Cycle Q Clear(g_c), s | 7.2 | 17.1 | 10.2 | 5.7 | 26.8 | 10.2 | 6.1 | 6.9 | 5.9 | 7.7 | 8.2 | 19.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 328 | 1953 | 602 | 274 | 1874 | 577 | 289 | 826 | 364 | 354 | 1284 | 693 |
| V/C Ratio(X) | 0.78 | 0.57 | 0.38 | 0.74 | 0.82 | 0.38 | 0.76 | 0.36 | 0.31 | 0.78 | 0.40 | 0.83 |
| Avail Cap(c_a), veh/h | 418 | 2075 | 639 | 411 | 2065 | 636 | 383 | 900 | 396 | 523 | 1499 | 809 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 42.7 | 23.1 | 21.0 | 43.5 | 27.2 | 22.0 | 43.3 | 30.7 | 30.4 | 42.2 | 29.7 | 33.9 |
| Incr Delay (d2), s/veh | 7.2 | 0.3 | 0.4 | 3.9 | 2.5 | 0.4 | 5.9 | 0.3 | 0.5 | 4.6 | 0.2 | 6.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.2 | 6.2 | 3.5 | 2.4 | 10.2 | 3.5 | 2.7 | 2.8 | 2.1 | 3.3 | 3.1 | 6.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 49.9 | 23.4 | 21.4 | 47.3 | 29.7 | 22.5 | 49.2 | 31.0 | 30.8 | 46.8 | 29.9 | 40.4 |
| LnGrp LOS | D | C | C | D | C | C | D | C | C | D | C | D |
| Approach Vol, veh/h | | 1603 | | | 1954 | | | 628 | | | 1365 | |
| Approach Delay, s/veh | | 27.4 | | | 30.7 | | | 37.3 | | | 37.8 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 14.2 | 27.9 | 11.9 | 42.8 | 12.3 | 29.8 | 13.4 | 41.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 15.0 | 25.1 | 11.8 | 40.3 | 11.0 | 29.1 | 12.0 | 40.1 |
| Max Q Clear Time (g_c+I1), s | 9.7 | 8.9 | 7.7 | 19.1 | 8.1 | 21.6 | 9.2 | 28.8 |
| Green Ext Time (p_c), s | 0.4 | 1.8 | 0.2 | 8.4 | 0.2 | 3.4 | 0.2 | 7.6 |

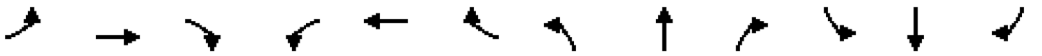
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 32.2 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 256 | 1120 | 284 | 202 | 1530 | 278 | 218 | 296 | 163 | 277 | 512 | 719 |
| v/c Ratio | 0.68 | 0.59 | 0.38 | 0.58 | 0.82 | 0.41 | 0.64 | 0.43 | 0.38 | 0.65 | 0.46 | 0.81 |
| Control Delay (s/veh) | 55.1 | 27.1 | 4.5 | 51.9 | 33.6 | 11.2 | 54.6 | 37.7 | 8.3 | 50.8 | 35.0 | 25.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 55.1 | 27.1 | 4.5 | 51.9 | 33.6 | 11.2 | 54.6 | 37.7 | 8.3 | 50.8 | 35.0 | 25.1 |
| Queue Length 50th (ft) | 87 | 220 | 0 | 68 | 339 | 44 | 74 | 92 | 0 | 93 | 108 | 127 |
| Queue Length 95th (ft) | #136 | 283 | 55 | 109 | 424 | 118 | 118 | 134 | 54 | 141 | 143 | 206 |
| Internal Link Dist (ft) | | 542 | | | 2532 | | | 2220 | | | 1300 | |
| Turn Bay Length (ft) | 240 | | 240 | 250 | | 150 | 200 | | | 230 | | 185 |
| Base Capacity (vph) | 402 | 2015 | 777 | 395 | 1991 | 708 | 369 | 867 | 498 | 502 | 1445 | 1034 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.64 | 0.56 | 0.37 | 0.51 | 0.77 | 0.39 | 0.59 | 0.34 | 0.33 | 0.55 | 0.35 | 0.70 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 22 | 383 | 328 | 52 | 453 | 15 | 137 | 94 | 28 | 56 | 346 | 71 |
| Future Volume (veh/h) | 22 | 383 | 328 | 52 | 453 | 15 | 137 | 94 | 28 | 56 | 346 | 71 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 24 | 412 | 288 | 56 | 487 | 13 | 147 | 101 | 22 | 60 | 372 | 61 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 47 | 522 | 361 | 86 | 1001 | 27 | 187 | 641 | 539 | 89 | 450 | 74 |
| Arrive On Green | 0.03 | 0.27 | 0.27 | 0.05 | 0.29 | 0.29 | 0.11 | 0.35 | 0.35 | 0.05 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1739 | 1950 | 1350 | 1739 | 3450 | 92 | 1739 | 1826 | 1534 | 1739 | 1526 | 250 |
| Grp Volume(v), veh/h | 24 | 366 | 334 | 56 | 245 | 255 | 147 | 101 | 22 | 60 | 0 | 433 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1565 | 1739 | 1735 | 1807 | 1739 | 1826 | 1534 | 1739 | 0 | 1776 |
| Q Serve(g_s), s | 0.9 | 12.4 | 12.6 | 2.0 | 7.4 | 7.4 | 5.2 | 2.4 | 0.6 | 2.2 | 0.0 | 14.4 |
| Cycle Q Clear(g_c), s | 0.9 | 12.4 | 12.6 | 2.0 | 7.4 | 7.4 | 5.2 | 2.4 | 0.6 | 2.2 | 0.0 | 14.4 |
| Prop In Lane | 1.00 | | 0.86 | 1.00 | | 0.05 | 1.00 | | 1.00 | 1.00 | | 0.14 |
| Lane Grp Cap(c), veh/h | 47 | 465 | 419 | 86 | 503 | 524 | 187 | 641 | 539 | 89 | 0 | 524 |
| V/C Ratio(X) | 0.51 | 0.79 | 0.80 | 0.65 | 0.49 | 0.49 | 0.79 | 0.16 | 0.04 | 0.67 | 0.00 | 0.83 |
| Avail Cap(c_a), veh/h | 164 | 576 | 520 | 164 | 576 | 600 | 328 | 1038 | 872 | 246 | 0 | 925 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.5 | 21.6 | 21.6 | 29.7 | 18.6 | 18.6 | 27.6 | 14.2 | 13.6 | 29.6 | 0.0 | 20.9 |
| Incr Delay (d2), s/veh | 8.2 | 5.8 | 6.9 | 8.1 | 0.7 | 0.7 | 7.1 | 0.1 | 0.0 | 8.4 | 0.0 | 3.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 5.1 | 4.8 | 1.0 | 2.6 | 2.8 | 2.4 | 0.9 | 0.2 | 1.0 | 0.0 | 5.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 38.7 | 27.4 | 28.5 | 37.7 | 19.4 | 19.3 | 34.8 | 14.3 | 13.6 | 38.0 | 0.0 | 24.3 |
| LnGrp LOS | D | C | C | D | B | B | C | B | B | D | | C |
| Approach Vol, veh/h | | 724 | | | 556 | | | 270 | | | 493 | |
| Approach Delay, s/veh | | 28.3 | | | 21.2 | | | 25.4 | | | 25.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.3 | 27.2 | 7.1 | 21.9 | 10.8 | 23.6 | 5.7 | 23.3 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 9.0 | 36.1 | 6.0 | 21.1 | 12.0 | 33.1 | 6.0 | 21.1 |
| Max Q Clear Time (g_c+I1), s | 4.2 | 4.4 | 4.0 | 14.6 | 7.2 | 16.4 | 2.9 | 9.4 |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 2.2 | 0.1 | 2.3 | 0.0 | 2.1 |

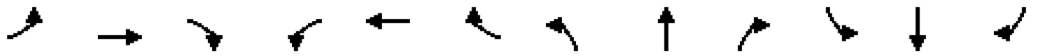
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 25.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 24 | 765 | 56 | 503 | 147 | 101 | 30 | 60 | 448 |
| v/c Ratio | 0.16 | 0.79 | 0.38 | 0.53 | 0.58 | 0.13 | 0.04 | 0.32 | 0.77 |
| Control Delay (s/veh) | 41.1 | 26.6 | 46.2 | 26.7 | 44.1 | 16.9 | 0.1 | 40.8 | 32.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 41.1 | 26.6 | 46.2 | 26.7 | 44.1 | 16.9 | 0.1 | 40.8 | 32.9 |
| Queue Length 50th (ft) | 12 | 136 | 28 | 96 | 72 | 35 | 0 | 29 | 206 |
| Queue Length 95th (ft) | 38 | #253 | #76 | 187 | #157 | 69 | 0 | 71 | 316 |
| Internal Link Dist (ft) | | 3072 | | 2553 | | 2230 | | | 5241 |
| Turn Bay Length (ft) | 50 | | 65 | | | | | | |
| Base Capacity (vph) | 151 | 1135 | 151 | 1144 | 302 | 960 | 850 | 227 | 858 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.16 | 0.67 | 0.37 | 0.44 | 0.49 | 0.11 | 0.04 | 0.26 | 0.52 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 12 | 28 | 300 | 72 | 169 | 1 | 556 | 125 | 59 | 0 | 59 | 16 |
| Future Volume (veh/h) | 12 | 28 | 300 | 72 | 169 | 1 | 556 | 125 | 59 | 0 | 59 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 13 | 31 | 265 | 79 | 186 | 1 | 611 | 137 | 54 | 0 | 65 | 15 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.25 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 28 | 385 | 321 | 101 | 458 | 2 | 658 | 675 | 266 | 2 | 153 | 35 |
| Arrive On Green | 0.02 | 0.21 | 0.21 | 0.06 | 0.25 | 0.25 | 0.38 | 0.54 | 0.54 | 0.00 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1753 | 1841 | 1538 | 1753 | 1829 | 10 | 1753 | 1253 | 494 | 1753 | 1432 | 330 |
| Grp Volume(v), veh/h | 13 | 31 | 265 | 79 | 0 | 187 | 611 | 0 | 191 | 0 | 0 | 80 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 1841 | 1538 | 1753 | 0 | 1839 | 1753 | 0 | 1746 | 1753 | 0 | 1762 |
| Q Serve(g_s), s | 0.5 | 1.0 | 11.7 | 3.1 | 0.0 | 6.0 | 23.6 | 0.0 | 4.0 | 0.0 | 0.0 | 3.0 |
| Cycle Q Clear(g_c), s | 0.5 | 1.0 | 11.7 | 3.1 | 0.0 | 6.0 | 23.6 | 0.0 | 4.0 | 0.0 | 0.0 | 3.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.01 | 1.00 | | 0.28 | 1.00 | | 0.19 |
| Lane Grp Cap(c), veh/h | 28 | 385 | 321 | 101 | 0 | 460 | 658 | 0 | 941 | 2 | 0 | 188 |
| V/C Ratio(X) | 0.47 | 0.08 | 0.83 | 0.78 | 0.00 | 0.41 | 0.93 | 0.00 | 0.20 | 0.00 | 0.00 | 0.43 |
| Avail Cap(c_a), veh/h | 146 | 468 | 391 | 146 | 0 | 468 | 743 | 0 | 1046 | 146 | 0 | 456 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 34.5 | 22.5 | 26.8 | 32.9 | 0.0 | 22.1 | 21.2 | 0.0 | 8.5 | 0.0 | 0.0 | 29.6 |
| Incr Delay (d2), s/veh | 11.6 | 0.1 | 11.4 | 15.7 | 0.0 | 0.6 | 16.8 | 0.0 | 0.1 | 0.0 | 0.0 | 1.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.4 | 4.9 | 1.7 | 0.0 | 2.4 | 11.3 | 0.0 | 1.2 | 0.0 | 0.0 | 1.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 46.1 | 22.6 | 38.2 | 48.6 | 0.0 | 22.7 | 38.0 | 0.0 | 8.6 | 0.0 | 0.0 | 31.1 |
| LnGrp LOS | D | C | D | D | | C | D | | A | | | C |
| Approach Vol, veh/h | | 309 | | | 266 | | | 802 | | | 80 | |
| Approach Delay, s/veh | | 37.0 | | | 30.4 | | | 31.0 | | | 31.1 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 0.0 | 43.0 | 8.1 | 19.7 | 30.6 | 12.4 | 5.1 | 22.6 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 42.4 | 5.9 | 18.0 | 30.0 | 18.3 | 5.9 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 0.0 | 6.0 | 5.1 | 13.7 | 25.6 | 5.0 | 2.5 | 8.0 |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 0.4 | 0.9 | 0.2 | 0.0 | 0.6 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 32.1 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 13 | 31 | 330 | 79 | 187 | 611 | 202 | 83 |
| v/c Ratio | 0.09 | 0.13 | 0.68 | 0.53 | 0.47 | 0.80 | 0.19 | 0.38 |
| Control Delay (s/veh) | 35.0 | 28.8 | 11.5 | 48.5 | 28.9 | 29.9 | 6.4 | 31.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 35.0 | 28.8 | 11.5 | 48.5 | 28.9 | 29.9 | 6.4 | 31.1 |
| Queue Length 50th (ft) | 5 | 12 | 0 | 32 | 66 | 212 | 26 | 27 |
| Queue Length 95th (ft) | 24 | 36 | 66 | #107 | 150 | #532 | 75 | 74 |
| Internal Link Dist (ft) | | 5959 | | | 1494 | | 2586 | 3233 |
| Turn Bay Length (ft) | | | | | | | | |
| Base Capacity (vph) | 149 | 480 | 640 | 149 | 484 | 760 | 1094 | 477 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.09 | 0.06 | 0.52 | 0.53 | 0.39 | 0.80 | 0.18 | 0.17 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 259 | 67 | 607 | 151 | 16 | 523 |
| Future Volume (veh/h) | 259 | 67 | 607 | 151 | 16 | 523 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | | 0.99 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | No | | | No |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 282 | 60 | 660 | 136 | 17 | 568 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 339 | 72 | 768 | 158 | 37 | 1120 |
| Arrive On Green | 0.24 | 0.24 | 0.51 | 0.51 | 0.02 | 0.60 |
| Sat Flow, veh/h | 1430 | 304 | 1502 | 309 | 1781 | 1870 |
| Grp Volume(v), veh/h | 343 | 0 | 0 | 796 | 17 | 568 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 0 | 0 | 1811 | 1781 | 1870 |
| Q Serve(g_s), s | 11.2 | 0.0 | 0.0 | 22.9 | 0.6 | 10.5 |
| Cycle Q Clear(g_c), s | 11.2 | 0.0 | 0.0 | 22.9 | 0.6 | 10.5 |
| Prop In Lane | 0.82 | 0.17 | | 0.17 | 1.00 | |
| Lane Grp Cap(c), veh/h | 413 | 0 | 0 | 927 | 37 | 1120 |
| V/C Ratio(X) | 0.83 | 0.00 | 0.00 | 0.86 | 0.46 | 0.51 |
| Avail Cap(c_a), veh/h | 613 | 0 | 0 | 1486 | 179 | 1847 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 21.7 | 0.0 | 0.0 | 12.7 | 29.0 | 6.9 |
| Incr Delay (d2), s/veh | 6.1 | 0.0 | 0.0 | 3.1 | 8.9 | 0.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.9 | 0.0 | 0.0 | 7.3 | 0.3 | 2.6 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 27.8 | 0.0 | 0.0 | 15.8 | 37.8 | 7.3 |
| LnGrp LOS | C | | | B | D | A |
| Approach Vol, veh/h | 343 | | 796 | | | 585 |
| Approach Delay, s/veh | 27.8 | | 15.8 | | | 8.2 |
| Approach LOS | C | | B | | | A |

| Timer - Assigned Phs | 1 | 2 | | | | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.2 | 35.5 | | | | 40.7 | 19.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | | | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 49.1 | | | | 59.1 | 21.1 |
| Max Q Clear Time (g_c+I1), s | 2.6 | 24.9 | | | | 12.5 | 13.2 |
| Green Ext Time (p_c), s | 0.0 | 5.7 | | | | 3.7 | 0.7 |

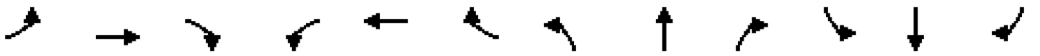
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 15.6 |
| HCM 7th LOS | B |



| Lane Group | WBL | NBT | SBL | SBT |
|---|---|---|---|---|
| Lane Group Flow (vph) | 355 | 824 | 17 | 568 |
| v/c Ratio | 0.74 | 0.85 | 0.11 | 0.53 |
| Control Delay (s/veh) | 37.0 | 24.7 | 39.4 | 10.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 37.0 | 24.7 | 39.4 | 10.5 |
| Queue Length 50th (ft) | 120 | 255 | 7 | 141 |
| Queue Length 95th (ft) | #339 | #577 | 30 | 209 |
| Internal Link Dist (ft) | 907 | 2558 | | 2586 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 570 | 1329 | 163 | 1561 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.62 | 0.10 | 0.36 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 46 | 252 | 318 | 135 | 382 | 42 | 495 | 378 | 60 | 62 | 738 | 122 |
| Future Volume (veh/h) | 46 | 252 | 318 | 135 | 382 | 42 | 495 | 378 | 60 | 62 | 738 | 122 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 54 | 296 | 262 | 159 | 449 | 40 | 582 | 445 | 57 | 73 | 868 | 103 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 69 | 305 | 254 | 164 | 769 | 338 | 578 | 1861 | 825 | 94 | 894 | 391 |
| Arrive On Green | 0.04 | 0.16 | 0.16 | 0.09 | 0.22 | 0.22 | 0.33 | 0.53 | 0.53 | 0.05 | 0.25 | 0.25 |
| Sat Flow, veh/h | 1767 | 1856 | 1544 | 1767 | 3526 | 1551 | 1767 | 3526 | 1564 | 1767 | 3526 | 1541 |
| Grp Volume(v), veh/h | 54 | 296 | 262 | 159 | 449 | 40 | 582 | 445 | 57 | 73 | 868 | 103 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1544 | 1767 | 1763 | 1551 | 1767 | 1763 | 1564 | 1767 | 1763 | 1541 |
| Q Serve(g_s), s | 3.3 | 17.4 | 18.1 | 9.9 | 12.6 | 2.3 | 36.0 | 7.5 | 2.0 | 4.5 | 26.8 | 5.9 |
| Cycle Q Clear(g_c), s | 3.3 | 17.4 | 18.1 | 9.9 | 12.6 | 2.3 | 36.0 | 7.5 | 2.0 | 4.5 | 26.8 | 5.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 69 | 305 | 254 | 164 | 769 | 338 | 578 | 1861 | 825 | 94 | 894 | 391 |
| V/C Ratio(X) | 0.78 | 0.97 | 1.03 | 0.97 | 0.58 | 0.12 | 1.01 | 0.24 | 0.07 | 0.78 | 0.97 | 0.26 |
| Avail Cap(c_a), veh/h | 117 | 305 | 254 | 164 | 769 | 338 | 578 | 1861 | 825 | 162 | 894 | 391 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.4 | 45.7 | 46.0 | 49.7 | 38.5 | 34.5 | 37.0 | 14.0 | 12.7 | 51.5 | 40.6 | 32.8 |
| Incr Delay (d2), s/veh | 16.9 | 43.1 | 64.8 | 61.3 | 1.1 | 0.2 | 39.0 | 0.1 | 0.0 | 13.0 | 23.1 | 0.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.8 | 11.4 | 11.3 | 7.0 | 5.3 | 0.8 | 20.9 | 2.8 | 0.6 | 2.3 | 13.9 | 2.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 69.2 | 88.8 | 110.8 | 111.0 | 39.7 | 34.7 | 76.0 | 14.1 | 12.8 | 64.5 | 63.8 | 33.2 |
| LnGrp LOS | E | F | F | F | D | C | F | B | B | E | E | C |
| Approach Vol, veh/h | | 612 | | | 648 | | | 1084 | | | 1044 | |
| Approach Delay, s/veh | | 96.5 | | | 56.9 | | | 47.3 | | | 60.8 | |
| Approach LOS | | F | | | E | | | D | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.8 | 63.0 | 14.2 | 23.0 | 40.0 | 32.8 | 8.3 | 28.9 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 10.1 | 53.8 | 10.2 | 18.1 | 36.0 | 27.9 | 7.3 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.5 | 9.5 | 11.9 | 20.1 | 38.0 | 28.8 | 5.3 | 14.6 |
| Green Ext Time (p_c), s | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 62.2 |
| HCM 7th LOS | E |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 54 | 296 | 374 | 159 | 449 | 49 | 582 | 445 | 71 | 73 | 868 | 144 |
| v/c Ratio | 0.49 | 0.98 | 0.73 | 0.98 | 0.61 | 0.11 | 1.02 | 0.25 | 0.09 | 0.52 | 0.98 | 0.30 |
| Control Delay (s/veh) | 65.0 | 92.9 | 17.4 | 117.0 | 44.1 | 0.5 | 79.2 | 15.8 | 1.7 | 61.3 | 66.5 | 7.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 65.0 | 92.9 | 17.4 | 117.0 | 44.1 | 0.5 | 79.2 | 15.8 | 1.7 | 61.3 | 66.5 | 7.1 |
| Queue Length 50th (ft) | 37 | 210 | 35 | 114 | 156 | 0 | ~421 | 93 | 0 | 50 | 321 | 0 |
| Queue Length 95th (ft) | 75 | #349 | 116 | #228 | 198 | 0 | #591 | 118 | 11 | 92 | #409 | 41 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 | |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | | |
| Base Capacity (vph) | 116 | 303 | 515 | 162 | 741 | 430 | 573 | 1816 | 835 | 160 | 888 | 485 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.47 | 0.98 | 0.73 | 0.98 | 0.61 | 0.11 | 1.02 | 0.25 | 0.09 | 0.46 | 0.98 | 0.30 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

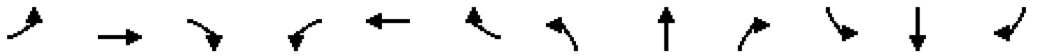
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 642 | 37 | 5 | 766 | 81 | 20 |
| Future Volume (veh/h) | 642 | 37 | 5 | 766 | 81 | 20 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | 0.99 | 1.00 | | 1.00 | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 845 | 40 | 7 | 1008 | 107 | 21 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 1859 | 88 | 17 | 1195 | 199 | 39 |
| Arrive On Green | 0.54 | 0.54 | 0.01 | 0.64 | 0.14 | 0.14 |
| Sat Flow, veh/h | 3546 | 163 | 1781 | 1870 | 1443 | 283 |
| Grp Volume(v), veh/h | 435 | 450 | 7 | 1008 | 129 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1777 | 1839 | 1781 | 1870 | 1740 | 0 |
| Q Serve(g_s), s | 6.6 | 6.6 | 0.2 | 18.5 | 3.0 | 0.0 |
| Cycle Q Clear(g_c), s | 6.6 | 6.6 | 0.2 | 18.5 | 3.0 | 0.0 |
| Prop In Lane | | 0.09 | 1.00 | | 0.83 | 0.16 |
| Lane Grp Cap(c), veh/h | 957 | 990 | 17 | 1195 | 240 | 0 |
| V/C Ratio(X) | 0.45 | 0.45 | 0.42 | 0.84 | 0.54 | 0.00 |
| Avail Cap(c_a), veh/h | 1304 | 1349 | 239 | 1794 | 718 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 6.2 | 6.2 | 21.6 | 6.2 | 17.6 | 0.0 |
| Incr Delay (d2), s/veh | 0.3 | 0.3 | 16.1 | 2.5 | 1.9 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 1.2 | 0.1 | 2.2 | 1.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 6.5 | 6.5 | 37.7 | 8.7 | 19.5 | 0.0 |
| LnGrp LOS | A | A | D | A | B | |
| Approach Vol, veh/h | 885 | | | 1015 | 129 | |
| Approach Delay, s/veh | 6.5 | | | 8.9 | 19.5 | |
| Approach LOS | A | | | A | B | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 10.9 | 4.4 | 28.5 | | 32.9 |
| Change Period (Y+Rc), s | | 4.9 | 4.0 | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | | 18.1 | 5.9 | 32.2 | | 42.1 |
| Max Q Clear Time (g_c+I1), s | | 5.0 | 2.2 | 8.6 | | 20.5 |
| Green Ext Time (p_c), s | | 0.3 | 0.0 | 5.1 | | 7.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 8.5 |
| HCM 7th LOS | A |

| Lane Group | EBT | WBL | WBT | NBL |
|---|---|---|---|---|
| Lane Group Flow (vph) | 894 | 7 | 1008 | 133 |
| v/c Ratio | 0.42 | 0.04 | 0.85 | 0.43 |
| Control Delay (s/veh) | 7.1 | 27.0 | 16.7 | 24.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 7.1 | 27.0 | 16.7 | 24.4 |
| Queue Length 50th (ft) | 56 | 2 | 202 | 37 |
| Queue Length 95th (ft) | 129 | 11 | 296 | 68 |
| Internal Link Dist (ft) | 1220 | | 700 | 608 |
| Turn Bay Length (ft) | | 110 | | |
| Base Capacity (vph) | 2459 | 200 | 1458 | 615 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.04 | 0.69 | 0.22 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 48 | 266 | 319 | 99 | 402 | 11 | 146 | 278 | 43 | 28 | 326 | 108 |
| Future Volume (veh/h) | 48 | 266 | 319 | 99 | 402 | 11 | 146 | 278 | 43 | 28 | 326 | 108 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 62 | 345 | 291 | 129 | 522 | 11 | 190 | 361 | 46 | 36 | 423 | 117 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 88 | 852 | 375 | 166 | 1008 | 442 | 238 | 698 | 587 | 63 | 515 | 429 |
| Arrive On Green | 0.05 | 0.24 | 0.24 | 0.09 | 0.29 | 0.29 | 0.13 | 0.38 | 0.38 | 0.04 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 3526 | 1553 | 1767 | 3526 | 1545 | 1767 | 1856 | 1560 | 1767 | 1856 | 1544 |
| Grp Volume(v), veh/h | 62 | 345 | 291 | 129 | 522 | 11 | 190 | 361 | 46 | 36 | 423 | 117 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1553 | 1767 | 1763 | 1545 | 1767 | 1856 | 1560 | 1767 | 1856 | 1544 |
| Q Serve(g_s), s | 2.4 | 5.8 | 12.3 | 5.0 | 8.8 | 0.4 | 7.4 | 10.6 | 1.3 | 1.4 | 15.1 | 4.2 |
| Cycle Q Clear(g_c), s | 2.4 | 5.8 | 12.3 | 5.0 | 8.8 | 0.4 | 7.4 | 10.6 | 1.3 | 1.4 | 15.1 | 4.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 88 | 852 | 375 | 166 | 1008 | 442 | 238 | 698 | 587 | 63 | 515 | 429 |
| V/C Ratio(X) | 0.70 | 0.40 | 0.78 | 0.78 | 0.52 | 0.02 | 0.80 | 0.52 | 0.08 | 0.57 | 0.82 | 0.27 |
| Avail Cap(c_a), veh/h | 230 | 1403 | 618 | 385 | 1713 | 751 | 543 | 1375 | 1156 | 160 | 972 | 809 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 33.0 | 22.5 | 25.0 | 31.3 | 21.1 | 18.1 | 29.6 | 17.0 | 14.1 | 33.5 | 23.9 | 19.9 |
| Incr Delay (d2), s/veh | 9.8 | 0.3 | 3.5 | 7.6 | 0.4 | 0.0 | 6.1 | 0.6 | 0.1 | 7.8 | 3.3 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 2.2 | 4.3 | 2.3 | 3.2 | 0.1 | 3.2 | 3.9 | 0.4 | 0.7 | 6.2 | 1.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 42.8 | 22.8 | 28.4 | 38.8 | 21.5 | 18.2 | 35.7 | 17.6 | 14.2 | 41.3 | 27.2 | 20.3 |
| LnGrp LOS | D | C | C | D | C | B | D | B | B | D | C | C |
| Approach Vol, veh/h | | 698 | | | 662 | | | 597 | | | 576 | |
| Approach Delay, s/veh | | 26.9 | | | 24.9 | | | 23.1 | | | 26.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

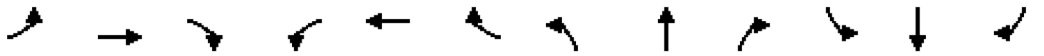
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.5 | 31.5 | 10.6 | 22.0 | 13.5 | 24.5 | 7.5 | 25.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.4 | 52.3 | 15.4 | 28.1 | 21.7 | 37.0 | 9.2 | 34.3 |
| Max Q Clear Time (g_c+I1), s | 3.4 | 12.6 | 7.0 | 14.3 | 9.4 | 17.1 | 4.4 | 10.8 |
| Green Ext Time (p_c), s | 0.0 | 2.1 | 0.2 | 2.5 | 0.4 | 2.5 | 0.0 | 3.1 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 25.4 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 62 | 345 | 414 | 129 | 522 | 14 | 190 | 361 | 56 | 36 | 423 | 140 |
| v/c Ratio | 0.38 | 0.54 | 0.67 | 0.54 | 0.58 | 0.03 | 0.63 | 0.43 | 0.07 | 0.28 | 0.78 | 0.25 |
| Control Delay (s/veh) | 51.4 | 38.4 | 10.1 | 49.2 | 34.3 | 0.1 | 46.8 | 20.2 | 0.2 | 52.5 | 41.1 | 4.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.4 | 38.4 | 10.1 | 49.2 | 34.3 | 0.1 | 46.8 | 20.2 | 0.2 | 52.5 | 41.1 | 4.2 |
| Queue Length 50th (ft) | 32 | 91 | 0 | 66 | 138 | 0 | 97 | 144 | 0 | 19 | 210 | 0 |
| Queue Length 95th (ft) | 76 | 140 | 30 | 130 | 195 | 0 | 172 | 210 | 0 | 52 | 317 | 15 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | | | 2587 | | | 894 | |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | | | | | |
| Base Capacity (vph) | 194 | 1190 | 788 | 326 | 1453 | 689 | 459 | 1166 | 1006 | 135 | 825 | 754 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.32 | 0.29 | 0.53 | 0.40 | 0.36 | 0.02 | 0.41 | 0.31 | 0.06 | 0.27 | 0.51 | 0.19 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 252 | 0 | 900 | 0 | 0 | 0 | 0 | 1338 | 40 | 29 | 876 | 0 |
| Future Volume (veh/h) | 252 | 0 | 900 | 0 | 0 | 0 | 0 | 1338 | 40 | 29 | 876 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 0 | 1856 | | | | 0 | 1856 | 1856 | 1856 | 1856 | 0 |
| Adj Flow Rate, veh/h | 274 | 0 | 782 | | | | 0 | 1454 | 34 | 32 | 952 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 0 | 3 | | | | 0 | 3 | 3 | 3 | 3 | 0 |
| Cap, veh/h | 622 | 0 | 973 | | | | 0 | 2125 | 50 | 59 | 1791 | 0 |
| Arrive On Green | 0.35 | 0.00 | 0.35 | | | | 0.00 | 0.42 | 0.42 | 0.03 | 0.51 | 0.00 |
| Sat Flow, veh/h | 1767 | 0 | 2768 | | | | 0 | 5257 | 119 | 1767 | 3618 | 0 |
| Grp Volume(v), veh/h | 274 | 0 | 782 | | | | 0 | 965 | 523 | 32 | 952 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1384 | | | | 0 | 1689 | 1832 | 1767 | 1763 | 0 |
| Q Serve(g_s), s | 8.3 | 0.0 | 17.8 | | | | 0.0 | 16.3 | 16.3 | 1.2 | 12.7 | 0.0 |
| Cycle Q Clear(g_c), s | 8.3 | 0.0 | 17.8 | | | | 0.0 | 16.3 | 16.3 | 1.2 | 12.7 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.06 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 622 | 0 | 973 | | | | 0 | 1410 | 765 | 59 | 1791 | 0 |
| V/C Ratio(X) | 0.44 | 0.00 | 0.80 | | | | 0.00 | 0.68 | 0.68 | 0.55 | 0.53 | 0.00 |
| Avail Cap(c_a), veh/h | 1344 | 0 | 2105 | | | | 0 | 2269 | 1231 | 157 | 2884 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 17.4 | 0.0 | 20.4 | | | | 0.0 | 16.6 | 16.6 | 33.2 | 11.6 | 0.0 |
| Incr Delay (d2), s/veh | 0.5 | 0.0 | 1.6 | | | | 0.0 | 0.6 | 1.1 | 7.7 | 0.2 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.2 | 0.0 | 5.5 | | | | 0.0 | 5.2 | 5.7 | 0.6 | 3.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 17.9 | 0.0 | 22.1 | | | | 0.0 | 17.2 | 17.7 | 41.0 | 11.8 | 0.0 |
| LnGrp LOS | B | | C | | | | | B | B | D | B | |
| Approach Vol, veh/h | | 1056 | | | | | | 1488 | | | 984 | |
| Approach Delay, s/veh | | 21.0 | | | | | | 17.3 | | | 12.8 | |
| Approach LOS | | C | | | | | | B | | | B | |

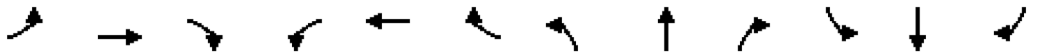
| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.3 | 34.0 | | 29.4 | | 40.4 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 6.2 | 46.9 | | 53.1 | | 57.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 3.2 | 18.3 | | 19.8 | | 14.7 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 10.9 | | 4.7 | | 7.1 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 17.2 | | | | | | | | | |
| HCM 7th LOS | | | B | | | | | | | | | |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 274 | 978 | 1497 | 32 | 952 |
| v/c Ratio | 0.37 | 0.84 | 0.73 | 0.26 | 0.59 |
| Control Delay (s/veh) | 21.9 | 29.4 | 27.3 | 56.7 | 20.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Total Delay (s/veh) | 21.9 | 29.4 | 27.3 | 56.7 | 20.5 |
| Queue Length 50th (ft) | 122 | 285 | 300 | 20 | 215 |
| Queue Length 95th (ft) | 206 | 422 | 422 | 59 | 336 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 1094 | 1680 | 2766 | 127 | 2345 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 258 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.25 | 0.58 | 0.54 | 0.25 | 0.46 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 19 | 258 | 36 | 9 | 348 | 41 | 64 | 10 | 23 | 120 | 74 | 90 |
| Future Volume (veh/h) | 19 | 258 | 36 | 9 | 348 | 41 | 64 | 10 | 23 | 120 | 74 | 90 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 0.99 | | 0.99 | 0.99 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 25 | 344 | 41 | 12 | 464 | 48 | 85 | 13 | 26 | 160 | 99 | 107 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 54 | 964 | 422 | 27 | 911 | 399 | 303 | 56 | 49 | 414 | 202 | 432 |
| Arrive On Green | 0.03 | 0.28 | 0.28 | 0.02 | 0.26 | 0.26 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1739 | 3469 | 1520 | 1739 | 3469 | 1518 | 455 | 199 | 173 | 872 | 715 | 1531 |
| Grp Volume(v), veh/h | 25 | 344 | 41 | 12 | 464 | 48 | 124 | 0 | 0 | 259 | 0 | 107 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 1520 | 1739 | 1735 | 1518 | 827 | 0 | 0 | 1587 | 0 | 1531 |
| Q Serve(g_s), s | 0.5 | 2.8 | 0.7 | 0.2 | 3.9 | 0.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 |
| Cycle Q Clear(g_c), s | 0.5 | 2.8 | 0.7 | 0.2 | 3.9 | 0.8 | 6.4 | 0.0 | 0.0 | 4.6 | 0.0 | 1.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.69 | | 0.21 | 0.62 | | 1.00 |
| Lane Grp Cap(c), veh/h | 54 | 964 | 422 | 27 | 911 | 399 | 409 | 0 | 0 | 616 | 0 | 432 |
| V/C Ratio(X) | 0.47 | 0.36 | 0.10 | 0.44 | 0.51 | 0.12 | 0.30 | 0.00 | 0.00 | 0.42 | 0.00 | 0.25 |
| Avail Cap(c_a), veh/h | 256 | 1813 | 794 | 256 | 1813 | 793 | 856 | 0 | 0 | 1143 | 0 | 977 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.5 | 10.0 | 9.3 | 16.9 | 10.9 | 9.7 | 11.4 | 0.0 | 0.0 | 10.5 | 0.0 | 9.6 |
| Incr Delay (d2), s/veh | 6.2 | 0.2 | 0.1 | 10.6 | 0.4 | 0.1 | 0.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.6 | 0.1 | 0.1 | 0.9 | 0.2 | 0.7 | 0.0 | 0.0 | 1.2 | 0.0 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 22.7 | 10.2 | 9.4 | 27.5 | 11.3 | 9.9 | 11.8 | 0.0 | 0.0 | 11.0 | 0.0 | 9.9 |
| LnGrp LOS | C | B | A | C | B | A | B | | | B | | A |
| Approach Vol, veh/h | | 410 | | | 524 | | | 124 | | | 366 | |
| Approach Delay, s/veh | | 10.9 | | | 11.5 | | | 11.8 | | | 10.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 14.7 | 5.4 | 14.5 | | 14.7 | 6.0 | 14.0 | | | | |
| Change Period (Y+Rc), s | | 4.9 | 4.9 | 4.9 | | 4.9 | 4.9 | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 22.1 | 5.1 | 18.1 | | 22.1 | 5.1 | 18.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 8.4 | 2.2 | 4.8 | | 6.6 | 2.5 | 5.9 | | | | |
| Green Ext Time (p_c), s | | 0.5 | 0.0 | 1.7 | | 1.5 | 0.0 | 2.2 | | | | |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 11.2 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 25 | 344 | 48 | 12 | 464 | 55 | 129 | 259 | 120 |
| v/c Ratio | 0.09 | 0.32 | 0.09 | 0.05 | 0.43 | 0.10 | 0.30 | 0.55 | 0.19 |
| Control Delay (s/veh) | 21.0 | 12.0 | 0.3 | 20.8 | 12.7 | 0.6 | 10.2 | 15.8 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 21.0 | 12.0 | 0.3 | 20.8 | 12.7 | 0.6 | 10.2 | 15.8 | 3.6 |
| Queue Length 50th (ft) | 3 | 21 | 0 | 2 | 29 | 0 | 10 | 30 | 0 |
| Queue Length 95th (ft) | 24 | 65 | 0 | 15 | 86 | 0 | 46 | 105 | 17 |
| Internal Link Dist (ft) | | 2570 | | | 2566 | | 2887 | 505 | |
| Turn Bay Length (ft) | 245 | | | 100 | | | | | |
| Base Capacity (vph) | 265 | 1887 | 869 | 265 | 1887 | 869 | 794 | 889 | 1049 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.09 | 0.18 | 0.06 | 0.05 | 0.25 | 0.06 | 0.16 | 0.29 | 0.11 |

Intersection Summary

# LANE SUMMARY

## Site: [1 (2)] DeWolf-Owns Mt Pkwy NT+MP (Mitigated) AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

DeWolf & Owens Mt. Pkwy
Near-Term With Master Plan (Mitigated)
AM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 214 | 5.0 | 214 | 5.0 | 1267 | 0.169 | 100 | 4.0 | LOS A | 1.1 | 28.3 | Full | 1600 | 0.0 | 0.0 |
| Approach | 214 | 5.0 | 214 | 5.0 | | 0.169 | | 4.0 | LOS A | 1.1 | 28.3 | | | | |
| North: DeWolf Ave | | | | | | | | | | | | | | | |
| Lane 1[d] | 833 | 5.0 | 833 | 5.0 | 1273 | 0.655 | 100 | 8.4 | LOS A | 7.6 | 196.7 | Full | 1600 | 0.0 | 0.0 |
| Approach | 833 | 5.0 | 833 | 5.0 | | 0.655 | | 8.4 | LOS A | 7.6 | 196.7 | | | | |
| West: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 78 | 5.0 | 78 | 5.0 | 586 | 0.133 | 100 | 7.7 | LOS A | 0.8 | 19.5 | Full | 1600 | 0.0 | 0.0 |
| Approach | 78 | 5.0 | 78 | 5.0 | | 0.133 | | 7.7 | LOS A | 0.8 | 19.5 | | | | |
| All Vehicles | 1125 | 5.0 | 1125 | 5.0 | | 0.655 | | 7.5 | LOS A | 7.6 | 196.7 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

East: Owens Mtn Pkwy

| Mov. From E To Exit: | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 14 | 200 | 214 | 5.0 | 1267 | 0.169 | 100 | NA | NA |
| Approach | 14 | 200 | 214 | 5.0 | | 0.169 | | | |

North: DeWolf Ave

| Mov. From N | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|

| To Exit: | E | W | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 823 | 10 | 833 | 5.0 | 1273 | 0.655 | 100 | NA | NA |
| Approach | 823 | 10 | 833 | 5.0 | | 0.655 | | | |

West: Owens Mtn Pkwy

| Mov. From W To Exit: | L2 N | T1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 15 | 63 | 78 | 5.0 | 586 | 0.133 | 100 | NA | NA |
| Approach | 15 | 63 | 78 | 5.0 | | 0.133 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 1125 | 5.0 | 0.655 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

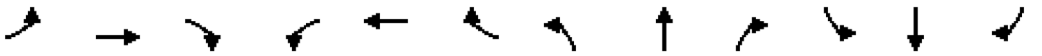
## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: DeWolf Ave | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 162 | 216 | 51 | 35 | 591 | 19 | 124 | 25 | 12 | 7 | 81 | 668 |
| Future Volume (veh/h) | 162 | 216 | 51 | 35 | 591 | 19 | 124 | 25 | 12 | 7 | 81 | 668 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 208 | 277 | 52 | 45 | 758 | 19 | 159 | 32 | 12 | 9 | 104 | 605 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 302 | 1163 | 511 | 71 | 993 | 435 | 200 | 1332 | 590 | 20 | 512 | 750 |
| Arrive On Green | 0.09 | 0.34 | 0.34 | 0.04 | 0.29 | 0.29 | 0.12 | 0.38 | 0.38 | 0.01 | 0.28 | 0.28 |
| Sat Flow, veh/h | 3374 | 3469 | 1524 | 1739 | 3469 | 1520 | 1739 | 3469 | 1535 | 1739 | 1826 | 2675 |
| Grp Volume(v), veh/h | 208 | 277 | 52 | 45 | 758 | 19 | 159 | 32 | 12 | 9 | 104 | 605 |
| Grp Sat Flow(s),veh/h/ln | 1687 | 1735 | 1524 | 1739 | 1735 | 1520 | 1739 | 1735 | 1535 | 1739 | 1826 | 1337 |
| Q Serve(g_s), s | 4.4 | 4.3 | 1.7 | 1.9 | 14.7 | 0.7 | 6.6 | 0.4 | 0.4 | 0.4 | 3.2 | 15.6 |
| Cycle Q Clear(g_c), s | 4.4 | 4.3 | 1.7 | 1.9 | 14.7 | 0.7 | 6.6 | 0.4 | 0.4 | 0.4 | 3.2 | 15.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 302 | 1163 | 511 | 71 | 993 | 435 | 200 | 1332 | 590 | 20 | 512 | 750 |
| V/C Ratio(X) | 0.69 | 0.24 | 0.10 | 0.63 | 0.76 | 0.04 | 0.79 | 0.02 | 0.02 | 0.45 | 0.20 | 0.81 |
| Avail Cap(c_a), veh/h | 548 | 1844 | 810 | 207 | 1694 | 742 | 423 | 2300 | 1018 | 141 | 914 | 1339 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 32.6 | 17.8 | 16.9 | 34.9 | 24.1 | 19.1 | 31.8 | 14.2 | 14.1 | 36.3 | 20.3 | 24.7 |
| Incr Delay (d2), s/veh | 2.8 | 0.1 | 0.1 | 9.0 | 1.2 | 0.0 | 7.0 | 0.0 | 0.0 | 15.3 | 0.2 | 2.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 1.5 | 0.6 | 0.9 | 5.3 | 0.2 | 3.1 | 0.2 | 0.1 | 0.2 | 1.3 | 4.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 35.4 | 17.9 | 17.0 | 43.9 | 25.3 | 19.1 | 38.8 | 14.2 | 14.1 | 51.6 | 20.5 | 26.9 |
| LnGrp LOS | D | B | B | D | C | B | D | B | B | D | C | C |
| Approach Vol, veh/h | | 537 | | | 822 | | | 203 | | | 718 | |
| Approach Delay, s/veh | | 24.6 | | | 26.2 | | | 33.5 | | | 26.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.0 | 29.7 | 12.5 | 24.7 | 10.6 | 26.1 | 4.8 | 32.4 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.8 | 39.3 | 18.0 | 37.0 | 12.0 | 36.1 | 6.0 | 49.0 |
| Max Q Clear Time (g_c+I1), s | 3.9 | 6.3 | 8.6 | 17.6 | 6.4 | 16.7 | 2.4 | 2.4 |
| Green Ext Time (p_c), s | 0.0 | 1.7 | 0.3 | 3.2 | 0.3 | 4.4 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 26.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 208 | 277 | 65 | 45 | 758 | 24 | 159 | 32 | 15 | 9 | 104 | 856 |
| v/c Ratio | 0.56 | 0.22 | 0.11 | 0.34 | 0.78 | 0.05 | 0.65 | 0.02 | 0.02 | 0.08 | 0.20 | 0.84 |
| Control Delay (s/veh) | 51.9 | 25.4 | 0.7 | 56.8 | 40.1 | 0.2 | 56.5 | 17.6 | 0.1 | 54.9 | 30.1 | 25.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 51.9 | 25.4 | 0.7 | 56.8 | 40.1 | 0.2 | 56.5 | 17.6 | 0.1 | 54.9 | 30.1 | 25.5 |
| Queue Length 50th (ft) | 67 | 70 | 0 | 28 | 240 | 0 | 99 | 5 | 0 | 6 | 51 | 157 |
| Queue Length 95th (ft) | 104 | 100 | 0 | 63 | 289 | 0 | 162 | 15 | 0 | 21 | 89 | 194 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 430 | 1452 | 683 | 162 | 1334 | 637 | 332 | 1868 | 850 | 110 | 719 | 1271 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.19 | 0.10 | 0.28 | 0.57 | 0.04 | 0.48 | 0.02 | 0.02 | 0.08 | 0.14 | 0.67 |

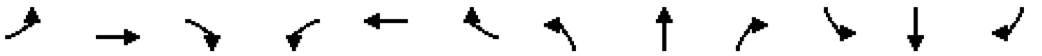
Intersection Summary

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 32.1 |
| Intersection LOS | D |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 0 | 204 | 2 | 0 | 0 | 211 | 303 | 2 | 1 | 325 | 5 |
| Future Vol, veh/h | 11 | 0 | 204 | 2 | 0 | 0 | 211 | 303 | 2 | 1 | 325 | 5 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 0 | 249 | 2 | 0 | 0 | 257 | 370 | 2 | 1 | 396 | 6 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 13.7 | 10.8 | 48.6 | 18.4 |
| HCM LOS | B | B | E | C |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 41% | 5% | 100% | 0% |
| Vol Thru, % | 59% | 0% | 0% | 98% |
| Vol Right, % | 0% | 95% | 0% | 2% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 516 | 215 | 2 | 331 |
| LT Vol | 211 | 11 | 2 | 1 |
| Through Vol | 303 | 0 | 0 | 325 |
| RT Vol | 2 | 204 | 0 | 5 |
| Lane Flow Rate | 629 | 262 | 2 | 404 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.957 | 0.437 | 0.005 | 0.639 |
| Departure Headway (Hd) | 5.476 | 5.996 | 7.772 | 5.703 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 661 | 595 | 463 | 630 |
| Service Time | 3.537 | 4.078 | 5.772 | 3.775 |
| HCM Lane V/C Ratio | 0.952 | 0.44 | 0.004 | 0.641 |
| HCM Control Delay, s/veh | 48.6 | 13.7 | 10.8 | 18.4 |
| HCM Lane LOS | E | B | B | C |
| HCM 95th-tile Q | 13.6 | 2.2 | 0 | 4.6 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 2 | 315 | 94 | 48 | 367 | 368 | 102 | 287 | 51 | 262 | 225 | 3 |
| Future Volume (veh/h) | 2 | 315 | 94 | 48 | 367 | 368 | 102 | 287 | 51 | 262 | 225 | 3 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 2 | 335 | 82 | 51 | 390 | 314 | 109 | 305 | 44 | 279 | 239 | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 39 | 690 | 168 | 77 | 428 | 330 | 138 | 337 | 49 | 302 | 559 | 7 |
| Arrive On Green | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.08 | 0.21 | 0.21 | 0.17 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1 | 1451 | 354 | 77 | 900 | 695 | 1781 | 1595 | 230 | 1781 | 1843 | 23 |
| Grp Volume(v), veh/h | 419 | 0 | 0 | 755 | 0 | 0 | 109 | 0 | 349 | 279 | 0 | 242 |
| Grp Sat Flow(s),veh/h/ln | 1806 | 0 | 0 | 1672 | 0 | 0 | 1781 | 0 | 1825 | 1781 | 0 | 1866 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 26.0 | 0.0 | 0.0 | 5.8 | 0.0 | 17.8 | 14.8 | 0.0 | 9.9 |
| Cycle Q Clear(g_c), s | 15.2 | 0.0 | 0.0 | 41.2 | 0.0 | 0.0 | 5.8 | 0.0 | 17.8 | 14.8 | 0.0 | 9.9 |
| Prop In Lane | 0.00 | | 0.20 | 0.07 | | 0.42 | 1.00 | | 0.13 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 896 | 0 | 0 | 835 | 0 | 0 | 138 | 0 | 385 | 302 | 0 | 566 |
| V/C Ratio(X) | 0.47 | 0.00 | 0.00 | 0.90 | 0.00 | 0.00 | 0.79 | 0.00 | 0.91 | 0.92 | 0.00 | 0.43 |
| Avail Cap(c_a), veh/h | 950 | 0 | 0 | 883 | 0 | 0 | 227 | 0 | 414 | 302 | 0 | 566 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.2 | 0.0 | 0.0 | 23.7 | 0.0 | 0.0 | 43.4 | 0.0 | 36.8 | 39.1 | 0.0 | 26.7 |
| Incr Delay (d2), s/veh | 0.4 | 0.0 | 0.0 | 12.3 | 0.0 | 0.0 | 9.7 | 0.0 | 22.2 | 32.8 | 0.0 | 0.5 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.8 | 0.0 | 0.0 | 17.0 | 0.0 | 0.0 | 2.8 | 0.0 | 9.9 | 8.9 | 0.0 | 4.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 17.5 | 0.0 | 0.0 | 36.0 | 0.0 | 0.0 | 53.0 | 0.0 | 59.0 | 71.9 | 0.0 | 27.2 |
| LnGrp LOS | B | | | D | | | D | | E | E | | C |
| Approach Vol, veh/h | | 419 | | | 755 | | | 458 | | | 521 | |
| Approach Delay, s/veh | | 17.5 | | | 36.0 | | | 57.6 | | | 51.1 | |
| Approach LOS | | B | | | D | | | E | | | D | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 20.2 | 25.1 | | 50.3 | 11.4 | 33.9 | | 50.3 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | 4.9 | | | | |
| Max Green Setting (Gmax), s | 16.2 | 21.7 | | 48.3 | 12.2 | 25.7 | | 48.3 | | | | |
| Max Q Clear Time (g_c+I1), s | 16.8 | 19.8 | | 17.2 | 7.8 | 11.9 | | 43.2 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.4 | | 2.5 | 0.1 | 1.0 | | 2.3 | | | | |

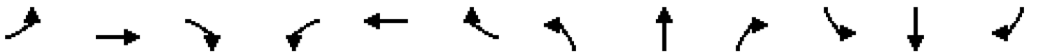
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 40.7 | | | | | | | | | |
| HCM 7th LOS | | | D | | | | | | | | | |

| Lane Group | EBT | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 437 | 832 | 109 | 359 | 279 | 242 |
| v/c Ratio | 0.50 | 1.02 | 0.59 | 0.92 | 0.97 | 0.48 |
| Control Delay (s/veh) | 19.0 | 60.7 | 55.4 | 68.2 | 88.8 | 34.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 19.0 | 60.7 | 55.4 | 68.2 | 88.8 | 34.7 |
| Queue Length 50th (ft) | 174 | ~545 | 67 | 219 | 179 | 130 |
| Queue Length 95th (ft) | 261 | #780 | 122 | #387 | #342 | 208 |
| Internal Link Dist (ft) | 5389 | 1817 | | 2563 | | 2549 |
| Turn Bay Length (ft) | | | 250 | | 250 | |
| Base Capacity (vph) | 877 | 819 | 217 | 402 | 288 | 501 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 1.02 | 0.50 | 0.89 | 0.97 | 0.48 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 659 | 1697 | 390 | 359 | 1490 | 191 | 492 | 552 | 333 | 334 | 359 | 355 |
| Future Volume (veh/h) | 659 | 1697 | 390 | 359 | 1490 | 191 | 492 | 552 | 333 | 334 | 359 | 355 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 709 | 1825 | 362 | 386 | 1602 | 149 | 529 | 594 | 250 | 359 | 386 | 239 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 753 | 2127 | 655 | 445 | 1671 | 514 | 569 | 676 | 297 | 394 | 713 | 381 |
| Arrive On Green | 0.22 | 0.42 | 0.42 | 0.13 | 0.33 | 0.33 | 0.16 | 0.19 | 0.19 | 0.11 | 0.14 | 0.14 |
| Sat Flow, veh/h | 3456 | 5106 | 1574 | 3456 | 5106 | 1571 | 3456 | 3554 | 1560 | 3456 | 5106 | 2730 |
| Grp Volume(v), veh/h | 709 | 1825 | 362 | 386 | 1602 | 149 | 529 | 594 | 250 | 359 | 386 | 239 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1702 | 1574 | 1728 | 1702 | 1571 | 1728 | 1777 | 1560 | 1728 | 1702 | 1365 |
| Q Serve(g_s), s | 23.9 | 38.4 | 20.6 | 13.0 | 36.4 | 8.3 | 17.9 | 19.2 | 18.3 | 12.2 | 8.3 | 9.8 |
| Cycle Q Clear(g_c), s | 23.9 | 38.4 | 20.6 | 13.0 | 36.4 | 8.3 | 17.9 | 19.2 | 18.3 | 12.2 | 8.3 | 9.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 753 | 2127 | 655 | 445 | 1671 | 514 | 569 | 676 | 297 | 394 | 713 | 381 |
| V/C Ratio(X) | 0.94 | 0.86 | 0.55 | 0.87 | 0.96 | 0.29 | 0.93 | 0.88 | 0.84 | 0.91 | 0.54 | 0.63 |
| Avail Cap(c_a), veh/h | 753 | 2127 | 655 | 490 | 1674 | 515 | 569 | 724 | 318 | 394 | 781 | 417 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 45.5 | 31.4 | 26.2 | 50.6 | 39.0 | 29.6 | 48.8 | 46.6 | 46.2 | 51.8 | 47.4 | 48.0 |
| Incr Delay (d2), s/veh | 19.9 | 3.8 | 1.0 | 14.2 | 13.5 | 0.3 | 21.9 | 11.4 | 17.3 | 24.8 | 0.6 | 2.6 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 11.9 | 15.5 | 7.5 | 6.3 | 16.5 | 3.1 | 9.2 | 9.3 | 8.3 | 6.5 | 3.5 | 3.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 65.4 | 35.1 | 27.2 | 64.8 | 52.5 | 29.9 | 70.6 | 58.0 | 63.5 | 76.6 | 48.0 | 50.6 |
| LnGrp LOS | E | D | C | E | D | C | E | E | E | E | D | D |
| Approach Vol, veh/h | | 2896 | | | 2137 | | | 1373 | | | 984 | |
| Approach Delay, s/veh | | 41.5 | | | 53.1 | | | 63.9 | | | 59.1 | |
| Approach LOS | | D | | | D | | | E | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 17.5 | 27.4 | 19.2 | 54.2 | 23.5 | 21.4 | 29.8 | 43.6 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 13.5 | 24.1 | 16.8 | 47.8 | 19.5 | 18.1 | 25.8 | 38.8 |
| Max Q Clear Time (g_c+I1), s | 14.2 | 21.2 | 15.0 | 40.4 | 19.9 | 11.8 | 25.9 | 38.4 |
| Green Ext Time (p_c), s | 0.0 | 1.3 | 0.3 | 6.1 | 0.0 | 1.8 | 0.0 | 0.3 |

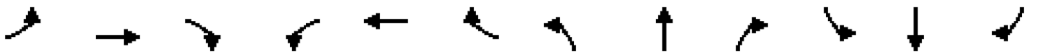
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 51.4 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 709 | 1825 | 419 | 386 | 1602 | 205 | 529 | 594 | 358 | 359 | 386 | 382 |
| v/c Ratio | 0.95 | 0.88 | 0.51 | 0.83 | 0.97 | 0.34 | 0.94 | 0.86 | 0.72 | 0.93 | 0.52 | 0.53 |
| Control Delay (s/veh) | 70.2 | 39.5 | 8.2 | 65.9 | 55.7 | 9.3 | 76.1 | 59.8 | 22.5 | 82.9 | 49.9 | 7.4 |
| Queue Delay | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 70.2 | 40.5 | 8.2 | 65.9 | 55.7 | 9.3 | 76.1 | 59.8 | 22.5 | 82.9 | 49.9 | 7.4 |
| Queue Length 50th (ft) | 282 | 479 | 42 | 151 | 447 | 23 | 211 | 234 | 75 | 144 | 101 | 0 |
| Queue Length 95th (ft) | #403 | 550 | 129 | #221 | #557 | 81 | #318 | #320 | 188 | #236 | 137 | 47 |
| Internal Link Dist (ft) | | 542 | | | 2532 | | | 2220 | | | 1300 | |
| Turn Bay Length (ft) | 240 | | 240 | 250 | | 150 | 200 | | | 230 | | 185 |
| Base Capacity (vph) | 743 | 2063 | 819 | 483 | 1655 | 608 | 561 | 715 | 509 | 388 | 771 | 733 |
| Starvation Cap Reductn | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.95 | 0.92 | 0.51 | 0.80 | 0.97 | 0.34 | 0.94 | 0.83 | 0.70 | 0.93 | 0.50 | 0.52 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 77 | 497 | 128 | 50 | 581 | 15 | 194 | 343 | 72 | 17 | 183 | 30 |
| Future Volume (veh/h) | 77 | 497 | 128 | 50 | 581 | 15 | 194 | 343 | 72 | 17 | 183 | 30 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 84 | 540 | 111 | 54 | 632 | 13 | 211 | 373 | 56 | 18 | 199 | 26 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 118 | 810 | 166 | 92 | 931 | 19 | 270 | 600 | 503 | 39 | 308 | 40 |
| Arrive On Green | 0.07 | 0.28 | 0.28 | 0.05 | 0.26 | 0.26 | 0.15 | 0.32 | 0.32 | 0.02 | 0.19 | 0.19 |
| Sat Flow, veh/h | 1781 | 2931 | 600 | 1781 | 3559 | 73 | 1781 | 1870 | 1570 | 1781 | 1615 | 211 |
| Grp Volume(v), veh/h | 84 | 326 | 325 | 54 | 315 | 330 | 211 | 373 | 56 | 18 | 0 | 225 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1755 | 1781 | 1777 | 1856 | 1781 | 1870 | 1570 | 1781 | 0 | 1826 |
| Q Serve(g_s), s | 2.5 | 8.8 | 8.9 | 1.6 | 8.6 | 8.6 | 6.2 | 9.1 | 1.4 | 0.5 | 0.0 | 6.1 |
| Cycle Q Clear(g_c), s | 2.5 | 8.8 | 8.9 | 1.6 | 8.6 | 8.6 | 6.2 | 9.1 | 1.4 | 0.5 | 0.0 | 6.1 |
| Prop In Lane | 1.00 | | 0.34 | 1.00 | | 0.04 | 1.00 | | 1.00 | 1.00 | | 0.12 |
| Lane Grp Cap(c), veh/h | 118 | 491 | 485 | 92 | 465 | 485 | 270 | 600 | 503 | 39 | 0 | 348 |
| V/C Ratio(X) | 0.71 | 0.66 | 0.67 | 0.59 | 0.68 | 0.68 | 0.78 | 0.62 | 0.11 | 0.46 | 0.00 | 0.65 |
| Avail Cap(c_a), veh/h | 317 | 852 | 842 | 231 | 767 | 801 | 614 | 1153 | 968 | 198 | 0 | 700 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.7 | 17.3 | 17.3 | 25.1 | 17.9 | 17.9 | 22.0 | 15.6 | 12.9 | 26.1 | 0.0 | 20.2 |
| Incr Delay (d2), s/veh | 7.6 | 1.6 | 1.6 | 5.9 | 1.7 | 1.7 | 4.9 | 1.1 | 0.1 | 8.2 | 0.0 | 2.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 3.1 | 3.1 | 0.7 | 3.1 | 3.2 | 2.6 | 3.4 | 0.4 | 0.3 | 0.0 | 2.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 32.3 | 18.9 | 18.9 | 31.0 | 19.6 | 19.6 | 26.9 | 16.6 | 13.0 | 34.3 | 0.0 | 22.2 |
| LnGrp LOS | C | B | B | C | B | B | C | B | B | C | | C |
| Approach Vol, veh/h | | 735 | | | 699 | | | 640 | | | 243 | |
| Approach Delay, s/veh | | 20.4 | | | 20.5 | | | 19.7 | | | 23.1 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.2 | 22.2 | 6.8 | 19.8 | 12.2 | 15.2 | 7.6 | 19.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 33.3 | 7.0 | 25.9 | 18.6 | 20.7 | 9.6 | 23.3 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 11.1 | 3.6 | 10.9 | 8.2 | 8.1 | 4.5 | 10.6 |
| Green Ext Time (p_c), s | 0.0 | 2.2 | 0.0 | 3.2 | 0.4 | 0.9 | 0.1 | 2.9 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.5 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 84 | 679 | 54 | 648 | 211 | 373 | 78 | 18 | 232 |
| v/c Ratio | 0.40 | 0.62 | 0.31 | 0.70 | 0.62 | 0.49 | 0.11 | 0.12 | 0.62 |
| Control Delay (s/veh) | 41.0 | 24.6 | 41.9 | 30.4 | 38.4 | 21.4 | 1.8 | 39.8 | 35.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 41.0 | 24.6 | 41.9 | 30.4 | 38.4 | 21.4 | 1.8 | 39.8 | 35.8 |
| Queue Length 50th (ft) | 38 | 141 | 25 | 145 | 93 | 120 | 0 | 8 | 98 |
| Queue Length 95th (ft) | 92 | 231 | 67 | 236 | 182 | 252 | 12 | 31 | 186 |
| Internal Link Dist (ft) | | 3072 | | 2553 | | 2230 | | | 5241 |
| Turn Bay Length (ft) | 50 | | 65 | | | | | | |
| Base Capacity (vph) | 257 | 1387 | 188 | 1247 | 499 | 943 | 839 | 161 | 575 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.33 | 0.49 | 0.29 | 0.52 | 0.42 | 0.40 | 0.09 | 0.11 | 0.40 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 19 | 210 | 373 | 53 | 123 | 1 | 654 | 83 | 54 | 0 | 62 | 21 |
| Future Volume (veh/h) | 19 | 210 | 373 | 53 | 123 | 1 | 654 | 83 | 54 | 0 | 62 | 21 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.99 | 1.00 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 22 | 244 | 306 | 62 | 143 | 1 | 760 | 97 | 53 | 0 | 72 | 19 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 42 | 377 | 312 | 80 | 414 | 3 | 812 | 682 | 373 | 2 | 143 | 38 |
| Arrive On Green | 0.02 | 0.20 | 0.20 | 0.04 | 0.22 | 0.22 | 0.46 | 0.60 | 0.60 | 0.00 | 0.10 | 0.10 |
| Sat Flow, veh/h | 1781 | 1870 | 1546 | 1781 | 1855 | 13 | 1781 | 1133 | 619 | 1781 | 1409 | 372 |
| Grp Volume(v), veh/h | 22 | 244 | 306 | 62 | 0 | 144 | 760 | 0 | 150 | 0 | 0 | 91 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1546 | 1781 | 0 | 1868 | 1781 | 0 | 1753 | 1781 | 0 | 1781 |
| Q Serve(g_s), s | 1.1 | 10.9 | 17.9 | 3.1 | 0.0 | 5.9 | 36.8 | 0.0 | 3.4 | 0.0 | 0.0 | 4.4 |
| Cycle Q Clear(g_c), s | 1.1 | 10.9 | 17.9 | 3.1 | 0.0 | 5.9 | 36.8 | 0.0 | 3.4 | 0.0 | 0.0 | 4.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.01 | 1.00 | | 0.35 | 1.00 | | 0.21 |
| Lane Grp Cap(c), veh/h | 42 | 377 | 312 | 80 | 0 | 416 | 812 | 0 | 1054 | 2 | 0 | 181 |
| V/C Ratio(X) | 0.53 | 0.65 | 0.98 | 0.78 | 0.00 | 0.35 | 0.94 | 0.00 | 0.14 | 0.00 | 0.00 | 0.50 |
| Avail Cap(c_a), veh/h | 116 | 377 | 312 | 122 | 0 | 416 | 1139 | 0 | 1387 | 116 | 0 | 387 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 43.8 | 33.3 | 36.0 | 42.9 | 0.0 | 29.7 | 23.4 | 0.0 | 7.9 | 0.0 | 0.0 | 38.6 |
| Incr Delay (d2), s/veh | 9.9 | 3.8 | 45.8 | 15.8 | 0.0 | 0.5 | 11.2 | 0.0 | 0.1 | 0.0 | 0.0 | 2.1 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 5.0 | 10.3 | 1.7 | 0.0 | 2.6 | 16.0 | 0.0 | 1.1 | 0.0 | 0.0 | 1.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 53.7 | 37.1 | 81.8 | 58.7 | 0.0 | 30.2 | 34.6 | 0.0 | 7.9 | 0.0 | 0.0 | 40.7 |
| LnGrp LOS | D | D | F | E | | C | C | | A | | | D |
| Approach Vol, veh/h | | 572 | | | 206 | | | 910 | | | 91 | |
| Approach Delay, s/veh | | 61.6 | | | 38.8 | | | 30.2 | | | 40.7 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 0.0 | 59.5 | 8.1 | 23.2 | 45.3 | 14.1 | 6.1 | 25.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 71.8 | 6.2 | 18.3 | 58.0 | 19.7 | 5.9 | 18.6 |
| Max Q Clear Time (g_c+I1), s | 0.0 | 5.4 | 5.1 | 19.9 | 38.8 | 6.4 | 3.1 | 7.9 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 0.0 | 2.6 | 0.3 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 41.9 |
| HCM 7th LOS | D |



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 22 | 244 | 434 | 62 | 144 | 760 | 160 | 96 |
| v/c Ratio | 0.20 | 0.73 | 0.69 | 0.51 | 0.35 | 0.89 | 0.14 | 0.48 |
| Control Delay (s/veh) | 55.0 | 55.6 | 10.9 | 66.3 | 40.0 | 37.6 | 5.4 | 48.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 55.0 | 55.6 | 10.9 | 66.3 | 40.0 | 37.6 | 5.4 | 48.8 |
| Queue Length 50th (ft) | 14 | 156 | 0 | 41 | 76 | 434 | 27 | 54 |
| Queue Length 95th (ft) | 42 | #288 | 75 | #105 | 156 | 615 | 47 | 106 |
| Internal Link Dist (ft) | | 5959 | | | 1494 | | 2586 | 3233 |
| Turn Bay Length (ft) | | | | | | | | |
| Base Capacity (vph) | 115 | 376 | 649 | 121 | 456 | 1132 | 1312 | 393 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.19 | 0.65 | 0.67 | 0.51 | 0.32 | 0.67 | 0.12 | 0.24 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 258 | 71 | 528 | 401 | 56 | 474 |
| Future Volume (veh/h) | 258 | 71 | 528 | 401 | 56 | 474 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | | 0.99 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | No | | | No |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 280 | 64 | 574 | 362 | 61 | 515 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 307 | 70 | 610 | 385 | 81 | 1243 |
| Arrive On Green | 0.22 | 0.22 | 0.57 | 0.57 | 0.05 | 0.66 |
| Sat Flow, veh/h | 1409 | 322 | 1068 | 674 | 1781 | 1870 |
| Grp Volume(v), veh/h | 345 | 0 | 0 | 936 | 61 | 515 |
| Grp Sat Flow(s),veh/h/ln | 1737 | 0 | 0 | 1742 | 1781 | 1870 |
| Q Serve(g_s), s | 16.2 | 0.0 | 0.0 | 41.6 | 2.8 | 10.6 |
| Cycle Q Clear(g_c), s | 16.2 | 0.0 | 0.0 | 41.6 | 2.8 | 10.6 |
| Prop In Lane | 0.81 | 0.19 | | 0.39 | 1.00 | |
| Lane Grp Cap(c), veh/h | 379 | 0 | 0 | 995 | 81 | 1243 |
| V/C Ratio(X) | 0.91 | 0.00 | 0.00 | 0.94 | 0.76 | 0.41 |
| Avail Cap(c_a), veh/h | 381 | 0 | 0 | 1083 | 128 | 1387 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 31.9 | 0.0 | 0.0 | 16.6 | 39.4 | 6.5 |
| Incr Delay (d2), s/veh | 25.5 | 0.0 | 0.0 | 14.5 | 13.3 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 9.2 | 0.0 | 0.0 | 16.9 | 1.5 | 3.1 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 57.3 | 0.0 | 0.0 | 31.1 | 52.7 | 6.7 |
| LnGrp LOS | E | | | C | D | A |
| Approach Vol, veh/h | 345 | | 936 | | | 576 |
| Approach Delay, s/veh | 57.3 | | 31.1 | | | 11.6 |
| Approach LOS | E | | C | | | B |

| Timer - Assigned Phs | 1 | 2 | | | | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.8 | 52.6 | | | | 60.4 | 23.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | | | 4.9 | 4.9 |
| Max Green Setting (Gmax), s | 6.0 | 51.9 | | | | 61.9 | 18.3 |
| Max Q Clear Time (g_c+I1), s | 4.8 | 43.6 | | | | 12.6 | 18.2 |
| Green Ext Time (p_c), s | 0.0 | 4.2 | | | | 3.3 | 0.0 |

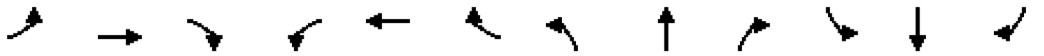
| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 29.9 |
| HCM 7th LOS | C |



| Lane Group | WBL | NBT | SBL | SBT |
|---|---|---|---|---|
| Lane Group Flow (vph) | 357 | 1010 | 61 | 515 |
| v/c Ratio | 0.96 | 0.97 | 0.51 | 0.41 |
| Control Delay (s/veh) | 73.1 | 39.7 | 56.4 | 7.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 73.1 | 39.7 | 56.4 | 7.3 |
| Queue Length 50th (ft) | 197 | 500 | 34 | 110 |
| Queue Length 95th (ft) | #376 | #817 | #82 | 163 |
| Internal Link Dist (ft) | 907 | 2558 | | 2586 |
| Turn Bay Length (ft) | | | 250 | |
| Base Capacity (vph) | 373 | 1051 | 121 | 1320 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.96 | 0.96 | 0.50 | 0.39 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 113 | 309 | 167 | 68 | 265 | 29 | 195 | 868 | 138 | 28 | 499 | 68 |
| Future Volume (veh/h) | 113 | 309 | 167 | 68 | 265 | 29 | 195 | 868 | 138 | 28 | 499 | 68 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 118 | 322 | 140 | 71 | 276 | 24 | 203 | 904 | 116 | 29 | 520 | 57 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 154 | 447 | 374 | 105 | 752 | 331 | 259 | 1272 | 563 | 58 | 870 | 380 |
| Arrive On Green | 0.09 | 0.24 | 0.24 | 0.06 | 0.21 | 0.21 | 0.15 | 0.36 | 0.36 | 0.03 | 0.24 | 0.24 |
| Sat Flow, veh/h | 1781 | 1870 | 1565 | 1781 | 3554 | 1563 | 1781 | 3554 | 1572 | 1781 | 3554 | 1553 |
| Grp Volume(v), veh/h | 118 | 322 | 140 | 71 | 276 | 24 | 203 | 904 | 116 | 29 | 520 | 57 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 1565 | 1781 | 1777 | 1563 | 1781 | 1777 | 1572 | 1781 | 1777 | 1553 |
| Q Serve(g_s), s | 3.7 | 9.0 | 4.3 | 2.2 | 3.8 | 0.7 | 6.3 | 12.5 | 2.9 | 0.9 | 7.4 | 1.6 |
| Cycle Q Clear(g_c), s | 3.7 | 9.0 | 4.3 | 2.2 | 3.8 | 0.7 | 6.3 | 12.5 | 2.9 | 0.9 | 7.4 | 1.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 154 | 447 | 374 | 105 | 752 | 331 | 259 | 1272 | 563 | 58 | 870 | 380 |
| V/C Ratio(X) | 0.77 | 0.72 | 0.37 | 0.67 | 0.37 | 0.07 | 0.78 | 0.71 | 0.21 | 0.50 | 0.60 | 0.15 |
| Avail Cap(c_a), veh/h | 378 | 813 | 680 | 281 | 1351 | 594 | 577 | 2024 | 895 | 184 | 1239 | 541 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.5 | 20.0 | 18.2 | 26.3 | 19.2 | 18.0 | 23.5 | 15.8 | 12.7 | 27.2 | 19.1 | 16.9 |
| Incr Delay (d2), s/veh | 7.8 | 2.2 | 0.6 | 7.3 | 0.3 | 0.1 | 5.2 | 0.7 | 0.2 | 6.7 | 0.7 | 0.2 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 3.6 | 1.4 | 1.1 | 1.4 | 0.2 | 2.7 | 4.1 | 0.9 | 0.5 | 2.6 | 0.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 33.3 | 22.2 | 18.8 | 33.6 | 19.5 | 18.1 | 28.7 | 16.5 | 12.9 | 33.8 | 19.7 | 17.1 |
| LnGrp LOS | C | C | B | C | B | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 580 | | | 371 | | | 1223 | | | 606 | |
| Approach Delay, s/veh | | 23.6 | | | 22.1 | | | 18.2 | | | 20.2 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.8 | 25.3 | 7.4 | 18.5 | 12.3 | 18.9 | 8.9 | 17.0 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 32.5 | 9.0 | 24.8 | 18.5 | 19.9 | 12.1 | 21.7 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 14.5 | 4.2 | 11.0 | 8.3 | 9.4 | 5.7 | 5.8 |
| Green Ext Time (p_c), s | 0.0 | 5.9 | 0.0 | 1.8 | 0.4 | 2.4 | 0.1 | 1.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 20.3 |
| HCM 7th LOS | C |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 118 | 322 | 174 | 71 | 276 | 30 | 203 | 904 | 144 | 29 | 520 | 71 |
| v/c Ratio | 0.48 | 0.69 | 0.34 | 0.36 | 0.34 | 0.06 | 0.60 | 0.59 | 0.20 | 0.19 | 0.65 | 0.15 |
| Control Delay (s/veh) | 40.9 | 35.4 | 6.5 | 41.1 | 27.3 | 0.2 | 38.5 | 20.5 | 6.4 | 41.1 | 32.0 | 0.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 40.9 | 35.4 | 6.5 | 41.1 | 27.3 | 0.2 | 38.5 | 20.5 | 6.4 | 41.1 | 32.0 | 0.7 |
| Queue Length 50th (ft) | 53 | 140 | 0 | 32 | 58 | 0 | 90 | 155 | 6 | 13 | 118 | 0 |
| Queue Length 95th (ft) | 118 | 250 | 47 | 81 | 103 | 0 | 175 | 298 | 47 | 44 | 197 | 0 |
| Internal Link Dist (ft) | | 2474 | | | 2575 | | | 971 | | | 2558 | |
| Turn Bay Length (ft) | 130 | | 135 | 145 | | 70 | 230 | | 100 | 135 | | |
| Base Capacity (vph) | 324 | 699 | 687 | 241 | 1162 | 619 | 495 | 1770 | 830 | 158 | 1073 | 575 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.46 | 0.25 | 0.29 | 0.24 | 0.05 | 0.41 | 0.51 | 0.17 | 0.18 | 0.48 | 0.12 |

Intersection Summary



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 592 | 62 | 12 | 656 | 47 | 12 |
| Future Volume (veh/h) | 592 | 62 | 12 | 656 | 47 | 12 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | | 0.99 | 1.00 | | 1.00 | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 623 | 52 | 13 | 691 | 49 | 11 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 1156 | 96 | 30 | 971 | 243 | 55 |
| Arrive On Green | 0.35 | 0.35 | 0.02 | 0.52 | 0.17 | 0.17 |
| Sat Flow, veh/h | 3410 | 276 | 1781 | 1870 | 1396 | 313 |
| Grp Volume(v), veh/h | 333 | 342 | 13 | 691 | 61 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1777 | 1816 | 1781 | 1870 | 1738 | 0 |
| Q Serve(g_s), s | 4.8 | 4.8 | 0.2 | 9.0 | 1.0 | 0.0 |
| Cycle Q Clear(g_c), s | 4.8 | 4.8 | 0.2 | 9.0 | 1.0 | 0.0 |
| Prop In Lane | | 0.15 | 1.00 | | 0.80 | 0.18 |
| Lane Grp Cap(c), veh/h | 620 | 633 | 30 | 971 | 303 | 0 |
| V/C Ratio(X) | 0.54 | 0.54 | 0.43 | 0.71 | 0.20 | 0.00 |
| Avail Cap(c_a), veh/h | 1729 | 1767 | 284 | 2405 | 1038 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 8.3 | 8.4 | 15.6 | 5.9 | 11.3 | 0.0 |
| Incr Delay (d2), s/veh | 0.7 | 0.7 | 9.2 | 1.0 | 0.3 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 1.0 | 0.1 | 0.8 | 0.3 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d), s/veh | 9.1 | 9.1 | 24.8 | 6.8 | 11.6 | 0.0 |
| LnGrp LOS | A | A | C | A | B | |
| Approach Vol, veh/h | 675 | | | 704 | 61 | |
| Approach Delay, s/veh | 9.1 | | | 7.2 | 11.6 | |
| Approach LOS | A | | | A | B | |

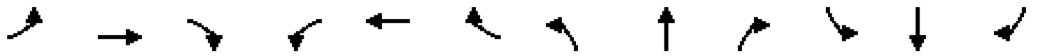
| Timer - Assigned Phs | | 2 | 3 | 4 | | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 10.5 | 5.4 | 16.0 | | 21.5 |
| Change Period (Y+Rc), s | | 4.9 | 4.9 | 4.9 | | 4.9 |
| Max Green Setting (Gmax), s | | 19.1 | 5.1 | 31.1 | | 41.1 |
| Max Q Clear Time (g_c+I1), s | | 3.0 | 2.2 | 6.8 | | 11.0 |
| Green Ext Time (p_c), s | | 0.1 | 0.0 | 3.7 | | 4.5 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 8.3 |
| HCM 7th LOS | A |



| Lane Group | EBT | WBL | WBT | NBL |
|---|---|---|---|---|
| Lane Group Flow (vph) | 688 | 13 | 691 | 62 |
| v/c Ratio | 0.41 | 0.05 | 0.71 | 0.18 |
| Control Delay (s/veh) | 7.5 | 17.8 | 11.1 | 13.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 7.5 | 17.8 | 11.1 | 13.7 |
| Queue Length 50th (ft) | 31 | 2 | 79 | 8 |
| Queue Length 95th (ft) | 108 | 16 | 180 | 36 |
| Internal Link Dist (ft) | 1220 | | 700 | 608 |
| Turn Bay Length (ft) | | 110 | | |
| Base Capacity (vph) | 3019 | 263 | 1807 | 970 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.23 | 0.05 | 0.38 | 0.06 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 104 | 218 | 144 | 60 | 274 | 14 | 297 | 463 | 64 | 18 | 229 | 72 |
| Future Volume (veh/h) | 104 | 218 | 144 | 60 | 274 | 14 | 297 | 463 | 64 | 18 | 229 | 72 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 109 | 229 | 121 | 63 | 288 | 13 | 313 | 487 | 53 | 19 | 241 | 63 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 142 | 662 | 291 | 102 | 584 | 252 | 387 | 734 | 618 | 41 | 371 | 306 |
| Arrive On Green | 0.08 | 0.19 | 0.19 | 0.06 | 0.16 | 0.16 | 0.22 | 0.39 | 0.39 | 0.02 | 0.20 | 0.20 |
| Sat Flow, veh/h | 1781 | 3554 | 1560 | 1781 | 3554 | 1537 | 1781 | 1870 | 1573 | 1781 | 1870 | 1545 |
| Grp Volume(v), veh/h | 109 | 229 | 121 | 63 | 288 | 13 | 313 | 487 | 53 | 19 | 241 | 63 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1560 | 1781 | 1777 | 1537 | 1781 | 1870 | 1573 | 1781 | 1870 | 1545 |
| Q Serve(g_s), s | 3.1 | 2.9 | 3.6 | 1.8 | 3.9 | 0.4 | 8.7 | 11.2 | 1.1 | 0.6 | 6.2 | 1.8 |
| Cycle Q Clear(g_c), s | 3.1 | 2.9 | 3.6 | 1.8 | 3.9 | 0.4 | 8.7 | 11.2 | 1.1 | 0.6 | 6.2 | 1.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 142 | 662 | 291 | 102 | 584 | 252 | 387 | 734 | 618 | 41 | 371 | 306 |
| V/C Ratio(X) | 0.77 | 0.35 | 0.42 | 0.62 | 0.49 | 0.05 | 0.81 | 0.66 | 0.09 | 0.46 | 0.65 | 0.21 |
| Avail Cap(c_a), veh/h | 351 | 1435 | 630 | 245 | 1224 | 529 | 876 | 1360 | 1144 | 201 | 651 | 538 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.6 | 18.5 | 18.8 | 24.1 | 19.9 | 18.4 | 19.4 | 13.0 | 10.0 | 25.2 | 19.3 | 17.5 |
| Incr Delay (d2), s/veh | 8.5 | 0.3 | 1.0 | 5.9 | 0.6 | 0.1 | 4.1 | 1.0 | 0.1 | 7.9 | 1.9 | 0.3 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.4 | 1.0 | 1.1 | 0.8 | 1.4 | 0.1 | 3.3 | 3.5 | 0.3 | 0.3 | 2.4 | 0.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 32.1 | 18.8 | 19.7 | 30.0 | 20.5 | 18.5 | 23.5 | 14.1 | 10.0 | 33.1 | 21.2 | 17.8 |
| LnGrp LOS | C | B | B | C | C | B | C | B | B | C | C | B |
| Approach Vol, veh/h | | 459 | | | 364 | | | 853 | | | 323 | |
| Approach Delay, s/veh | | 22.2 | | | 22.1 | | | 17.3 | | | 21.2 | |
| Approach LOS | | C | | | C | | | B | | | C | |

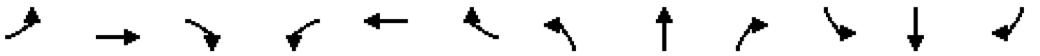
| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.2 | 25.4 | 7.0 | 14.6 | 15.4 | 15.3 | 8.2 | 13.5 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 | 4.0 | 4.9 |
| Max Green Setting (Gmax), s | 5.9 | 38.0 | 7.2 | 21.1 | 25.7 | 18.2 | 10.3 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.6 | 13.2 | 3.8 | 5.6 | 10.7 | 8.2 | 5.1 | 5.9 |
| Green Ext Time (p_c), s | 0.0 | 2.9 | 0.0 | 1.4 | 0.8 | 1.0 | 0.1 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 19.9 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 109 | 229 | 152 | 63 | 288 | 15 | 313 | 487 | 67 | 19 | 241 | 76 |
| v/c Ratio | 0.46 | 0.28 | 0.31 | 0.34 | 0.48 | 0.04 | 0.68 | 0.54 | 0.08 | 0.12 | 0.63 | 0.17 |
| Control Delay (s/veh) | 39.4 | 26.0 | 6.2 | 40.1 | 31.8 | 0.2 | 33.5 | 17.9 | 0.8 | 37.9 | 35.9 | 0.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 39.4 | 26.0 | 6.2 | 40.1 | 31.8 | 0.2 | 33.5 | 17.9 | 0.8 | 37.9 | 35.9 | 0.8 |
| Queue Length 50th (ft) | 45 | 46 | 0 | 27 | 62 | 0 | 126 | 134 | 0 | 8 | 99 | 0 |
| Queue Length 95th (ft) | 110 | 89 | 40 | 74 | 114 | 0 | 235 | 301 | 6 | 32 | 200 | 0 |
| Internal Link Dist (ft) | | 1780 | | | 2570 | | | 2587 | | | 894 | |
| Turn Bay Length (ft) | 280 | | 130 | 100 | | | | | | | | |
| Base Capacity (vph) | 292 | 1202 | 634 | 204 | 1019 | 555 | 728 | 1133 | 984 | 167 | 542 | 559 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.37 | 0.19 | 0.24 | 0.31 | 0.28 | 0.03 | 0.43 | 0.43 | 0.07 | 0.11 | 0.44 | 0.14 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 547 | 0 | 965 | 0 | 0 | 0 | 0 | 1571 | 101 | 28 | 649 | 0 |
| Future Volume (veh/h) | 547 | 0 | 965 | 0 | 0 | 0 | 0 | 1571 | 101 | 28 | 649 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 0 | 1870 | | | | 0 | 1870 | 1870 | 1870 | 1870 | 0 |
| Adj Flow Rate, veh/h | 608 | 0 | 752 | | | | 0 | 1746 | 91 | 31 | 721 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | | | | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 2 | 0 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 698 | 0 | 1094 | | | | 0 | 2170 | 113 | 52 | 1803 | 0 |
| Arrive On Green | 0.39 | 0.00 | 0.39 | | | | 0.00 | 0.44 | 0.44 | 0.03 | 0.51 | 0.00 |
| Sat Flow, veh/h | 1781 | 0 | 2790 | | | | 0 | 5134 | 258 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 608 | 0 | 752 | | | | 0 | 1196 | 641 | 31 | 721 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1395 | | | | 0 | 1702 | 1820 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 30.7 | 0.0 | 21.9 | | | | 0.0 | 29.7 | 29.8 | 1.7 | 12.2 | 0.0 |
| Cycle Q Clear(g_c), s | 30.7 | 0.0 | 21.9 | | | | 0.0 | 29.7 | 29.8 | 1.7 | 12.2 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.14 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 698 | 0 | 1094 | | | | 0 | 1488 | 796 | 52 | 1803 | 0 |
| V/C Ratio(X) | 0.87 | 0.00 | 0.69 | | | | 0.00 | 0.80 | 0.81 | 0.60 | 0.40 | 0.00 |
| Avail Cap(c_a), veh/h | 935 | 0 | 1464 | | | | 0 | 1716 | 918 | 110 | 2156 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 27.3 | 0.0 | 24.6 | | | | 0.0 | 23.8 | 23.8 | 46.7 | 14.8 | 0.0 |
| Incr Delay (d2), s/veh | 7.0 | 0.0 | 0.9 | | | | 0.0 | 2.5 | 4.7 | 10.5 | 0.1 | 0.0 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 13.9 | 0.0 | 7.1 | | | | 0.0 | 11.1 | 12.4 | 0.9 | 4.3 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 34.3 | 0.0 | 25.5 | | | | 0.0 | 26.3 | 28.5 | 57.2 | 15.0 | 0.0 |
| LnGrp LOS | C | | C | | | | | C | C | E | B | |
| Approach Vol, veh/h | | 1360 | | | | | | 1837 | | | 752 | |
| Approach Delay, s/veh | | 29.4 | | | | | | 27.1 | | | 16.7 | |
| Approach LOS | | C | | | | | | C | | | B | |

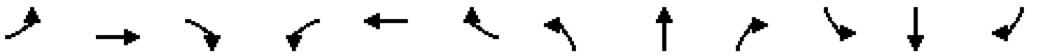
| Timer - Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.8 | 47.5 | | 43.1 | | 54.3 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.9 | | 4.9 | | 4.9 | | | | | | |
| Max Green Setting (Gmax), s | 6.0 | 49.1 | | 51.1 | | 59.1 | | | | | | |
| Max Q Clear Time (g_c+I1), s | 3.7 | 31.8 | | 32.7 | | 14.2 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 10.8 | | 5.5 | | 4.9 | | | | | | |

| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 7th Control Delay, s/veh | | | 25.9 | | | | | | | | | |
| HCM 7th LOS | | | C | | | | | | | | | |



| Lane Group | EBL | EBR | NBT | SBL | SBT |
|---|---|---|---|---|---|
| Lane Group Flow (vph) | 608 | 1072 | 1858 | 31 | 721 |
| v/c Ratio | 0.85 | 0.88 | 0.83 | 0.29 | 0.41 |
| Control Delay (s/veh) | 41.7 | 30.9 | 30.6 | 60.6 | 17.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 41.7 | 30.9 | 30.6 | 60.6 | 17.7 |
| Queue Length 50th (ft) | 405 | 327 | 435 | 22 | 160 |
| Queue Length 95th (ft) | 565 | 437 | 554 | 57 | 230 |
| Internal Link Dist (ft) | | | 1658 | | 518 |
| Turn Bay Length (ft) | | | | 260 | |
| Base Capacity (vph) | 935 | 1520 | 2559 | 109 | 2163 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.71 | 0.73 | 0.28 | 0.33 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 49 | 245 | 33 | 16 | 234 | 87 | 45 | 93 | 13 | 98 | 43 | 86 |
| Future Volume (veh/h) | 49 | 245 | 33 | 16 | 234 | 87 | 45 | 93 | 13 | 98 | 43 | 86 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.98 | 1.00 | | 0.98 | 0.99 | | 0.99 | 0.99 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 57 | 285 | 33 | 19 | 272 | 89 | 52 | 108 | 14 | 114 | 50 | 88 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 113 | 950 | 416 | 44 | 811 | 354 | 235 | 267 | 30 | 421 | 147 | 356 |
| Arrive On Green | 0.06 | 0.27 | 0.27 | 0.02 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| Sat Flow, veh/h | 1781 | 3554 | 1555 | 1781 | 3554 | 1550 | 318 | 1174 | 131 | 918 | 649 | 1564 |
| Grp Volume(v), veh/h | 57 | 285 | 33 | 19 | 272 | 89 | 174 | 0 | 0 | 164 | 0 | 88 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1777 | 1555 | 1781 | 1777 | 1550 | 1623 | 0 | 0 | 1567 | 0 | 1564 |
| Q Serve(g_s), s | 0.9 | 1.8 | 0.5 | 0.3 | 1.8 | 1.3 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| Cycle Q Clear(g_c), s | 0.9 | 1.8 | 0.5 | 0.3 | 1.8 | 1.3 | 2.6 | 0.0 | 0.0 | 2.2 | 0.0 | 1.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.30 | | 0.08 | 0.70 | | 1.00 |
| Lane Grp Cap(c), veh/h | 113 | 950 | 416 | 44 | 811 | 354 | 532 | 0 | 0 | 569 | 0 | 356 |
| V/C Ratio(X) | 0.50 | 0.30 | 0.08 | 0.44 | 0.34 | 0.25 | 0.33 | 0.00 | 0.00 | 0.29 | 0.00 | 0.25 |
| Avail Cap(c_a), veh/h | 869 | 3974 | 1740 | 621 | 3479 | 1518 | 2071 | 0 | 0 | 1911 | 0 | 1858 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 13.0 | 8.4 | 7.9 | 13.8 | 9.3 | 9.1 | 9.5 | 0.0 | 0.0 | 9.4 | 0.0 | 9.1 |
| Incr Delay (d2), s/veh | 3.4 | 0.2 | 0.1 | 6.7 | 0.2 | 0.4 | 0.4 | 0.0 | 0.0 | 0.3 | 0.0 | 0.4 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.3 | 0.1 | 0.2 | 0.4 | 0.3 | 0.6 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 16.4 | 8.5 | 7.9 | 20.5 | 9.5 | 9.4 | 9.8 | 0.0 | 0.0 | 9.7 | 0.0 | 9.4 |
| LnGrp LOS | B | A | A | C | A | A | A | | | A | | A |
| Approach Vol, veh/h | | 375 | | | 380 | | | 174 | | | 252 | |
| Approach Delay, s/veh | | 9.7 | | | 10.0 | | | 9.8 | | | 9.6 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Timer - Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 11.4 | 4.7 | 12.6 | | 11.4 | 5.8 | 11.5 | | | | |
| Change Period (Y+Rc), s | | 4.9 | 4.0 | 4.9 | | 4.9 | 4.0 | 4.9 | | | | |
| Max Green Setting (Gmax), s | | 34.1 | 10.0 | 32.1 | | 34.1 | 14.0 | 28.1 | | | | |
| Max Q Clear Time (g_c+I1), s | | 4.6 | 2.3 | 3.8 | | 4.2 | 2.9 | 3.8 | | | | |
| Green Ext Time (p_c), s | | 0.9 | 0.0 | 1.7 | | 1.2 | 0.1 | 1.8 | | | | |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 9.8 |
| HCM 7th LOS | A |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBT | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 57 | 285 | 38 | 19 | 272 | 101 | 175 | 164 | 100 |
| v/c Ratio | 0.15 | 0.25 | 0.07 | 0.06 | 0.29 | 0.21 | 0.36 | 0.38 | 0.18 |
| Control Delay (s/veh) | 16.2 | 10.1 | 2.3 | 17.4 | 13.1 | 5.7 | 13.2 | 14.4 | 4.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 16.2 | 10.1 | 2.3 | 17.4 | 13.1 | 5.7 | 13.2 | 14.4 | 4.6 |
| Queue Length 50th (ft) | 7 | 16 | 0 | 2 | 15 | 0 | 16 | 16 | 0 |
| Queue Length 95th (ft) | 38 | 57 | 8 | 19 | 58 | 26 | 76 | 76 | 23 |
| Internal Link Dist (ft) | | 2570 | | | 2566 | | 2887 | 505 | |
| Turn Bay Length (ft) | 245 | | | 100 | | | | | |
| Base Capacity (vph) | 803 | 3085 | 1328 | 573 | 2948 | 1277 | 1396 | 1223 | 1380 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.07 | 0.09 | 0.03 | 0.03 | 0.09 | 0.08 | 0.13 | 0.13 | 0.07 |

Intersection Summary

# LANE SUMMARY

## Site: [1 (4)] DeWolf-Owns Mt Pkwy NT+MP (Mitigated) PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

DeWolf & Owens Mt. Pkwy
Near-Term With Master Plan (Mitigated)
PM Peak Hour
Site Category: (None)
Roundabout
**Site Scenario: 1 | Local Volumes**

### Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 641 | 4.0 | 641 | 4.0 | 1284 | 0.499 | 100 | 6.5 | LOS A | 4.7 | 120.2 | Full | 1600 | 0.0 | 0.0 |
| Approach | 641 | 4.0 | 641 | 4.0 | | 0.499 | | 6.5 | LOS A | 4.7 | 120.2 | | | | |
| North: DeWolf Ave | | | | | | | | | | | | | | | |
| Lane 1[d] | 353 | 4.0 | 353 | 4.0 | 1254 | 0.282 | 100 | 5.1 | LOS A | 1.7 | 44.4 | Full | 1600 | 0.0 | 0.0 |
| Approach | 353 | 4.0 | 353 | 4.0 | | 0.282 | | 5.1 | LOS A | 1.7 | 44.4 | | | | |
| West: Owens Mtn Pkwy | | | | | | | | | | | | | | | |
| Lane 1[d] | 44 | 4.0 | 44 | 4.0 | 942 | 0.046 | 100 | 4.2 | LOS A | 0.2 | 5.9 | Full | 1600 | 0.0 | 0.0 |
| Approach | 44 | 4.0 | 44 | 4.0 | | 0.046 | | 4.2 | LOS A | 0.2 | 5.9 | | | | |
| All Vehicles | 1038 | 4.0 | 1038 | 4.0 | | 0.499 | | 5.9 | LOS A | 4.7 | 120.2 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

### Approach Lane Flows (veh/h)

East: Owens Mtn Pkwy

| Mov. From E To Exit: | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 36 | 605 | 641 | 4.0 | 1284 | 0.499 | 100 | NA | NA |
| Approach | 36 | 605 | 641 | 4.0 | | 0.499 | | | |

North: DeWolf Ave

| Mov. From N | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|

| To Exit: | E | W | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 345 | 9 | 353 | 4.0 | 1254 | 0.282 | 100 | NA | NA |
| Approach | 345 | 9 | 353 | 4.0 | | 0.282 | | | |

West: Owens Mtn Pkwy

| Mov. From W To Exit: | L2 N | T1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 12 | 32 | 44 | 4.0 | 942 | 0.046 | 100 | NA | NA |
| Approach | 12 | 32 | 44 | 4.0 | | 0.046 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 1038 | 4.0 | 0.499 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Critical Gap pcu/h | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| East: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| North: DeWolf Ave | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Owens Mtn Pkwy | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

**SIDRA INTERSECTION 10.0 | Copyright © 2000-2025 Akcelik and Associates Pty Ltd | sidrasolutions.com**
Organisation: PETERS ENGINEERING GROUP | Licence: PLUS / 1PC | Processed: Friday, May 30, 2025 2:53:47 PM
Project: S:\2025\25-010\Analysis\Sidra\Owens Mtn-DeWolf.sipx

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 533 | 534 | 94 | 15 | 299 | 10 | 49 | 56 | 26 | 3 | 30 | 312 |
| Future Volume (veh/h) | 533 | 534 | 94 | 15 | 299 | 10 | 49 | 56 | 26 | 3 | 30 | 312 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.97 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 567 | 568 | 80 | 16 | 318 | 9 | 52 | 60 | 23 | 3 | 32 | 268 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 804 | 1410 | 621 | 36 | 654 | 284 | 93 | 816 | 359 | 7 | 340 | 493 |
| Arrive On Green | 0.23 | 0.40 | 0.40 | 0.02 | 0.18 | 0.18 | 0.05 | 0.23 | 0.23 | 0.00 | 0.18 | 0.18 |
| Sat Flow, veh/h | 3456 | 3554 | 1565 | 1781 | 3554 | 1542 | 1781 | 3554 | 1564 | 1781 | 1870 | 2713 |
| Grp Volume(v), veh/h | 567 | 568 | 80 | 16 | 318 | 9 | 52 | 60 | 23 | 3 | 32 | 268 |
| Grp Sat Flow(s),veh/h/ln | 1728 | 1777 | 1565 | 1781 | 1777 | 1542 | 1781 | 1777 | 1564 | 1781 | 1870 | 1356 |
| Q Serve(g_s), s | 7.3 | 5.5 | 1.6 | 0.4 | 3.9 | 0.2 | 1.4 | 0.6 | 0.6 | 0.1 | 0.7 | 4.3 |
| Cycle Q Clear(g_c), s | 7.3 | 5.5 | 1.6 | 0.4 | 3.9 | 0.2 | 1.4 | 0.6 | 0.6 | 0.1 | 0.7 | 4.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 804 | 1410 | 621 | 36 | 654 | 284 | 93 | 816 | 359 | 7 | 340 | 493 |
| V/C Ratio(X) | 0.71 | 0.40 | 0.13 | 0.45 | 0.49 | 0.03 | 0.56 | 0.07 | 0.06 | 0.41 | 0.09 | 0.54 |
| Avail Cap(c_a), veh/h | 2715 | 4270 | 1880 | 295 | 2065 | 896 | 479 | 2205 | 970 | 258 | 928 | 1346 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.0 | 10.5 | 9.3 | 23.4 | 17.7 | 16.2 | 22.4 | 14.6 | 14.6 | 24.0 | 16.5 | 18.0 |
| Incr Delay (d2), s/veh | 1.1 | 0.2 | 0.1 | 8.6 | 0.6 | 0.0 | 5.2 | 0.0 | 0.1 | 33.3 | 0.1 | 0.9 |
| Initial Q Delay(d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.3 | 1.4 | 0.5 | 0.2 | 1.3 | 0.1 | 0.7 | 0.2 | 0.2 | 0.1 | 0.3 | 1.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d), s/veh | 18.2 | 10.7 | 9.4 | 32.0 | 18.2 | 16.2 | 27.6 | 14.6 | 14.6 | 57.3 | 16.6 | 18.9 |
| LnGrp LOS | B | B | A | C | B | B | C | B | B | E | B | B |
| Approach Vol, veh/h | | 1215 | | | 343 | | | 135 | | | 303 | |
| Approach Delay, s/veh | | 14.1 | | | 18.8 | | | 19.6 | | | 19.0 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.0 | 24.1 | 6.5 | 12.8 | 15.3 | 13.8 | 4.2 | 15.1 |
| Change Period (Y+Rc), s | 4.0 | 4.9 | 4.0 | 4.0 | 4.0 | 4.9 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 8.0 | 58.1 | 13.0 | 24.0 | 38.0 | 28.1 | 7.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 7.5 | 3.4 | 6.3 | 9.3 | 5.9 | 2.1 | 2.6 |
| Green Ext Time (p_c), s | 0.0 | 3.8 | 0.1 | 1.1 | 2.0 | 1.7 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 16.0 |
| HCM 7th LOS | B |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 567 | 568 | 100 | 16 | 318 | 11 | 52 | 60 | 28 | 3 | 32 | 332 |
| v/c Ratio | 0.58 | 0.30 | 0.12 | 0.08 | 0.43 | 0.03 | 0.21 | 0.08 | 0.06 | 0.02 | 0.13 | 0.52 |
| Control Delay (s/veh) | 21.1 | 9.7 | 2.7 | 29.2 | 23.4 | 0.1 | 28.2 | 19.5 | 0.3 | 29.7 | 27.5 | 7.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 21.1 | 9.7 | 2.7 | 29.2 | 23.4 | 0.1 | 28.2 | 19.5 | 0.3 | 29.7 | 27.5 | 7.2 |
| Queue Length 50th (ft) | 87 | 51 | 0 | 5 | 51 | 0 | 16 | 7 | 0 | 1 | 10 | 0 |
| Queue Length 95th (ft) | 165 | 139 | 22 | 25 | 107 | 0 | 54 | 27 | 0 | 10 | 37 | 37 |
| Internal Link Dist (ft) | | 3467 | | | 3199 | | | 447 | | | 1382 | |
| Turn Bay Length (ft) | 850 | | 525 | 575 | | 450 | | | | 415 | | 415 |
| Base Capacity (vph) | 2582 | 3368 | 1433 | 277 | 1952 | 896 | 451 | 2084 | 955 | 243 | 877 | 1419 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.17 | 0.07 | 0.06 | 0.16 | 0.01 | 0.12 | 0.03 | 0.03 | 0.01 | 0.04 | 0.23 |

Intersection Summary

**TABLE C-1**
**NEAR-TERM WITH PROJECT QUEUING SUMMARY**

| No. | Intersection | Scenario | Hour | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| 4 | Minnewawa Ave & International Ave | Existing Storage | | | - | | | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | | 235 | | | 80 | | | 20 | | | 0 | |
| | | | PM | | 313 | | | 108 | | | 48 | | | 0 | |
| | | Near-Term With Master Plan Residential | AM | | 265 | | | 80 | | | 20 | | | 0 | |
| | | | PM | | 340 | | | 115 | | | 55 | | | 0 | |
| 5 | Minnewawa Ave & Behymer Ave | Existing Storage | | - | - | | - | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | 174 | 210 | | 195 | 196 | | | 105 | | | 602 | |
| | | | PM | 113 | 377 | | 320 | 205 | | | 238 | | | 735 | |
| | | Near-Term With Master Plan Residential | AM | 192 | 212 | | 200 | 196 | | | 106 | | | 656 | |
| | | | PM | 122 | 387 | | 342 | 208 | | | 261 | | | 780 | |
| 12 | Clovis Ave & Herndon Ave | Existing Storage | | 200 | - | - | 230 | - | 185 | 240 | - | 240 | 250 | - | 150 |
| | | Near-Term With Master Plan Residential | AM | 118 | 134 | 54 | 141 | 143 | 206 | 136 | 283 | 55 | 109 | 424 | 118 |
| | | | PM | **318** | 320 | 188 | 236 | 137 | 47 | **403** | 550 | 129 | 221 | 557 | 81 |
| 17 | Sunnyside Ave & Nees Ave | Existing Storage | | - | - | - | - | - | | 50 | - | | 65 | - | |
| | | Near-Term With Development Residential | AM | 157 | 68 | 0 | 71 | 312 | | 38 | 247 | | 68 | 182 | |
| | | | PM | 182 | 245 | 9 | 31 | 184 | | 91 | 223 | | 65 | 232 | |
| | | Near-Term With Master Plan Residential | AM | 157 | 69 | 0 | 71 | 316 | | 38 | 253 | | 76 | 187 | |
| | | | PM | 182 | 252 | 12 | 31 | 186 | | 92 | 231 | | 67 | 236 | |
| 20 | Fowler Ave & Behymer Ave | Existing Storage | | - | - | | - | - | | - | - | - | - | - | |
| | | Near-Term With Development Residential | AM | 508 | 94 | | 3 | 74 | | 24 | 32 | 67 | 85 | 129 | |
| | | | PM | 599 | 60 | | 7 | 106 | | 42 | 220 | 74 | 83 | 137 | |
| | | Near-Term With Master Plan Residential | AM | 532 | 75 | | 0 | 74 | | 24 | 36 | 66 | 107 | 150 | |
| | | | PM | 615 | 47 | | 0 | 106 | | 42 | 288 | 75 | 106 | 156 | |
| 21 | Fowler Ave & Perrin Ave | Existing Storage | | | - | | - | - | | | | | - | | - |
| | | Near-Term With Development Residential | AM | | 505 | | 29 | 205 | | | | | 267 | | Shared |
| | | | PM | | 724 | | 67 | 160 | | | | | 303 | | Shared |
| | | Near-Term With Master Plan Residential | AM | | 577 | | 30 | 209 | | | | | 339 | | Shared |
| | | | PM | | 817 | | 82 | 163 | | | | | 376 | | Shared |
| 25 | Fowler Ave & Alluvial Ave | Existing Storage | | 230 | - | 100 | 135 | - | - | 130 | - | 135 | 145 | - | 70 |
| | | Near-Term With Development Residential | AM | **591** | 114 | 11 | 91 | 388 | 38 | 70 | 345 | 113 | **221** | 195 | 0 |
| | | | PM | 175 | 285 | 46 | 44 | 191 | 0 | 110 | 243 | 47 | 79 | 102 | 0 |
| | | Near-Term With Master Plan Residential | AM | **591** | 118 | 11 | 92 | 409 | 41 | 75 | 349 | 116 | **228** | 198 | 0 |
| | | | PM | 175 | 298 | 47 | 44 | 197 | 0 | 118 | 250 | 47 | 81 | 103 | 0 |
| 30 | Armstrong Ave & Shepherd Ave | Existing Storage | | - | | - | | | | | - | | 110 | - | |
| | | Near-Term With Development Residential | AM | 68 | | Shared | | | | | 125 | | 11 | 267 | |
| | | | PM | 35 | | Shared | | | | | 101 | | 15 | 167 | |
| | | Near-Term With Master Plan Residential | AM | 68 | | Shared | | | | | 129 | | 11 | 296 | |
| | | | PM | 36 | | Shared | | | | | 108 | | 16 | 180 | |
| 31 | Temperance Ave & Shepherd Ave | Existing Storage | | - | - | - | - | - | - | 280 | - | 130 | 100 | - | - |
| | | Near-Term With Development Residential | AM | 167 | 200 | 0 | 46 | 266 | 3 | 67 | 138 | 30 | 116 | 193 | 0 |
| | | | PM | 228 | 256 | 5 | 29 | 170 | 0 | 97 | 88 | 40 | 68 | 114 | 0 |
| | | Near-Term With Master Plan Residential | AM | 172 | 210 | 0 | 52 | 317 | 15 | 76 | 140 | 30 | 130 | 195 | 0 |
| | | | PM | 235 | 301 | 6 | 32 | 200 | 0 | 110 | 89 | 40 | 74 | 114 | 0 |
| 35 | Temperance Ave & SR 168 EB Ramps | Existing Storage | | | - | | 260 | 550 | | 1,550 | | 1,550 | | | |
| | | Near-Term With Development Residential | AM | | 420 | | 59 | 330 | | 198 | | 418 | | | |
| | | | PM | | 546 | | 57 | 226 | | 514 | | 432 | | | |
| | | Near-Term With Master Plan Residential | AM | | 422 | | 59 | 336 | | 206 | | 422 | | | |
| | | | PM | | 554 | | 57 | 230 | | 565 | | 437 | | | |
| 36 | Locan Ave & Shepherd Ave | Existing Storage | | | - | | | - | - | 245 | - | - | 100 | - | - |
| | | Near-Term With Development Residential | AM | | 45 | | | 89 | 12 | 23 | 64 | 0 | 14 | 85 | 0 |
| | | | PM | | 66 | | | 64 | 21 | 32 | 54 | 8 | 18 | 54 | 23 |
| | | Near-Term With Master Plan Residential | AM | | 46 | | | 105 | 17 | 24 | 65 | 0 | 15 | 86 | 0 |
| | | | PM | | 76 | | | 76 | 23 | 38 | 57 | 8 | 19 | 58 | 26 |
| 40 | De Wolf Ave & Owens Mountain Pkwy | Existing Storage | | | | | | - | | | - | | | - | |
| | | Near-Term With Development Residential | AM | | | | | 186 | | | 19 | | | 28 | |
| | | | PM | | | | | 43 | | | 6 | | | 115 | |
| | | Near-Term With Master Plan Residential | AM | | | | | 197 | | | 20 | | | 29 | |
| | | | PM | | | | | 45 | | | 6 | | | 121 | |
| 41 | Owens Mountain Pkwy & SR 168 | Existing Storage | | - | - | - | 415 | - | 415 | 850 | - | 525 | 575 | - | 450 |
| | | Near-Term With Development Residential | AM | 162 | 15 | 0 | 21 | 89 | 185 | 102 | 100 | 0 | 63 | 289 | 0 |
| | | | PM | 54 | 27 | 0 | 9 | 37 | 37 | 160 | 139 | 22 | 25 | 106 | 0 |
| | | Near-Term With Master Plan Residential | AM | 162 | 15 | 0 | 21 | 89 | 194 | 104 | 100 | 0 | 63 | 289 | 0 |
| | | | PM | 54 | 27 | 0 | 10 | 37 | 37 | 165 | 139 | 22 | 25 | 107 | 0 |

# APPENDIX D

## CRASH RECORDS SUMMARY

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

**Table D-1**
**CRASH SUMMARY 2019-2023**

| No. | Intersection | Number of Collisions | Type of Collision | | | | | | | Severity | | | Type of Violation | | | | | | Involved | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Broadside | Rear End | Head On | Object | Sideswipe | Other | Overturned | Fatal | Injury | Property Damage Only | Traffic Signals and Signs | Right of Way | Unsafe Speed | Other | Improper Turn | Driving Under Influence | Other Motor Vehicle | Fixed Object | Bicycle/Pedestrian |
| 1 | Willow/International | 6 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 3 | 0 | 1 | 5 | 0 | 1 |
| 2 | Willow/Behymer | 7 | 1 | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 6 | 2 | 0 | 3 | 1 | 1 | 0 | 6 | 1 | 0 |
| 3 | Willow/Shepherd | 17 | 7 | 6 | 0 | 1 | 3 | 0 | 0 | 0 | 7 | 10 | 4 | 3 | 5 | 4 | 0 | 1 | 14 | 1 | 2 |
| 4 | Minnewawa/International | 15 | 6 | 2 | 2 | 3 | 2 | 0 | 0 | 1 | 6 | 8 | 3 | 5 | 3 | 1 | 3 | 0 | 13 | 2 | 0 |
| 5 | Minnewawa/Behymer | 25 | 5 | 10 | 3 | 6 | 1 | 0 | 0 | 0 | 7 | 18 | 2 | 4 | 11 | 2 | 5 | 1 | 19 | 6 | 0 |
| 6 | Minnewawa/Shepherd | 14 | 5 | 4 | 2 | 1 | 2 | 0 | 0 | 1 | 6 | 7 | 4 | 1 | 3 | 3 | 0 | 3 | 13 | 1 | 0 |
| 7 | Clovis/International | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | Clovis/Behymer | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | Clovis/Shepherd | 5 | 2 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 3 | 2 | 0 | 2 | 1 | 0 | 1 | 1 | 5 | 0 | 0 |
| 10 | Clovis/Nees | 10 | 4 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 7 | 3 | 0 | 1 | 1 | 2 | 3 | 7 | 3 | 0 |
| 11 | Clovis/Alluvial | 10 | 2 | 3 | 2 | 1 | 2 | 0 | 0 | 0 | 5 | 5 | 3 | 2 | 3 | 1 | 1 | 0 | 9 | 1 | 0 |
| 12 | Clovis/Herndon | 47 | 9 | 17 | 1 | 4 | 16 | 1 | 0 | 0 | 12 | 32 | 11 | 6 | 15 | 11 | 7 | 2 | 42 | 4 | 1 |
| 13 | SR 168 EB Ramps/Herndon | 9 | 3 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 4 | 5 | 2 | 0 | 6 | 0 | 1 | 0 | 8 | 1 | 0 |
| 14 | SR 168 WB Ramps/Herndon | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 15 | Sunnyside/Behymer | 9 | 3 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 4 | 1 | 2 | 0 | 6 | 0 | 1 | 0 | 0 | 1 | 0 |
| 16 | Sunnyside/ Shepherd | 5 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 1 | 0 | 1 | 3 | 3 | 2 | 0 |
| 17 | Sunnyside/Nees | 13 | 9 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 9 | 7 | 3 | 1 | 2 | 0 | 0 | 12 | 2 | 0 |
| 18 | Sunnyside/Alluvial | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 19 | Sunnyside/Herndon | 24 | 7 | 11 | 0 | 3 | 3 | 0 | 0 | 0 | 8 | 16 | 4 | 2 | 8 | 6 | 3 | 1 | 21 | 3 | 0 |
| 20 | Fowler/Behymer | 8 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 6 | 1 | 2 | 0 | 2 | 3 | 0 | 4 | 3 | 1 |
| 21 | Fowler/Perrin | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 2 | 1 | 0 | 0 | 0 | 4 | 0 | 0 |
| 22 | Fowler/Shepherd | 12 | 3 | 2 | 3 | 3 | 0 | 1 | 0 | 0 | 6 | 6 | 1 | 3 | 1 | 3 | 4 | 0 | 8 | 4 | 0 |
| 23 | Fowler/Teague | 5 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 5 | 0 | 0 |
| 24 | Fowler/Nees | 5 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 3 | 1 | 0 | 1 | 6 | 0 | 0 |
| 25 | Fowler/Alluvial | 8 | 2 | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 2 | 1 | 0 | 0 | 3 | 1 | 4 | 3 | 0 |
| 26 | Fowler/SR 168 WB Ramps | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | Fowler/SR 168 EB Ramps | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 28 | Perrin/Burgan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | Burgan/Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | Armstrong/Shepherd | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 31 | Temperance/Shepherd | 6 | 1 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 5 | 0 | 1 | 1 | 1 | 2 | 1 | 2 | 4 | 0 |
| 32 | Temperance/Nees | 7 | 3 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 3 | 3 | 1 | 0 | 2 | 0 | 1 | 5 | 2 | 0 |
| 33 | Temperance/Alluvial/ | 8 | 3 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 3 | 5 | 0 | 2 | 2 | 3 | 1 | 0 | 7 | 1 | 0 |
| 34 | Temperance/SR 168 WB Ramps | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 | Temperance/SR168 EB Ramps | 7 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 6 | 1 | 0 | 0 | 6 | 1 | 0 |
| 36 | Locan/Shepherd | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 37 | Locan/Nees | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 38 | Locan/Owens Mountain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | De Wolf/Shepherd | 3 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 3 | 0 |
| 40 | De Wolf/Owens Mountain | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 41 | Owens Mountain/SR 168 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 42 | Shepherd/ SR 168 | 13 | 6 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 6 | 7 | 0 | 5 | 3 | 1 | 4 | 0 | 9 | 4 | 0 |
| 43 | Project Access South/Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | Project Access North/ Behymer | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |